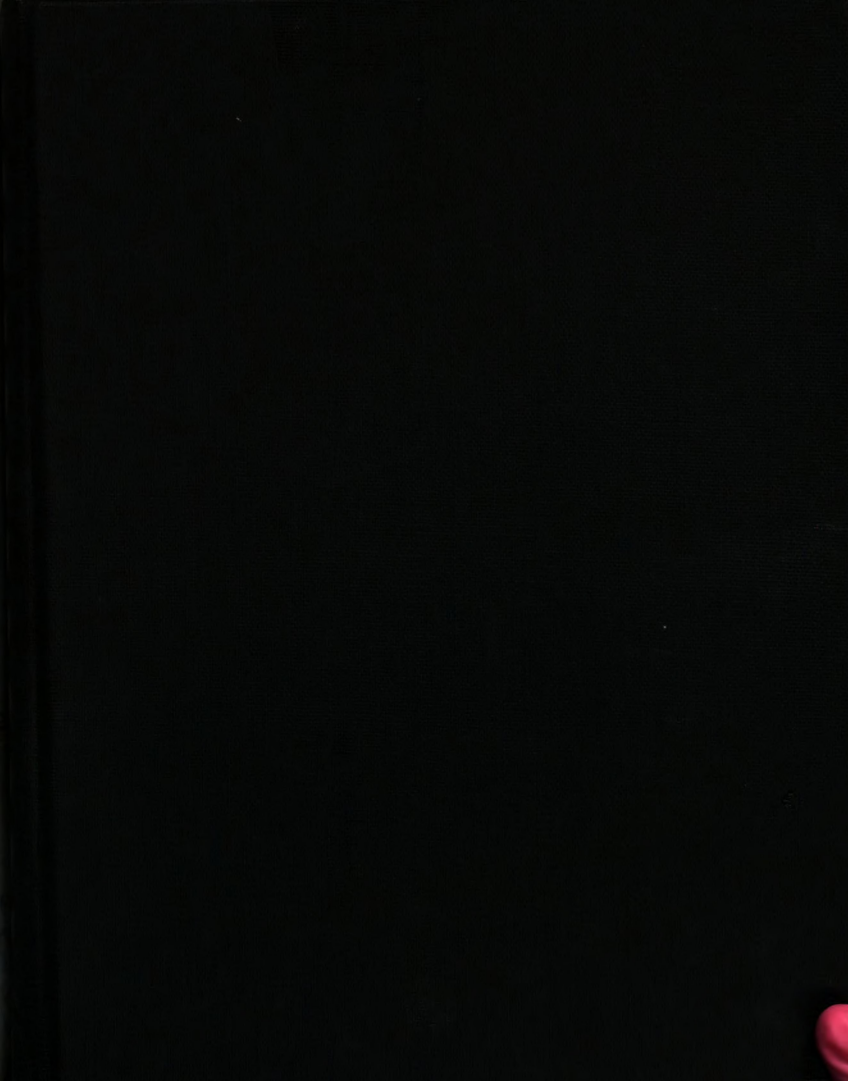






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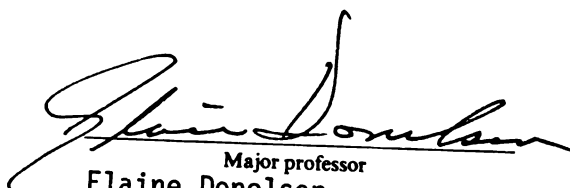
CORRELATES OF PERFORMANCE OF BREAST
SELF-EXAMINATION IN COLLEGE WOMEN

presented by

Patricia Ponto

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Psychology



Major professor
Elaine Donelson

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CORRELATES OF PERFORMANCE OF BREAST SELF-EXAMINATION
IN COLLEGE WOMEN

by

Patricia Ponto

A DISSERTATION

Submitted to
Michigan State University
in partial fulfillment of the requirements
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ABSTRACT

CORRELATES OF BREAST SELF-EXAMINATION IN COLLEGE WOMEN

By

Patricia Ponto

The purpose of this research was to explore the variables that are related to the frequency of breast self-examination (BSE) by young women. The sample consisted of 195 college women. The following four factors were investigated, as measured by the instruments indicated: a lack of a general preventive health orientation (Lau's 1982 scale); difficulties with the specific health behavior of BSE (Stillman's 1977 scale); the lack of a general positive body image (Secord and Jourard's 1953 Body Cathexis Scale), and problems arising from the focus on the particular body part of the breasts (scales devised by the researcher). Pearson product-moment correlations and a multiple regression analysis were employed in testing the hypotheses.

The major conclusion of this study is that frequency of BSE for these college women can be predicted best by an equation utilizing the following five variables: accurate knowledge and performance of the basic steps involved in the procedure, embarrassment about the procedure, a lack of perceived susceptibility to breast cancer, acquaintance with a breast cancer victim, and the impact of sexual experiences on views of breasts. Frequency of BSE was also positively correlated at statistically significant levels with knowledge of the

increased risk for breast cancer if relatives have had the disease, confidence in competence to perform BSE, and the importance of her breasts to the subject.

Practical implications for BSE instruction of college women were discussed. Practical and theoretical directions for future research were proposed.

ACKNOWLEDGMENTS

Everyone I know told me that writing a dissertation was much easier than writing a master's thesis because one was an experienced researcher and, presumably, aware of any conflicts with competence, discipline, or whatever . . . Unfortunately, that was not the case for me; but I learned a good deal once again. Many people helped with or witnessed that learning in important ways. I want to thank some of them particularly:

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It's hard to believe that I'm finished.

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INTRODUCTION

Breast cancer is the number one cancer killer of women, accounting for slightly more than a quarter of the malignancies in women (American Cancer Society, 1980). It is the leading cause of death in women aged 40 to 44 (American Cancer Society, 1978) and ranks second to heart disease as the cause of death in women of all ages (National Cancer Institute, 1980). One woman out of every eleven will develop breast cancer at some time during her life (American Cancer Society, 1980).

There is no known definitive cure for breast cancer.^{*} The best hope for decreasing mortality and improving prognosis lies in early detection of the disease. At present, there are three commonly available methods of detection. They are: 1) physical examination of^{BSE} the breast by the woman or her physician; 2) mammography, a soft tissue x-ray of the breast; and 3) thermography, an infra-red temperature picture of the breast. Though there is considerable dispute about the relative efficacy of these methods, breast self-examination (hereafter, BSE) is usually viewed as a simple, economical, safe, consumer-involved aid to early detection (Keller, George, and Podell, 1980; Lowe, 1977; Miller, Norcross and Bass, 1980). As such, BSE has been strongly promoted, especially over the last decade, by such major health organizations as the American Cancer Society, the National Cancer Institute, and Planned Parenthood.

During that time period, significant strides have been made in informing women of the importance of BSE and in increasing the number of women who perform BSE on at least an occasional basis. There is still, however, much work to be done, as indicated by a National Cancer Institute survey completed in 1979. The results of that poll revealed that 96% of the women surveyed knew of BSE, 77% had practiced it at least once and 40% practiced it monthly. Those percentages were higher than the results from a similar poll done in 1973 that indicated 77% of the women surveyed knew of BSE, 55% had performed it at least once, and 18% performed it on a regular monthly basis.

The improvement in the level of women's knowledge and performance in the five years between polls is clear. The needs to increase the 40% of regular monthly performance, to understand why 37% of the women who have performed BSE do not continue to do so, and to discover why 56% of the women who are informed of BSE do not regularly practice it are clear to the majority of those involved in this work (Hall, Goldstein & Stein, 1977; Lowe, 1977; Miller, Norcross & Bass, 1980; National Cancer Institute, 1980; Nichols & Waters, 1983). Research is needed in such areas as the reasons for performance and non-performance, the variables that differentiate performers from non-performers, and the most effective educational techniques. It is the purpose of the current study to address the first two of these issues with respect to a population of college-aged women.

REVIEW OF THE LITERATURE

Breast Self-Examination

Much of the research that has been done in the area of BSE has been conducted in the last ten years and has centered on identification of demographic variables and other correlates that differentiate performers from non-performers and on documentation of the reasons for non-performance (Reddy, 1984; Zapka & Mamon, 1982). Examination of these investigations reveal several broad areas of interest: demographics, other health behaviors, awareness of breast cancer, awareness of BSE, and stated reasons for non-performance.

The major demographic variables that have been investigated are age, education, socioeconomic status, and marital status. From her review of the literature, Reddy (1984) concludes that "Demographics . . . appear to bear no consistent relationship to BSE" (p. 3).

The most frequent finding in the investigation of the relationship between BSE and age shows younger women performing BSE more often than those older. In a large scale study (N=726), Marchant and Neuroth (1978) found women under 40 more likely to examine their breasts than those over 40. In a second large scale study (N=1,216) done by Senie, Rose, Lesser, and Kinne (1981), pre-menopausal women were more likely to perform BSE than those older. Similar associations have been found by Celentano and Holtzman (1983), Nichols and Waters (1983), and Roberts, French, and Duffy (1984). Scilken

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(1977) and Roach and O'Fallon (1983) found, in contrast, no link between BSE performance and age of subjects. Edwards (1980), Miller, Norcross, and Bass (1980), and Stillman (1977), found higher BSE performance rates among their over 40 subjects. Finally, Howe (1981) in another large scale study ($N=708$) found the highest percentage of women who never perform BSE and the highest percentage of those who perform it more frequently than once a month in her subjects over the age of 40.

The variable of educational level has shown similar discrepant findings. The majority of studies link frequency of BSE to higher educational level: Howe (1981), Lowe (1979), Miller et al. (1980), and Senie et al. (1981). Scilken (1977) did not find a relationship with education, but states that such a difference may have been obscured by her requirement of a high school diploma for participation in the study. Roach and O'Fallon (1983) also report that educational level and BSE were not significantly related in their investigation. Finally, Edwards (1980) found the highest frequency of BSE among her subjects with less than a high school education.

There was no significant relationship between socioeconomic status and BSE frequency found in studies by Huguley and Brown (1981), McCusker and Morrow (1980), and Reeder, Berkanovic, and Marcus (1980). Celentano and Holtzman (1983) did find such a link with "more affluent women" reporting more frequent BSE (p. 1321).

A statistically significant relationship between BSE performance and marital status was found by McCusker and Morrow (1980), Senie et al. (1981), and Howe (1980). In the first two studies, those women who were presently married reported more frequent BSE performance than

those who were not. The third study revealed a significant association between marital status and lump-detecting ability, with those presently married showing greater lump-detecting ability than those not. Celentano and Holtzman (1983) did not find a difference in BSE performance based on marital status.

In summary, this review of the literature suggests that the demographic correlates of age and education show the most consistent relationship to BSE.

A second broad area of correlates of BSE that has been investigated relatively heavily is that of other health behaviors. Senie et al. (1981) found a link between frequency of medical examinations and frequency of BSE. Howe (1981) found significant positive relationships between frequency of BSE and both medical preventive health behaviors (defined as preventive health behaviors that require a visit to a physician) and autonomous preventive health behaviors (defined as those health practices that can occur independent of medical visits). Lowe (1979) studied the particulars of medical consultation and found three categories of women who perform BSE less often: ⁽¹⁾ those who are less likely to visit a gynecologist than another type of physician, ⁽²⁾ those whose doctors less frequently examine their breasts for them, ⁽³⁾ and those who feel less comfortable discussing health concerns with their physicians. McCusker and Morrow (1980) report a link between frequency of BSE and subjects' satisfaction with health care and the existence of a preventive orientation in their health care providers. In contrast, Celentano and Holtzman (1983) found no link between medical care utilization (including visiting an obstetrician-gynecologist or having

a personal physician) and frequency of BSE.

Investigating other specific health behaviors, Haran, Hobbs, and Pendleton (1981) found a link between BSE and the requests for chest x-rays and cervical smears. They conclude: "It seems fairly clear, therefore, that current awareness of BSE is linked with previous health behavior where the initiative for seeking screening rests with the individual" (p.107). Roberts, et al. (1984) found knowledge of BSE was related to the following previous health care behaviors: wearing of seatbelts, regular dental check-ups, and seeking of cervical smears.

A third group of correlates that has been investigated centers on awareness of breast cancer: knowledge of the disease, perceived vulnerability to it, and a personal or family history of it.

Knowledge of breast cancer, particularly the risk factors it involves and its symptoms, comprises the first of these factors. Again, the findings are inconsistent. Knowledge of breast cancer was found to be related to BSE performance by Spring and Kosch (1982) in their sample of benign breast disease patients. Roberts et al. (1984) investigated general knowledge of breast cancer and its relationship to "know-how" of BSE technique. They concluded: "There was a marked and significant asymmetry in the relationship between the two types of score, indicating that good general knowledge (of breast cancer) was not always matched by good know-how (of breast self-examination)" (p. 795). Focusing more specifically on breast cancer symptoms, Celentano and Holtzman (1983) found that knowledge of warning signs was unrelated to BSE competence in their study. In contrast, awareness of risk factors was found to be related to BSE performance by Olenn

(1981) and Stromborg (1981). Stromborg notes the particular importance of knowledge of genetic predisposition, stating that this risk factor is one of the most important and most commonly recognized.

Issues of susceptibility and vulnerability to breast cancer have also been investigated. Spring and Kosch (1982) found perceived vulnerability to be an influential factor in BSE performance, particularly in their sample of benign breast disease patients. Edwards (1980) explains her finding that older women are more frequent practitioners by pointing to the possibility that younger subjects might not perceive the same degree of susceptibility. Celentano and Holtzmann (1983), however, found BSE competence to be unrelated to perceived susceptibility.

Another correlate that has been investigated is the individual's personal history with breast problems/disease and familial history with breast cancer. Roberts et al. (1984) found that their subjects with personal experience with breast problems knew more about breast cancer and about BSE technique than those without that experience. Senie et al. (1981) also found a significant relationship between BSE frequency and prior benign breast disease. Senie et al. and Huguley and Brown (1981) found that a history of breast cancer in the family related significantly to BSE practice and frequency. In contrast, Roach and O'Fallon (1983) found no association between frequency of BSE and prior contact with cancer. Finally, Worden et al. (1983) found that women with a family history of breast cancer knew more about breast cancer than other women, but performed BSE slightly less frequently than the others.

In summary, the relationship between frequency of BSE and the

three variables involving awareness of breast cancer (¹knowledge, ²perceived vulnerability, ³personal or family history) is inconsistent.

⁴Awareness of BSE is the fourth major area of investigation and includes three variables: knowledge of BSE, confidence in competence to perform BSE, and social influence to perform it. The "know-how" score of the Roberts et al. (1984) study cited earlier introduces the important variable of knowledge of the breast self-examination procedure. A further finding of the Roberts et al. study was that women who had tried BSE showed significantly higher "know-how" scores than those who had not. In contrast, Edwards (1980) did not find a significant relationship between knowledge of BSE and frequency. Spring and Kosch (1982) note very generally that "knowledge of BSE influences behavior" and Kelly (1979) cites a lack of knowledge of the procedure as a major reason given by her subjects for their non-performance of BSE. Further consideration of knowledge of technique and efforts to measure it appears in a later section concerning frequency and proficiency.

Confidence in ability to perform BSE or to detect breast abnormality has been relatively consistently associated with BSE frequency. From her review of the literature, Reddy (1984) concludes that personal confidence about performing the technique is an important factor in determining both BSE frequency and proficiency. Spring and Kosch (1982) agree, citing confidence as one of three major factors (with perceived vulnerability and knowledge of the procedure) influencing performance of BSE. Celentano and Holtzmann (1983), Edwards (1980), Keller et al. (1980), and Zapka and Mamon (1982) also report statistically significant associations between BSE frequency

and level of confidence. Zapka and Mamon add a note of caution, however. They found that few of their subjects who did BSE and reported confidence in their technique actually performed the procedure correctly and thoroughly. (Their evaluation of performance focused on the number of positions and minutes involved in the examination.) Howe (1980) reports the only negative association between confidence and BSE performance. It is a difference that underscores Zapka and Mamon's point. She found no statistically significant association between women's confidence in noting breast cancer symptoms and their lump detection ability.

The issue of social influence to perform BSE has been alluded to frequently but rarely studied. Howe (1981) found that 10% of her sample experienced no social influence to perform BSE, and 38% had only one or two people who influenced their practice of BSE. She wonders if "this lack of social influence and support may leave women unsure about the acceptability or normativeness of doing BSE" (p. 254). Worden et al. (1982) attribute the success of their educational programs to the supportive women's club contexts in which they took place. Their explanation is as follows: "Perhaps a woman in the audience felt some unusually strong peer influence as she gathered with friends in a neighbor's home, discussed her views on personal health problems, and for weeks afterward was reminded of her experience as she saw her friends in her daily routine" (p. 338). They suggest that future skills training be conducted in a context in which influential peers show high social approval, so that BSE comes to be perceived as a social norm and to be motivated by that perception.

In summary, confidence shows a relatively consistent, positive relationship with reported BSE frequency. Social influence has not been studied often, but there is some indication that a lack of it is associated with non-performance of BSE. The relationship between knowledge of BSE and frequency of performance is more inconsistent.

The final area of investigation to be reviewed has, as its focus, stated reasons for non-performance. A number of variables considered above (lack of perceived vulnerability to breast cancer, lack of knowledge of BSE technique, lack of confidence in competence to perform BSE) are cited as reasons for non-performance. In addition, the following three factors have been stated frequently and investigated: inhibitions about BSE, forgetfulness, and a factor that combines fear, anxiety, and worry.

Summarizing the research on inhibitions about performing BSE, Reddy (1984) notes that embarrassment about BSE has been "inconsistently associated" with BSE performance. Zapka and Mamon found modesty to be an important personal barrier to BSE performance. They found that their subjects who strongly disagreed with the statements that examining their breasts was embarrassing, that they were uncomfortable touching their breasts, and that they were embarrassed about a physician examining their breasts, were more likely to perform BSE regularly than those who agreed with those statements. Worden and his colleagues (1982) described women admitting to inhibitions as a major sensitive subgroup. They found that these women were as informed as others about breast cancer and that they increased BSE frequency as a result of a persuasive appeals educational program; but that their increase in frequency was not as

large as the non-inhibited group. Worden and his colleagues suggest that an important research direction is an examination of the "underlying factors that may aid in persuading such women to perform BSE" (p. 338). Howe (1981) found modesty (operationalized as discomfort talking about breast concerns) to have a nearly linear negative association with BSE frequency. Stillman (1977) and Stromborg (1981) also found a negative relationship between BSE frequency and embarrassment about the procedure. Miller, Norcross, and Bass (1980) broaden this area somewhat by concluding that not only examination by self and others, but also uneasiness about the body in general are important areas of investigation in understanding BSE. In contrast to Reddy's conclusion, then, this review of the literature suggests that embarrassment is consistently related to non-performance of BSE.

Forgetfulness has also been cited frequently as a factor in non-performance of BSE. Olenn (1981), for instance, found forgetfulness and lack of confidence to be the two major reasons for irregular BSE practice in her sample of women taught the procedure by a nurse as part of a visit to a physician. Turnbull (1978) and Keller, George, and Podell (1980) surveyed women of varied ages and report that approximately two-thirds offered forgetfulness as a reason for their non-performance of BSE. Similar results have been found with college students (Medical World News, 1980). Carstenson and O'Grady's (1980) investigation of high school students revealed that forgetfulness was the major reason for non-compliance with BSE. These researchers point to a contrast between their young subjects and older women who "voiced fears or embarrassment as reasons for

non-compliance" (p. 1294). Keller and her colleagues are intrigued by the role of forgetfulness in the non-performance of BSE and hypothesize that it may be related to the next factor to be considered in this review of the literature, that of fear, anxiety, and worry.

About the final reason of fear, anxiety, and worry, Reddy (1984) concludes that "Fears of discovering breast cancer and breast loss have been found to impede BSE in some studies, but not in others" (p. 4). Researchers reporting that BSE is impeded by this factor include Keller, George, and Podell (1982), Worden et al. (1982), Kelly (1978), Stillman (1977), and Turnbull (1978). Keller and her colleagues cite fear and anxiety as one of three major factors in non-performance (along with ignorance about the importance of BSE and lack of specific knowledge about BSE). Worden and his colleagues describe anxieties related to breast cancer and breast cancer treatment as a major "disincentive" to BSE (p. 338). Kelly, Stillman, and Turnbull each found that about one-fourth (26.8%, 22%, 23%, respectively) of their subjects cited the frightening nature of the examination or the worry that it caused as reasons for non-performance.

In contrast, Haran, Hobbs, and Pendleton (1981), who expected to find current anxiety concerning breast cancer would be inversely related to awareness of BSE, actually found the opposite: a "slight association" between being worried about breast cancer and higher awareness of BSE (p. 107). Similarly, Siero, Kok, and Pruyn (1984) found that intention to perform BSE increased as fear of breast cancer increased. They did not observe such a direct relationship to behavior, but conclude that "there are no clear indications that fear

inhibits compliance with the recommended behavior" (p. 887). Again, as Reddy indicates, the findings linking performance of BSE with the variable of fear, anxiety, and worry are inconsistent.

The areas of investigation into the non-performance of BSE obviously cover a great deal of information. The information can be organized into several major approaches to understanding the problem. The first approach, which results from the investigation of the relationship between BSE and other health behaviors, is that a lack of a preventive health orientation may be a major factor in the non-performance of BSE. The second approach attempts to draw together the various findings about breast cancer and BSE and suggests that non-performance may result not so much from a lack of a general health orientation, but rather from specific problems with breast cancer or BSE. A third approach is derived from the stated reasons for non-performance of inhibition, forgetfulness, and fear, anxiety, and worry. These variables are particularly intriguing to the researcher as they appear to be less clearcut or definite than the earlier factors which focus on behaviors or awareness of factual information. These final variables are also interesting in that at least two are affect-laden (inhibition and fear, anxiety, and worry), while the third may be if Keller and her associates are accurate in their assessment that the commonly reported reason of forgetfulness is related to fear, anxiety, and worry. The more vague and affective tone of these factors suggests the interesting hypothesis that underlying psychological processes may figure significantly in women's failure to perform BSE.

That notion is supported and extended by the authors of the

National Cancer Institute publication, Breast Cancer Digest. In 1979, they wrote:

Much more research needs to be conducted on the psychological variables that influence women's avoidance of BSE. Studies are needed to document what subconscious factors influence a woman's emotional response to information about breast cancer and to suggestions concerning detection processes (p. 60).

The extension of the notion is, then, that the psychological factors or processes may include unconscious elements.

This approach also gains support from studies conducted in the related area of delay in seeking medical care for breast abnormalities. Delay, especially that between the woman's original awareness of symptoms and her pursuit of medical advice, is regarded by most investigators as a very significant problem area. Gold (1964), Buls, Jones, Bennett and Chan (1976) and Margarey, Todd, and Blizard (1977) all conclude that underlying psychological processes are an important factor in delay. Margarey et al. write:

"the practice of BSE and the delay of women with breast symptoms are determined by factors beyond conscious awareness and control"

(p. 231). They suggest that in future research about the practice of BSE, "attention must be directed towards non-rational unconscious factors" (p. 234).

Clues about the underlying processes or unconscious factors involved in women's avoidance of BSE might be discovered by exploring women's perceptions of their breasts and experiences with them. Such investigation is supported by the work that has been done on the importance of satisfaction and experience with bodies to body image and view of the self. That information will be presented in a following section as support for the exploration of breast

perceptions and experiences and for two additional reasons. First, at least one study (Scilken, 1977) has linked body image to BSE; investigation of body image in the current study could, then, serve as a replication of that work. Secondly, investigation of general body image may serve as an important comparison point for the more specific focus, the breasts. The question underlying this comparison is: Is overall body image the important underlying variable or is there something about this specific body part (the breasts) that influences women to avoid BSE?

In the current study, the problem of lack of performance of BSE by this group of young women will be approached from four perspectives: their general preventive health orientation, their views toward BSE specifically, their feelings about their bodies in general, and their descriptions of their perceptions and experiences with their breasts in particular.

The difficulties with this health practice have already been described. In addition, some of the work done in the general preventive health orientation area has been introduced. The remainder of the literature review will focus first on the theoretical underpinnings of the general preventive health orientation and its specific application to BSE. A consideration of the impact of body image and an introduction to the important perceptions of and experiences with breasts will follow.

Preventive Health Orientation

Full understanding of BSE must place it in its context as a preventive health behavior. A theoretical framework for explaining preventive health behavior has been developed by Hochbaum,

Leventhal, Kegeles and Rosenstock (cited in Maiman and Becker, 1974). Since its development, the framework, called the Health Belief Model (HBM), has served as the theoretical base for a number of studies related not only to preventive health behaviors (Rosenstock, 1974), but to illness (Kirscht, 1974), the sick role (Becker, 1974), and chronic illness behavior (Kasl, 1974).

The model proposes that for a person to take a preventive health action, he/she must 1) be in a psychological state of readiness to take action and 2) believe that the specific action would be beneficial. The psychological state of readiness contains two elements: the person must believe that he/she is personally susceptible to the disease (perceived susceptibility) and that the disease would have at least moderately serious consequences (perceived severity). The benefits of the specific action could include either reducing the susceptibility to the disease or reducing the seriousness of the disease should it occur (perceived benefits). The model further proposes that if a person believes himself/herself to be susceptible to a disease that is also serious in consequences, a force exists motivating him/her to action. Whether the action is taken depends on the individual's subjective beliefs about its effectiveness and benefits. Thus, negative aspects of the action (e.g., pain or embarrassment) may prevent positive action from occurring, even when readiness to act (the combination of perceived susceptibility and severity) is high.

In addition to the awareness of perceived susceptibility, severity, and benefits, the model proposes that a cue to action is necessary to trigger the desired health behavior. The cue can be

internal (e.g., a symptom) or external (e.g., advertising). The intensity of the cue necessary for action varies according to the individual's level of readiness.

Stillman (1977) and Hallal (1982) have applied the Health Belief Model to breast self-examination. From her review of the literature, Hallal concluded that the HBM factor of perceived severity need not be studied because other research has demonstrated that cancer is always perceived as maximally serious (Haefner and Kirscht, 1970; Kegeles, Kirscht, Haefner and Rosenstock, 1965). She and Stillman both investigated the relationship between BSE performance and perceived susceptibility to breast cancer and perceived benefits of BSE.

Stillman studied 122 women aged 20-59. She designed an instrument based on the HBM that measures perceived susceptibility to breast cancer and perceived benefits of BSE. She found that 87% of the sample scored in the high range for perceived susceptibility to breast cancer and 97% in the high range for perceived benefits of BSE. Thus, there was little discrimination among subjects on these variables. The analysis of the relationships between these high beliefs and practice rates revealed, interestingly, that approximately 1/3 of the subjects had high beliefs and high practice rates, but about 1/4 had high beliefs and never practiced BSE. One of the major conclusions of Stillman's study, then, was that it is difficult to "state unequivocally that beliefs cause behavior in this situation" (1977, p. 126). Stillman notes further that 65% of her subjects who showed high perceived susceptibility practiced BSE to some extent while 85% of those with high perceived benefits beliefs did so.

Hallal's sample consisted of 207 women aged 18 years or older. She used Stillman's health beliefs instrument and found a significant positive correlation between practicing BSE and obtaining higher scores on both subscales. She reports a "more impressive level of significance" (p. 141) for the "Perceived Benefits" scale than for the "Perceived Susceptibility" scale. She concludes that some women who hold a high belief in susceptibility to breast cancer may be so frightened by their belief that they are nonpracticers as a form of denial.

Both Stillman and Hallal studied a wider age range of women than will be included in the current investigation. It will be interesting to compare the responses of these late adolescents/young women to those they obtained. Of particular interest should be the perceived susceptibility ratings. It seems unlikely that these young women will perceive themselves as particularly susceptible to breast cancer or any other physical illness. Their lack of perceived susceptibility (based largely on an accurate reading of epidemiology) may interfere significantly with their development of a preventive health orientation generally and, more specifically, with the practice of BSE.

Body Image

The concept of body image is an important one in both neurological and psychological/psychiatric theory. The original source of information on body image was the neurological clinic. Neurologists were interested in the distortions in body image of persons with disease conditions and amputations. The interest of psychology and psychiatry in body image initially centered on the

body image distortions of persons with psychiatric disorders like schizophrenia.

A review of the body image research by Schilder (1950) revealed that body image is developed from sensory impressions, muscle tone, perception of gravity, pain, action, and interest of others toward the body, and any other clues the individual receives about his/her body.

Fisher and Cleveland (1968) did a second major review of the body image literature. They defined body image as "an image of his (sic) own body which the individual has evolved through experience" (p. x). The image evolves, in their opinion, from the many experiences of the individual with his/her body and through the reactions of others to the body. Fisher and Cleveland, then, emphasized the importance of psychological factors in the formation of body image.

Another approach to the way persons perceive their bodies is that taken by Secord and Jourard (1953). Believing that an "individual's attitudes towards his (sic) body are of crucial importance to any comprehensive theory of personality" (p. 343), these authors have focused on body cathexis, the degree of expressed feeling of satisfaction with the various part or processes of the body. They hypothesized that feelings about the body are commensurate with feelings about the self. Negative feelings are, then, associated with anxiety and feelings of insecurity involving the self.

Scilken (1977) employed this hypothesis of Secord and Jourard in her investigation of BSE. She extended the idea of a negative relationship between body satisfaction and anxiety over the body to suggest that the less anxious person, who has more positive feelings about her body, "will not find self-examination excessively

threatening" (p. 20). Scilken found the link that she predicted between BSE and body cathexis; i.e., that women who self-examined their breasts expressed more satisfaction with their bodies than those who did not. This finding was, in fact, her single significant result. Scilken concludes and this researcher concurs that:

It seems reasonable that a person who expresses satisfaction with her body would behave in a manner congruent with maintaining the body in a healthy state. Since she is generally satisfied with her body, the risk of finding an irregularity would not be a cause for excessive concern (1977, p. 21).

Reasoning in a fashion similar to Scilken and in the related area of view of self, Hallal (1982) investigated the impact of self-concept on BSE practice. She hypothesized that "a person with a higher self-concept level would be more concerned with health in a general way" (p. 138) and, thus, likely to have a more positive attitude toward good health practices (including early detection behaviors like BSE). She also hypothesized that a "person with a higher self-concept level might perceive the bodily touching necessary to perform BSE as a nonembarrassing activity" (p. 138). Her findings revealed a significant positive correlation between frequency of BSE and overall self-esteem. In addition, the measure of overall self-esteem was the strongest predictor of BSE practice, accounting for 12% of the variance in her sample. The instrument Hallal used (Tennessee Self-Concept Scale) also allowed her to differentiate various aspects of self-concept. In support of Scilken's work with body image, Hallal, too, found a significant, positive correlation between physical self-esteem and frequency of BSE.

Perceptions of and Experiences with Breasts

There is very little research information directly concerning women and their perceptions of and experiences with their breasts. There appears to be some awareness among researchers of our culture's preoccupation with breasts, especially with an idealized sexual view of them. The implications of the preoccupation and the impact of the idealized sexual view on women and their perceptions of their breasts have been studied rarely, however. The major experiences of young women with their breasts are breast development at puberty and, possibly, sexual experience that involves breast manipulation. The importance of early breast development has been a subject of some theoretical concern, but has not been researched empirically to any large extent. There is even less theoretical and empirical information relating sexual experiences to views of breasts. A third potentially important experience with breasts is knowing a breast cancer victim and sharing that experience. Although the link between BSE and familial history of breast cancer has been investigated, a more detailed exploration of the impact of that experience has not been done. Mastectomy has been studied more extensively. Information about its impact on the woman herself may be useful in understanding the impact of the experience on those close to her.

The view of the breast that predominates in this culture, if one is to judge on the basis of magazines, billboards, and television commercials, is an idealized sexual view. Jesser (1971), whose major interest is breast attention, underscores the media's use and the culture's preoccupation with breasts: "It is undeniable that breast display, concern, and attention are widely institutionalized

activities in our society and that the motifs suggesting this are frequently found in the plethora of messages from the mass media" (p. 13). Margaret Mead (1949) also commented on this culture's emphasis on breasts. Although observing a universal awareness of the significance of breast development in feminine psychology, she found that in the United States, the breast is so idealized that it has become the primary source of identification with the female role.

Our culture's preoccupation with the ideal sexual view of breasts appears to be widely acknowledged, but not studied directly or rigorously. A unique, non-scientific investigation of breasts is found in one of the few books devoted exclusively to breasts, which is entitled Breasts: Women Speak about their Breasts and their Lives (Ayalah & Weinstock, 1979). This book began as a photographic essay when the authors became aware of the extensive use of idealized breasts in the media world of advertising in the United States. They set out to produce a photographic catalog of real breasts of women of all ages as "an antidote to the standard media images" (p. 10) and as an effort to "help nurture in women an acceptance of their own breasts and an appreciation of the uniqueness and dignity of individual bodies" (p. 10). As they started their work, the authors found that the women who were their subjects wanted to talk about themselves and their experiences with their breasts during the photo sessions and that one remark would lead to a flood of other associations, including the apparent surfacing of many buried feelings and memories. Listening to the women speak, the authors were struck by the link between women's feelings about their breasts and about themselves. They noted "numerous and varied instances of causality which linked a

woman's breasts to her personality or life-style" (p. 24). They were also "amazed at how basic and profoundly fundamental the experience of having breasts actually was in women's lives" (p. 24). Their original plan for the book was modified to include the women's stories as the authors "realized our book was not only about women's breasts, but also about women's lives today, and the timeless experience of being a woman" (p. 24).

The importance of breasts to women's views of themselves and their lives is, then, emphasized by Ayalah and Weinstock. The notion was also presented by Weiss (1976). She quotes an unnamed psychiatrist as stating "A woman's attitude toward her breasts is a localized focus of her feelings about herself as a whole. Her feelings are related to her entire background, family attitudes, and emotional development" (p. 15). Weiss herself comments further: "A woman's reaction to her breasts is a complex emotion. It affects her total self-image, her sexual view of herself, and her reaction to other women as well as men" (p. 9). Weiss, then, underscores Ayalah and Weinstock's impression of the distinct importance of a woman's feelings about her breasts to her sense of herself. She suggests, in addition, the complexity of those feelings and the interpersonal, as well as the intrapsychic, dimension of the feelings.

The theoretical notion that links women's feelings about their breasts to their concept of themselves has received some empirical support from a study of college women by Lerner, Orlos, and Knapp (1976). They found that the ratings these women gave their breasts served as a significant predictor of their self-concept. In their multiple regression analysis, chest was the third body part to enter

the equation (after face and waist) predicting self-concept. It accounted for an additional 2.08% of the variance (the entire prediction equation, which involved five variables, accounted for 22.32% of the variance).

In addition to the relationship between perception of breasts and self-concept, a second important aspect of breast perceptions involves a consideration of the psychological impact of the culture's ideal sexual view on women's views of themselves.

Again, this aspect of breasts has not been well studied. From the stories the women tell in the Ayalah and Weinstock book, it seems that many women, probably most, spend a good bit of time at some point in their lives thinking about the discrepancy between this current cultural ideal and their own very real breasts. In two empirical studies, one focusing on reasons for mammoplasty and the other on recalled breast development experiences, the importance of the ideal view is also considered.

Women seeking augmentation mammoplasty essentially choose surgery in an effort to more closely approximate the sexual ideal. Beale, Lisper, and Palm (1980) studied sixty-four women about to undergo augmentation mammoplasty because of small or sagging breasts. They found that these women lacked the ability to view their own bodies realistically and connected the appearance of their breasts to feeling unfeminine. The authors also found that the women seeking augmentation surgery compared themselves and their bodies to others much more than did the twenty-five women in their control group. The women, then, appeared to be both preoccupied with the sexual ideal and convinced of its relationship to their own experience of femininity.

In studying college women who were recalling their adolescent experience of breast development, Kelly and Menking (1979) found that nearly half of the women were dissatisfied with their breasts, mostly because of size. They also found that nearly half of their subjects had an ideal in advance of or during their own breast development and that those without an early ideal view were more likely to feel satisfied with their breasts at present. Finally, they found that observation of other real breasts — most importantly, those of the subjects' mothers — seemed to lead to more realistic expectations. These data, then, also suggest the possible negative effects of an ideal view and the importance of a more realistic appraisal.

Having looked at perceptions of breasts and, in particular, the culture's idealized sexual view of them, the three experiences with breasts will be considered next. As noted earlier, the impact of breast development, the first of the three experiences, has received some theoretical consideration, but little empirical investigation. Benedek (1979) emphasized the latter in her comments about the dilemmas in research on female adolescent development: "More data need to be collected about adolescent girls' attitudes toward breast development, a long-neglected topic in psychological research about female adolescents and adults" (p. 17). Given that neglect, what is currently known/hypothesized about female adolescent breast development?

First, the importance of breast development seems to rest mainly on its nature as the first secondary sex characteristic that is visible to both the girl and the rest of the world. Benedek notes: "since female genitals cannot be observed, the body parts that are

visible to the self and others, the breasts, come to occupy an inordinate amount of psychic space" (p. 236). She further describes the impact of breast development:

Breast development tends to be a sensitive and emotionally laden aspect of body change for most girls. It is of note that with breast growth, a new body part is added, going well beyond merely enlarging an existing structure. No wonder the breasts are often dissociated from the rest of the body for quite some time, experienced as "not-me", as appendages that don't quite belong — yet. The breasts represent sexuality, the most overt signal to self and others that the body is maturing. Thus they often become the focus for conflict related to sexual feelings. Since they also represent mothering or the possibility of nurture, they are a concrete symbol of the dual nature of a woman's sexuality (p. 244).

Benedek's second point, then, centers on the newness of this body part, the difference that the change in structure brings, and the difficulty in integrating the change. Faust (1979), too, describes the importance of some of these change aspects of adolescent breast development: "From the standpoint of the developing person, the termination of childhood and the imminence of puberty are signalled by obvious external changes, some of which are qualitatively different and discontinuous with one's earlier appearance, for instance, the beginning of breast development . . ." (p. 428). Rosenbaum also addresses the issue of the bodily transformation at puberty and concludes that it brings about a change in the " 'cohesive sense' of the body itself and requires several revisions of the body gestalt" (1979, p. 235).

A third issue that Benedek addresses is that of the breasts as representative of the "dual nature of a woman's sexuality" (p. 244). Rosenbaum picks up this theme and, in describing "The changing body

image of the adolescent girl," speaks to the "need to integrate the dual image: acceptance of the body as sexually active and potentially child-bearing" (1979, p. 236). Bardwick (1971) also addresses both issues. She suggests, first, that the "extraordinary change in her sexual body at adolescence" is "perhaps the single most significant threat to a girl's mature sexuality" (p. 48). Second, she states her belief that adolescents are very ambivalent about the reproductive functions of their bodies and that "The resolution of this crucial ambivalence toward the sexual body is a task that extends beyond adolescence . . . and affects . . . their general level of confidence or self-esteem" (p. 52).

Following the initial breast development, the second major set of experiences with their breasts that young women are likely to have in this culture are sexual in nature. Interestingly, even less information is available about the impact of these experiences on young women's views of their breasts than about developmental experiences. That many of these young women college students have had or would be currently involved in sexual experiences receives support from Kallen and Doughty (1982) who report that 55% of the females in their college student sample reported having had sexual intercourse. Mahoney (1979) found that 90% of the female college students in his survey reported that they had experienced manual stimulation of breasts by a male and 82% reported oral stimulation of breasts by a male.

Only one study known to this researcher comments on the relationship between sexual experience and views of the breasts specifically. One other study connects sexual experiences to views of

the body as a whole.

Kelly and Menking (1979) address the issue specifically by focusing on the impact of early petting experiences on young women's views of their breasts. They hypothesize that:

Petting experiences might serve as highly individualistic sources of tactual feedback with regard to one's physical self. Because petting or touching experiences are most often viewed positively, feedback with regard to breasts is probably positive. These individualistic touching experiences might well be the key to mitigating social stereotypes with regard to breast ideals . . . (p. 23).

Kallen and Doughty (1982), in their study of self-perception, weight, courtship behavior, and self-esteem, address the impact of sexual experience on college students' views of themselves generally. They found that female virgins showed lower self-esteem and saw themselves as less physically attractive than non-virgins. They hypothesize that the higher self-esteem and perception of physical attractiveness is a result of:

. . . those involved in a sexual relationship . . . (receiving) . . . feedback about the physical self from a specific other; the fact that the other finds pleasure in the body provides some feedback about one's own physical attractiveness (p. 19).

These authors note further that, for their obese subjects, "experiencing a relationship which includes coitus mitigates the stigma" of their overweight condition (p. 17).

The third experience with breasts to be investigated is mastectomy and its impact. The research that has been done on mastectomy is, to date, largely a collection of commonly held clinical observations and opinions, rather than rigorous, empirical work (Meyerowitz, 1980; Morris, 1979). This research shows that undergoing mastectomy is an intensely ambivalent experience for most women.

Researchers note that, on the positive side, the operation can literally save the woman's life or, at least, deter death and is, thus, sought as a valued antidote to breast cancer. On the other side of the experience, however, the loss of the breast and what is described as the "violation of the beloved body" (Bard and Sutherland, 1955, p. 670) are deeply traumatic events for most women (Bard and Sutherland, 1955; Ervin, 1973; Meyerowitz, 1970).

Eloquent descriptions of the trauma and the ambivalence surrounding it come from the women who have written about their own mastectomy experiences. Lorde (1980), in her thought-filled recounting of her response to the surgery, The Cancer Journals, describes both its positive life-sustaining nature and its negative body-violating one. About the former, she writes "knowing that I would have paid more than even my beloved breast out of my body to preserve that self that was not merely physically defined and count it well spent" (p. 32). Later, she reflects the other side of the response: "I'd give anything not to have cancer and my beautiful breast gone, fled with my love of it" (p. 76).

The loss of the breast in all of its emotional significance is frequently addressed by those writing of breast cancer and mastectomy. Their descriptions of the loss generally center on its impact as a "mutilating assault to the femininity of the women who undergo it" (Polivy, 1975, p. 282). Most authors do not attempt to specify the loss beyond that general statement. Two early articles did, however, try to clarify the relationship between the loss of a breast and the woman's sense of her femininity. Renneker and Cutler (1952) emphasized that the loss of the breast damages feminine pride in the

critical areas of sexuality and motherhood. Bard and Sutherland (1955) argued for the importance of understanding the individual meaning of the breast to each woman undergoing mastectomy. In a statement similar to Renneker and Cutler's, they observed that the degree of "resolution of fears pertaining to achievement of heterosexuality and motherhood" is an important aspect of this understanding (p. 671).

A grief process similar to that described by Kubler-Ross (1972) has been observed by a number of those writing about the impact of mastectomy (Grandstaff, 1976; Thomas, 1978; Schain, 1976). The stages are defined in medical terms and assigned on the basis of their position in time with respect to operative and other treatment procedures. What they reveal, however, is a basic process of mourning the lost breast. Their common elements include an initial period of shock, which is often accompanied by denial of the loss. That time is followed by a gradually expanding and painful awareness of the full meaning of the loss. It usually involves periods of intense anger, guilt, anxiety, and depression. After the working through of these emotional responses, these researchers suggest that most women come to some adjustment to the loss.

Finally, the work that has been done on the use of denial by women suffering from breast cancer may be of value in understanding the importance of breasts and mastectomy. Denial seems to be involved in the initial reaction of nearly every patient to her mastectomy. From her review of the literature, Polivy (1975) concludes that there is "evidence that mastectomy is so overwhelming that the patient must resort to denial in some form" (p. 288). Most authors in the field

describe the period of denial as a brief one, largely because the patient is forced to face the reality of hospital routines and pain, and the need to change dressings. At times, however, the denial does persist. The most startling evidence of its persistence was revealed in a study by Bard and Waxenburg (1957). In interviews of nineteen patients who had had mastectomies six to ten weeks earlier, they found that five refused to admit ever having a serious operation and seven more did not admit to having been treated for a tumor or cancer.

To summarize the research on perceptions of and experiences with breasts reveals that:

There is limited evidence suggesting the importance of perceptions by linking view of breasts to self-concept.

There is also some evidence that preoccupation with the sexual ideal interferes with breast satisfaction.

The development of breasts (as the first visible secondary sex characteristic) appears to be a very significant experience in that it signals the end of childhood, causes a major transformations of body image, and introduces the adolescent girl to the maternal/sexual nature of breasts.

Sexual experiences may be important in that they may provide individualized, positive feedback about one's physical attractiveness generally or about one's breasts more specifically.

Finally, the mastectomy literature provides testimony of the importance of these body parts, especially through its presentation of the grieving process associated with the loss of the breast and the denial that is seen so often as a response to the detection of a breast abnormality.

STATEMENT OF HYPOTHESES

In attempting to account for the lack of performance of BSE, four of the factors suggested by the literature are the lack of a general preventive health orientation, difficulties with the specific health practice of BSE, the lack of a general positive body image, and problems arising from the focus on the particular body part of the breasts. Previous research has concentrated on various aspects of the first three factors. There has been little effort to draw all three factors together in one study. The current investigation not only provides that comprehensive approach, but also presents a new dimension to the research, the impact of perceptions of and experiences with breasts. This fourth factor is aimed at exploring the effect of underlying psychological processes on BSE performance. The hypotheses for this study center on the four factors.

The first factor, a general preventive health orientation, can be operationalized as the number of preventive health behaviors in which an individual engages. As indicated in the literature review, Howe (1981), Lowe (1979), McCusker and Morrow (1980), and Senie et al. (1981) all found positive relationships between BSE performance and various aspects of physician-based health behaviors. In addition, Haran et al. (1981), Howe (1981), and Roberts (1984) found relationships between BSE and self-care (autonomous) health behaviors, such as the wearing of seat belts. In the current study,

the general preventive health orientation of these young women will be measured as their participation in a variety of autonomous and physician-based preventive health behaviors. The hypothesis is:

Hypothesis 1: There will be a positive association between a general preventive health orientation (as measured by participation in a variety of health behaviors) and frequency of BSE performance.

The second major factor consists of difficulties with the specific health behavior of BSE. As noted in the literature review, various difficulties have been documented in previous research. Among them are: a lack of knowledge about breast cancer (Olenn, 1981; Spring & Kosch, 1982; Stromborg, 1981); a lack of perceived susceptibility to breast cancer (Hallal, 1982; Spring & Kosch, 1982; Stillman, 1977); a lack of perceived benefits of BSE (Hallal, 1982; Stillman, 1977); a lack of knowledge about BSE (Kelly, 1979; Roberts et al., 1984); a lack of confidence in competence to perform BSE (Celentano & Holtzmann, 1983; Edwards, 1980; Keller et al., 1982; Zapka & Mamon, 1982); a lack of social influence to perform BSE (Howe, 1981).

The general hypothesis is that there will be a positive association between the positive counterparts of these difficulties and the frequency of BSE. Stated more specifically:

Hypothesis 2: There will be a positive association between frequency of BSE performance and:

- 2a) knowledge about breast cancer;
- 2b) awareness of personal susceptibility to breast cancer;
- 2c) awareness of perceived benefits of BSE;
- 2d) knowledge about BSE;

2e) confidence in competence to perform BSE;

2f) social influence to perform BSE.

The third factor, body image, has been linked to BSE in two previous studies. As noted in the review of the literature, Scilken (1977) found a link between body cathexis (degree of expressed satisfaction with one's body) and BSE performance. This finding, which was her single significant result, indicated that women who self-examined their breasts expressed more satisfaction with their bodies than the women who did not. In a second study of BSE, Hallal (1981) found a significant positive correlation between physical self-concept as measured by the Tennessee Self Concept Scale and the practice of BSE. In addition, Hallal found a significant relationship between overall self-esteem and frequency of BSE. Self-esteem, as a variable related to body image, will also be investigated in this study. The predictions of the third hypothesis, based on the results of these two studies, are:

Hypothesis 3: There will be a positive association between frequency of BSE performance and:

3a) body image;

3b) self-esteem.

The impact of positive perceptions toward the breasts is deduced from the relationship noted earlier between positive body image and performance of BSE. It seems likely that if positive feelings about bodies in general are related to frequency of performance of BSE (Scilken, 1977), such a relationship would also exist with regard to positive feelings about breasts specifically. The particular areas of interest, derived largely from the literature on the impact of the

ideal sexual view, include the subjects' ratings of the importance and attractiveness of their breasts and their satisfaction with them. In addition, comfort with breasts will be investigated. As indicated in the literature review (Howe, 1981; Stillman, 1977; Stromborg, 1981; Worden et al., 1982; Zapka and Mamon, 1982), modesty or inhibitions about touching breasts have been found to interfere with BSE performance.

The experiences involved in this fourth factor include adolescent breast development, sexual exploration and activity, and acquaintance with a breast cancer victim.

The importance of the experience of breast development during adolescence was well summarized in the work of Benedek (1979) cited in the literature review. From her work, it seems likely that emotional responses to breasts during adolescence underly and influence later feelings about breasts.

The impact of early sexual activity on feelings about breasts was addressed specifically by Kelly and Menking (1979), who believe that satisfying petting experiences positively influence young women's perceptions of their breasts. In addition, Kallen and Doughty's work (1982) presents the impact of sexual intercourse experiences on self-esteem and sense of physical attractiveness. Inferences from these investigations led to the current hypothesis that the role of breasts in sexual activities and the satisfaction derived from those activities will influence perceptions of and feelings about breasts.

There are two parts to the final experience studied, mastectomy. The first involves being acquainted with a woman who has had breast cancer. As indicated earlier, the literature shows a connection

between a familial history of breast cancer and BSE practice and frequency (Huguley & Brown, 1981; Senie et al, 1981). This investigation expanded that variable to include knowing any woman (in the family or otherwise) who has had this disease. It also expanded the issue by exploring the impact of knowing a breast cancer victim in more depth than previous researchers have.

The second related aspect of the issue involves one's anticipated response to breast cancer and mastectomy. As suggested earlier, the anticipation of discovering a breast cancer symptom through BSE and, then, needing to face the diagnostic and treatment processes appears to be part of the reason for the response of fear, anxiety, and worry to this health practice (Keller et al., 1980; Kelly, 1978; Stillman, 1977). It will be interesting, then, to examine these young women's practice of BSE in light of their anticipated response to their own potential breast cancer and its treatment.

To summarize this fourth factor:

Hypothesis 4: There will be a positive association between frequency of BSE performance and:

- 4a) perceived importance of breasts;
- 4b) perceived attractiveness of breasts;
- 4c) satisfaction with breasts;
- 4d) comfort with breasts;
- 4e) adolescent developmental experiences;
- 4f) sexual experiences;
- 4g) experience of knowing a breast cancer victim;
- 4h) anticipated response to breast cancer and mastectomy.

METHOD

Subjects

The survey was completed by 197 female students enrolled in Introductory Psychology classes at Michigan State University during Fall term of 1983. The subjects were recruited through the human subjects pool which offers credit in Introductory Psychology for research participation. The recruiting device was a sign-up sheet announcing a "Survey of Women's Health Behaviors and Body Attitudes."

Two of the 197 students who completed the survey had had children. Because of the possible differences in their attitudes toward their breasts and their bodies as a result of pregnancy, childbirth, and mothering, the data from these two subjects were eliminated from the study. The resulting N was, then, 195.

The 195 subjects ranged in age from 17 years to 24 years. The modal age was 18 (n=109) and the median age was 18.6. The vast majority of these subjects are white (n=176). Their major religious preferences are Catholic (n=77) and Protestant (n=69). The largest numbers of students come from a suburban setting (n=98) or a city of fewer than 250,000 people (n=49).

All but three of these subjects have never married (n=191). Two were married for the first time when they completed the survey, one was divorced, and one was living with a lover. None of the women included in the data analysis had had children. Further specifications of the demographic characteristics are found in Table 1.

Table 1

Basic Demographic Information on Subjects

<u>Age</u>	<u>Frequency</u>	<u>Percent</u>
17	5	2.6
18	109	55.9
19	47	24.1
20	26	13.3
21	6	3.1
22	1	.5
24	1	.5
Sum	195	100.0
<u>Race</u>		
White	176	90.3
Black	14	7.2
Oriental	3	1.5
Hispanic	1	.5
Other	1	.5
Sum	195	100.0
<u>Religious Preference</u>		
Protestant	69	35.4
Catholic	77	39.5
Jewish	10	8.2
Agnostic	6	3.1
Atheist	2	1.0
Other	19	9.7
Sum	189*	96.9*
<u>Type of Community Subject Comes From</u>		
Rural	26	13.3
Suburban	98	50.3
Small City		
(Less than 250,000 people)	49	25.1
Large City		
(More than 250,000 people)	22	11.3
Sum	195	100.0

* Six subjects (3.1%) did not answer this question.

Materials

The survey is a forty-five page questionnaire (Appendix A) that contains several previously developed measures and many questions developed by the researcher from the theoretical and empirical literature on breasts and BSE.* The latter were evaluated and revised through a pilot study.

The previously developed measures are:

- 1) a brief health behaviors questionnaire devised by Lau (1982);
- 2) a questionnaire covering knowledge about breast cancer, sense of perceived susceptibility to breast cancer, and awareness of perceived benefits of BSE developed by Stillman (1977);
- 3) the Body Cathexis Scale devised by Secord and Jourard (1953);
- 4) the Self-Esteem Scale devised by Rosenberg (1965).

The health behaviors questionnaire (pp. 4-6 of survey and Appendix B) was developed by Lau (1982) as part of a predictive validity investigation of his Health Locus of Control measure. Seven behaviors are measured: eating proper foods, wearing a seat belt while riding in a car, brushing one's teeth after meals, getting regular physical activity, controlling one's weight, and visiting doctors and dentists for regular check-ups. Lau notes that the first five behaviors were summed to form an overall measure of self-care behaviors, while the last two were summed to measure regular visits to medical professionals. Lau does not

*Please note that the complete survey is presented in Appendix A and that, in addition, the scales that comprise it are presented separately in the remaining Appendices or in tables in the Results section.

report any reliability or validity investigations of the scale. In a personal communication, he indicated that correlations between various health behaviors were typically low (.2, .3 or less).

The Stillman (1977) questionnaire consists of five sections. The first deals with factual knowledge about breast cancer, covering some of the common misperceptions often held by women with respect to prevalence, age groups affected, possible causal factors (see p. 16 of survey and Appendix C). Section II of Stillman's instrument measures subjects' perceived susceptibility to breast cancer and perceived benefits of BSE. It consists of Likert-type scales in which the subject responds to nine statements on an agree-disagree continuum, and to one statement in terms of a comparison with other women (see p. 19-20 of survey and Appendix D). The odd-numbered items measure perceived susceptibility, while the even-numbered items focus on perceived benefits. Stillman's scoring procedure is described in Appendix D. The remaining three sections of Stillman's questionnaire deal with the subjects' actual practice of BSE and demographic data. They were not used in this survey, largely because they were not published. Similar information is sought in the portion of the questionnaire developed by the researcher.

Stillman investigated content validity of her instrument by having five graduate nursing students evaluate whether the items on the attitude scales measured the variables under investigation (perceived susceptibility and perceived benefits). They also reviewed the instrument for clarity, readability, and understandability. The instrument was then pretested on 20 women considered representative of the anticipated sample. The pretest revealed that the instrument

obtained the data sought and that the items on the attitude scale discriminated "to some degree" among subjects (1977, p. 124).

The Secord and Jourard (1953) Body Cathexis Scale attempts to measure satisfaction with various aspects of the body. Forty-six physical characteristics (parts and processes) are listed and subjects rate their satisfaction with each on a five-point Likert scale. Split-half reliabilities for the original sample were .78 for males and .83 for females. Convergent validity showed that physical self-esteem and general esteem correlated .58 for males and .83 for females. No test-retest data were reported.

The Self-Esteem Scale developed by Rosenberg (1965) measures the self-acceptance aspect of self-esteem by having the subject rate ten items that reflect liking and/or approving of the self on a four-point scale (Robinson & Shaver, 1973). Investigation of reliability reveals a Guttman scale reproducibility coefficient of .92 (Robinson & Shaver, 1973) and a test-retest correlation over two weeks of .85 (Silber & Tippet, 1965). With respect to convergent validity, Silber and Tippet found that the scale correlated from .56 to .83 with several similar measures and clinical assessment. Robinson and Shaver conclude that "This scale is a model short measure aimed at one aspect of self-esteem" (p. 82).

The remainder of the current survey was devised by the researcher. The major elements are a personal data sheet (p. 3), a block of questions concerning the subjects' experience with and current practice of BSE (p. 21-26), and a rather lengthy section (p. 27-47) devoted to the subjects' perceptions of and experiences with their breasts. Scales developed from the final section will be

described later in this chapter and presented in tables in the Results section. The items comprising those scales were developed from a pilot study in which the perceptions of and experiences with breasts were approached largely through open-ended items. The responses to those items were carefully considered and, on the basis of the information obtained, the open-ended questions were revised to a forced choice format for the final questionnaire.

Much of the data gathered in the last section of the survey has not been analyzed in the current investigation because it did not pertain directly to BSE. Those data have a more general and theoretical focus, aimed at fuller understanding of the role of women's breasts in their lives.

Procedure

As indicated earlier, a sign-up sheet announcing a "Survey of Women's Health Behaviors and Body Attitudes" was posted in classrooms where Introductory Psychology was taught. It instructed the participants to meet with research assistants (both of whom were women) in a large classroom on campus. A research assistant first explained the goal of the study, the investigation of young women's health behaviors and body attitudes. Next, the participants were handed copies of the survey and were asked to read the cover letter (see Appendix A) and consent form and to remove them from the survey packet. Then, they were instructed to complete the survey and, when finished, to return the completed form and report to a second room. This procedure for distribution and collection of surveys was approved by the University Committee on Research Involving Human Subjects.

The second stage of the meeting included a short film on BSE

produced by the American Cancer Society, the distribution of ACS pamphlets on BSE and breast cancer, some brief comments about the importance and benefits of this health behavior by a second research assistant, and an opportunity to examine a "Betsy" (simulated breast model provided by ACS) for lumps. Finally, the assistants validated the research participation cards of the subjects.

Measurement of Variables

The Dependent Measure. The dependent variable on which the study is based is frequency of performance of breast self-examination. In order to get as accurate a self-report measure as possible, the subjects were asked to indicate the frequency of their breast self-examination at three different points in the survey through three different questions. The questions, the number of subjects who gave each response and the corresponding percents are presented in Table 2.

The correlations among these three variables were as follows:

$$r_{1 \text{ \& } 2} = .83$$

$$r_{1 \text{ \& } 3} = .60$$

$$r_{2 \text{ \& } 3} = .66$$

Two techniques were devised to combine the information from these variables. First, in order to make the differing response categories as comparable as possible, each of the three variables was transformed into z-scores and, then, the z-scores were summed. The alpha for this resulting scale is .87. Second, recognizing the approximate equivalence of the six response categories of the first two questions and the strong correlation between them ($r = .83$), the responses to those questions were averaged. The alpha for the second composite score is .91.

Table 2

Measurement of Frequency of Breast Self-Examination

(1) How frequently do you examine your breasts for lumps or other abnormalities? (Check one.)

	<u>Frequency</u>	<u>Per Cent</u>
Never	74	37.9
Once or twice a year	48	24.6
Three or four times a year	11	5.6
Every couple of months	31	15.9
Once a month	20	10.3
More than once a month	11	5.6
Sum	195	99.9*

(2) How many times have you examined your breasts in the last twelve months? (Check one.)

0 times	57	29.2
1-2 times	57	29.2
3-4 times	36	18.5
5-7 times	17	8.7
8-11 times	11	5.6
12 or more times	17	8.7
Sum	195	99.9*

(3) How many times in the last three months have you examined your breasts? (Please be exact.)

Number of breast
self-examinations

0	106	54.4
1	38	19.5
2	20	10.3
3	12	6.2
4	6	3.1
5	2	1.0
6	6	3.1
7	1	.5
8	3	1.5
9	1	.5
Sum	195	99.9*

* Divergence from 100% is due to rounding error.

Analyses of the data involved both of the composite scores and showed very similar patterns of results. Because of the need to simplify the reporting of the large number of results and because of the high correlation between the two composite scores ($r = .96$), the researcher decided to focus on one of the scores. The second composite score, the average of the responses to the first two questions, was chosen because it showed a slightly higher alpha than the other scale (.91 compared to .87) and because it is easier to interpret and discuss.

The dependent measure, reported frequency of BSE, is operationalized as the average of the responses to these two questions:

How frequently do you examine your breasts?

How many times have you examined your breasts in the last twelve months?

Independent Variables. General preventive health orientation was measured as the score obtained on the Lau (1982) health behaviors questionnaire. The internal consistency of the scale for these subjects is low ($\alpha = .33$). Various rational and empirical attempts to improve the scale's internal consistency were made, but did not prove fruitful. Therefore, the original strategy, which was to combine all seven variables, was employed in spite of its low internal consistency.

Knowledge about breast cancer, awareness of personal susceptibility to breast cancer, and awareness of perceived benefits of BSE were measured through the Stillman (1977) scales. For this

sample of college-aged women, the indexes of internal consistency of all three of the scales were quite low (.18, .58, .43, respectively). Attempts were made to improve the alphas by devising new scales that contained the most highly intercorrelated items. Internal consistency ratings for the new scales were still low; consequently, the items from each scale that discriminated best among subjects were selected to represent these independent variables. The items and their correlations with BSE frequency will be reported in the Results section.

Knowledge of breast self-examination was measured in two ways.

- ① Subjects were first asked which steps involved in BSE they perform as part of their usual breast self-examination. Second, they were asked which steps "should be done as part of a comprehensive breast self-examination" (See page 25 of survey). The original scale consisted of items that are part of the usual recommended practice of BSE (e.g., "put arm of breast to be examined behind head") and foils (e.g., "put arm of breast to be examined at side"). The initial plan was to subtract the number of foils endorsed from the number of correct steps endorsed. The purposes of this approach were two: to get as accurate a measurement as possible of the quality of these women's knowledge and performance of BSE and to correct for those individuals who would simply endorse every option. Internal consistency investigations of the scale using this initial strategy were disappointing because the alphas were very low. As a consequence, the inter-correlations of the items were studied and the scales were formed on that basis. The first scale (what is actually done) consisted of four items: lying flat on back, inspecting breast

by pressing flat part of fingertips into breast in circles that cover entire breast, putting arm of breast to be examined behind head, and squeezing each nipple gently. The second scale (what should be done) consisted of these four items and one more, standing before a mirror and inspecting breasts for anything unusual while holding arms over head. The indexes of internal reliability for both of these scales were quite high (.76 for steps actually performed, .75 for steps that comprehensive BSE involves).

Confidence in competence to perform breast self-examination was measured as the five-point rating (not at all confident to very confident) of a single item: "How confident are you of your ability to perform breast self-exam?"

Social influence was measured as the yes/no response to a single item: "Does anyone actively encourage you to examine your breasts?"

Body image was measured through the Secord and Jourard (1953) scale, as previously described in Materials ($\alpha = .89$).

Self-esteem was measured through the Rosenberg (1965) scale, as previously described in Materials ($\alpha = .84$).

Perceived importance of breasts was measured as the average response to two questions asking the subject to evaluate the importance of her breasts (e.g., "How important are your breasts to your view of your body?") ($\alpha = .78$).

Perceived attractiveness was measured as the average response to three questions asking the subject to evaluate the attractiveness of her breasts (e.g., "How attractive do you feel your breasts are?") ($\alpha = .76$).

The remaining items for the importance and attractiveness scales are presented in Table 6 in the Results.

Satisfaction was measured in the same way as the satisfaction with other body parts in the Secord and Jourard (1953) Body Cathexis Scale. Breasts were added as an additional item.

Comfort with breasts was measured as the average rating given to nine items asking the subject to evaluate her comfort with her breasts in various situations (e.g., "How comfortable are you viewing your own breasts?") ($\alpha = .85$). The full scale is presented in Table 6 in the Results.

Adolescent developmental experience was measured as the subject's rating of one item describing her response to her early breast development on a five-point scale (very negative to very positive).

Sexual experiences were measured as the mean rating of fourteen questions that focus on the role breasts play in sexual activity (e.g., "How sensitive are your breasts to sexual arousal?") and the impact of sexual activities on views of the breasts (e.g., "How much change in the consciousness of the appearance of your breasts have you experienced?") ($\alpha = .83$). The entire scale is presented in Table 7 in the Results.

Experience of knowing a breast cancer victim was evaluated in two ways. The first focused on the breast cancer victim's experience (e.g., "How difficult was it for the person to adjust to the idea that she had breast cancer?") and the second on the subject's response to the experience (e.g., "Did that experience change your awareness of breast cancer?") ($\alpha = .82, .77$, respectively). The complete scales are presented in Table 8 in the Results.

Anticipated response to breast cancer and mastectomy was measured as the average rating to three items asking the subject to predict her response if she were to become a breast cancer victim (e.g., "Which of the following best describes what you think your overall response would be if you were to undergo a mastectomy?") ($\alpha = .80$). The entire scale is presented in Table 8 in the Results.

Tests of the Hypotheses

For all four hypotheses, the same test was used: each of the independent variables was correlated through a Pearson product-moment correlation procedure with reported frequency of BSE. As indicated later in the Results section, this procedure resulted in a number of significant ($p < .05$), but very low r 's (approximately .15). The significance of these low correlations is a result of the large number of subjects ($N=195$).

An additional statistical analysis, multiple regression, was employed in an attempt to integrate the four hypotheses and to ascertain how frequency of BSE could be predicted from this group of independent variables for this sample of young women.

RESULTS

Description of the Subjects' Instruction in and Practice of BSE

Sixty-one percent of these women ($n=119$) indicated that they had been taught the procedure for BSE, while 39% ($n=76$) indicated that they had not been taught BSE. The largest number learned of the procedure by reading a pamphlet or book ($n=64$) and the second largest group was taught by a doctor ($n=51$). It is important to note that for this question and many of those that follow subjects were instructed to check as many options as apply (e.g., all of the ways they have been taught the procedure for BSE).

Asked when they were taught the procedure, the largest number of subjects ($n=63$) reported that the instruction had occurred between one and three years ago. Thirty-one were taught between six months and one year ago. (Again, subjects who had been taught BSE more than once were asked to indicate the timing of each instruction.)

In evaluating the BSE educational program in which they had been involved, the majority of subjects who had been taught BSE reported that it was somewhat adequate ($n=53$) or very adequate ($n=26$) (those with more than one were asked to rate the best program). Further specification of the subjects' instruction in breast self-examination is found in Table 3.

In describing their actual practice of BSE, the majority of subjects ($n=116$) report that they perform the procedure "when I happen

Table 3
Instruction in Breast Self-Examination

<u>Instructional Means*</u>	<u>Frequency</u>	<u>Percent of all Subjects</u>
Pamphlet or book	64	32.8
Physician	51	26.2
Demonstration on television	20	10.3
Demonstration or class	18	9.2
Nurse	13	6.7
<u>Timing of Instruction*</u>		
Within the last three months	9	4.6
Three to six months ago	10	5.1
Six months to one year ago	31	15.9
One to three years of ago	63	32.3
More than three years ago	16	8.2
<u>Evaluation of the Educational Program**</u>		
Very adequate	26	13.3
Somewhat adequate	53	27.2
Neutral	30	15.4
Somewhat inadequate	6	3.1
Very inadequate	1	.5

* For these two questions, subjects were asked to "Check as many as apply to you." Consequently, the sums of the instructional means used and of the timing of the instruction exceed the 119 subjects who report being taught BSE.

** For this question, subjects were asked to rate the best program they had been exposed to.

to think of it." The largest number from this group (n=77) indicated that they decide to perform BSE as a result of noticing their breasts while showering, dressing, or looking in the mirror. Fifty-three reported that they perform BSE as a result of "having the idea just come to mind." Other major stimuli for performing BSE were experiencing breast tenderness or pain (n=50) and reading about breast cancer (n=45). Further description of the stimuli for performing BSE by the group of sporadic performers is provided in Table 4.

The women who report performing BSE on a routine basis (n=19) mainly use "a certain day in the menstrual cycle" as their reminder (n=16).

The women who indicated that they never perform BSE (n=60) reported that the following would be necessary to their starting to perform BSE (subjects were asked to check as many of the options as applied to them): more information about breast self-examination (n=32); more information about breast cancer (n=23); a consistent reminder to perform BSE (n=16); and more confidence in their ability to perform BSE (n=15).

When asked what kind of reminder might be helpful to them in performing BSE (again, subjects could endorse as many options as applied), a majority of the subjects (n=103) indicated that a reminder from a significant person (lover, physician, parent) would be helpful. Other useful memory aids would be a reminder on television (n=51); a reminder in the form of a sticker in the shower (n=51); and a reminder through the mail (n=38).

In answer to a question asking them to describe their reasons for performing BSE, the largest numbers of young women reported that they

Table 4

Stimuli for Performance of Breast Self-Examination by Sporadic Performers

<u>Stimuli:</u>	<u>Frequency</u>	<u>Percent</u>
Noticing breast while showering, dressing, or looking in the mirror	77	39.5
"Having the idea just come to mind"	53	27.2
Experiencing breast tenderness or pain	50	25.6
Reading about breast cancer	45	23.1
Hearing about breast cancer on television	28	14.4
Talking with others about breast cancer	25	12.8
"Noticing breasts while sitting or laying around without much to do"	25	12.8
Thinking about breasts during sexual activities	7	3.6
Receiving encouragement from others	7	3.6

* Subjects were asked to "Check as many as apply."

engaged in this health behavior because of a general concern about health (n=107), an attempt to protect themselves from breast cancer (n=78), and a sense of personal responsibility to perform BSE (n=44). (For both the preceding reasons for performing BSE and the following reasons for not performing BSE, subjects were asked to check as many options as applied to them.)

When asked to indicate what their reasons for not performing BSE were, the most frequent responses involved faulty memory (n=87), difficulty recognizing breast abnormality (n=48), and lack of current concern about getting breast cancer (n=45). Further specifications about the reasons for performing and not performing BSE are provided in Table 5.

These subjects report that they receive little social influence to perform BSE. Only 42 answered the question, "Does anyone actively encourage you to examine your breasts?," affirmatively. The largest number of those women received encouragement from their physicians (n=25). Mothers were reported to encourage 13 of the subjects. Female and male friends encouraged 7 women each, while nurses were named by 5 subjects.

These subjects also report little knowledge of the practice of BSE by the women close to them. When asked if their mothers or the majority of their female friends performed BSE, most subjects reported they did not know the answer (n= 124, in response to question about mother's practice of BSE; n= 164, with respect to friends' performance). Fifty-two subjects reported that their mothers do practice BSE, while 17 indicated that their mothers do not. Nine subjects indicated that the majority of their female friends practice

Table 5

Reasons for Performance and Non-performance of BSE
Given by All Subjects

<u>Reasons for Performance:*</u>	<u>Frequency</u>	<u>PerCent</u>
I'm generally concerned about my health.	107	54.9
I'm trying to protect myself from breast cancer.	78	39
I feel it is my personal responsibility to perform BSE.	44	22.6
My breasts become tender and that worries me, so I perform BSE to check on them.	19	9.7
I have a family history of lumps or breast cancer.	11	5.6
It's a habit.	11	5.6
Someone reminds me to perform BSE.	10	5.1
<u>Reasons for Non-performance:*</u>		
I don't remember to do it.	87	44.6
I can't tell for sure what's normal and what's abnormal in my breasts, especially because the tissue changes.	58	29.7
I don't know how to perform BSE.	48	24.6
I'm not concerned about getting breast cancer at this time.	45	23.1
I do not have a family history of breast cancer or breast disease.	41	21
I don't feel confident enough that I perform BSE correctly.	39	20
No one reminds me to perform BSE.	36	18.5
I'm afraid of how I'll react if I do find something abnormal.	15	7.7
I feel uncomfortable touching my breasts.	11	5.6
I feel that breast examination should be performed by doctors and nurses.	9	4.6
I'm not concerned about my health at this point in my life.	6	3.1
The tenderness of my breasts prevents me from examining them.	3	1.5

*Subjects were instructed to check as many options as applied to them.

BSE, while 21 reported that their friends do not.

Finally, when asked how confident they are of their ability to perform breast self-exam, almost half of the subjects responded that they were not at all confident ($n=22$) or not very confident ($n=62$). In addition, 65 reported they were somewhat confident, 36 were considerably confident and 8 were very confident. Having presented the overview of the subjects' instruction in and practice of BSE, the results of the tests of the hypotheses follow.

Hypothesis 1: The Relationship Between Frequency of Breast Self-Examination and a General Preventative Health Orientation.

The correlation between the Lau scale (which measured such behaviors as eating proper foods, wearing a seat belt, and having dental check-ups) and the frequency of BSE is not significant ($r = .03$, $p > .05$). Thus, the hypothesis that there is a positive correlation between general preventive health orientation and the frequency of practice of breast self-examination is not supported.

Hypothesis 2: The Relationship Between Awareness Of Breast Cancer And Breast Self-examination And Frequency Of Breast Self-examination

Seven variables were involved in the evaluation of this hypothesis which broadly links frequency of BSE performance to awareness of breast cancer and of the breast self-examination procedure:

- a) knowledge about breast cancer;
- b) awareness of personal susceptibility to breast cancer;
- c) awareness of perceived benefits of BSE;
- d) report of procedural steps actually performed during BSE;
- e) knowledge of procedural steps that should be performed during BSE;

- f) confidence in competence to perform BSE;
- g) social influence to perform BSE.

Because of the problem of low internal consistency with the Stillman scales, which were employed to measure variables a, b, and c above, representative items that discriminated best among subjects were chosen to represent those variables. The major idea of the questions (for entire questions, see Appendix B) and their correlations with frequency of BSE follow:

Knowledge Questions

Knowledge of the chance of a woman (in this country) getting breast cancer sometime during her lifetime. ($\underline{r} = .12$, $p > .05$).

Knowledge that most breast lumps are not cancerous. ($\underline{r} = .07$, $p > .05$).

Knowledge of the age at which incidence of breast cancer increases. ($\underline{r} = .05$, $p > .05$).

Knowledge of the increased risk for breast cancer of those whose relatives have had the disease. ($\underline{r} = .17$, $p < .05$).

The one question from the knowledge scale that shows a significant correlation with frequency of BSE performance is the knowledge that relatives of breast cancer victims are more likely to develop the disease than others.

The items from the benefits scale and susceptibility scales and their correlations with reported frequency of BSE follow:

Benefits Questions

Even though it's a good idea, I find examining/having to examine my breasts an embarrassing thing to do. ($\underline{r} = -.30$, $p < .001$).

Examining my breasts often makes/would make me worry unnecessarily about breast cancer. ($\underline{r} = -.01$, $p > .05$).

Susceptibility Questions

My health is too good at present to even consider thinking that I might get breast cancer. ($r = -.15$, $p < .05$).

The older I get, the more I think about the possibility of getting breast cancer someday. ($r = .07$, $p > .05$).

If I had to think about the possibility that I might someday get breast cancer, I would rate my chances as compared with women as:

- a. average
 - b. above average
 - c. below average
- ($r = .09$, $p > .05$).

One item from the benefits scale (embarrassment about performing BSE) and one item from the susceptibility scale (present good health) show significant correlations with frequency of BSE performance.

The correlations between frequency of BSE and the two scales that measured knowledge of the breast self-examination procedure were significant ($r = .60$, $p < .001$ for the scale measuring what is actually done; $r = .31$, $p < .001$ for the scale measuring what should be done as part of a comprehensive breast self-examination). Thus, the part of the hypothesis that predicted a positive correlation between frequency of breast self-examination and knowledge about it is supported.

Confidence in competence to perform breast self-examination shows a significant positive correlation with the frequency of BSE ($r = .16$, $p < .05$).

The final variable that was tested for this hypothesis is the impact of social influence. Only 42 of the 195 subjects reported receiving any encouragement to perform BSE. A t -test revealed that the means of BSE frequency for the two groups ($M = 3.40$ for those who receive encouragement to perform BSE and $M = 2.30$ for those who do not) differed significantly ($t = 4.04$, $df = 190$, $p < .001$).

In summary, the tests of the second hypothesis suggest that there is a positive, statistically significant correlation between frequency of BSE and these four aspects of awareness of breast cancer and the breast self-examination procedure: knowledge of the increased risk for breast cancer of those whose relatives have had the disease; reported accurate performance of BSE; knowledge of the steps involved in comprehensive BSE; and confidence in competence to perform BSE. In addition, there are statistically significant negative correlations between frequency of BSE and embarrassment about BSE and lack of worry about breast cancer due to present good health. Finally, social influence is associated with more frequent performance of BSE.

Hypothesis 3: The Relationship Between Body Image, Self-Esteem, and Frequency of Breast Self-Examination

The correlation between the average body image rating and frequency of breast self-examination is not significant ($r = .06$, $p > .05$). The correlation between average self-esteem and BSE is also non-significant ($r = .001$, $p > .05$). The third hypothesis, which predicted a positive correlation between frequency of BSE and body image and self-esteem, is not supported.

Hypothesis 4: The Relationship Between Positive Perceptions of and Experiences with Breasts and Frequency of Breast Self-Examination

Four perceptions of breasts and four kinds of experiences were evaluated for this hypothesis. The four perceptions were: importance of breasts, attractiveness of breasts, satisfaction with breasts, and general comfort with breasts. The items comprising those scales are presented in Table 6. The correlations between these variables and

Table 6
Items Comprising Perceptions Scales

Importance of Breasts:

How important are your breasts to you?

How important are your breasts to your view of your body?

(five point rating scale — very unimportant to very important)

(alpha= .78, N= 195)

Attractiveness of Breasts:

How attractive do you feel your breasts are?

How attractive would most other women say your breasts are?

How attractive would most men say your breasts are?

(five-point rating scale — very unattractive to very attractive)

(alpha= .76, N=195)

Satisfaction with Breasts:

Rate feelings about breasts on a five-point scale —

"wish change could somehow be made" to "consider myself fortunate."

General Comfort with Breasts:

How comfortable are you viewing your own breasts?

How comfortable are you touching your own breasts?

How comfortable are you viewing your friends' breasts?

How comfortable are you viewing your mother's breasts?

How comfortable are you viewing your sister's breasts?

How comfortable are you appearing nude in front of lovers?

How comfortable are you appearing nude in front of friends?

How comfortable are you appearing nude in front of your mother?

How comfortable are you appearing nude in front of your sisters?

(five point rating scale — very uncomfortable to very comfortable)

(alpha= .85, n= 104)

and reported frequency of BSE are as follows:

importance, $r = .14$, $p < .05$;
 attractiveness, $r = .02$, $p > .05$;
 satisfaction, $r = .02$, $p > .05$;
 general comfort, $r = .14$, $p < .05$.

Of the four perceptions investigated, then, importance of breasts and general comfort with breasts show significant, but very small, positive correlations with frequency of breast self-examination.

Four experiences with breasts were also investigated: response to breast development, sexual experience with breasts, acquaintance with a breast cancer victim, and anticipated response to breast cancer and mastectomy. The first experience involved one item that asked the subject to describe her response to her early breast development on a five-point scale (very negative to very positive). The items comprising the sexual experience scale are found in Table 7. Acquaintance with a breast cancer victim involved two scales -- one that asked the subject to report on the breast cancer victim's experience and a second that asked the subject to evaluate the impact of the experience on her own views. Both of those scales are presented in Table 8, as is the final scale which measured the subject's anticipated response to breast cancer.

The correlations between these variables and reported frequency of BSE are as follows:

developmental experiences, $r = .04$, $p > .05$;
 sexual experiences, $r = .19$, $p < .01$;
 breast cancer victim's response, $r = .18$, $p > .05$;
 impact of experience on subject, $r = .54$, $p < .001$;
 anticipated response to breast cancer, $r = .09$, $p > .05$.

Table 7

Items Comprising Sexual Experiences Scale

How sensitive are your breasts to sexual arousal?
(five point scale — very insensitive to very sensitive)

How important are your breasts to you in your sexual activities?

How important are your breasts to your partner(s) in your sexual activities?
(both five point scales — very unimportant to very important)

Instructions for the remaining questions:

Have your feelings about your breasts changed because of your sexual activities? How much of each change have you experienced?
(all five point scales — much less to much more of characteristic under consideration)

How much change in your general awareness of your breasts have you experienced?

How much change in your consciousness of the appearance of your breasts have you experienced?

How much change in your confidence about your breasts have you experienced?

How much change in your comfort with your breasts have you experienced?

How much change in your respect for your breasts have you experienced?

How much change in your pride in your breasts have you experienced?

How much change in your acceptance of your breasts have you experienced?

How much change in your satisfaction with your breasts have you experienced?

How much change in your awareness of sexual attractiveness of your breasts have you experienced?

(alpha = .83, n = 181)

Table 8

Scales Involving Past and Anticipated Response to Breast Cancer

Breast Cancer Victim's Experience:

How difficult was it for the person to adjust to the idea that she had breast cancer? (Circle one.)

How difficult was it for the person to adjust to the removal of her breast? If mastectomy was not necessary, leave blank. (Circle one.)

(For both questions, scale of 1 to 3 — very easy to very difficult.) ($\alpha = .82$, $n = 64$)

Impact of Breast Cancer Experience on Subject:

Did that person's experience cause any of the following attitude changes in you? How much of each of these changes?

How much change in your awareness of breast cancer?

How much change in your fear of breast cancer?

How much change in your willingness to check for breast cancer?

How much change in your conscientiousness about examining your breasts?

(Scales of 1 to 5 for each — from much less of characteristic to much more of it.) ($\alpha = .77$, $n = 84$)

Anticipated Response to Breast Cancer:

Which of the following best describes what you think your overall response would be if you were to undergo a mastectomy? (Circle one.)

(1=devastated, 2=quite upset, 3=upset, but assume would recover, 4=not too upset, 5=grateful to be alive)

Overall, how difficult an adjustment would it be if you learned you had breast cancer? (Circle one.)

How difficult do you think it would be for you to adjust to the removal of your breast? (Circle one.)

(For both questions, scale of 1 to 4 — very easy to very difficult.) ($\alpha = .80$, $n = 192$)

Of these three areas of experience, then, only sexual experience with breasts and impact of knowing a breast cancer victim were significantly correlated with frequency of breast self-examinations.

In summary, within the broad area of the relationship between positive perceptions of and experience with breasts, the following show significant positive correlations with frequency of BSE: importance of breasts; comfort with breasts; sexual experiences with breasts; the impact of being acquainted with a breast cancer victim.

In concluding the report of the results of hypothesis 4, it is also important to note that much of the data from the current survey which focused on the perceptions of and experiences with breasts was not analyzed because of the large amount of data collected and because those data were more theoretically-oriented, focusing on such issues as the effect of sexual experience on breast satisfaction. (Please note that the questions used to elicit those data are included in the complete survey, which is Appendix A.) Future work with those data may lead to greater understanding of the roles breasts play in young women's lives.

Multiple Regression Analysis

In order to explore more fully the relationship between frequency of breast self-examination and the group of independent variables under study, multiple regression analysis was undertaken. Fourteen variables were entered into the equation, the purpose of which was to predict frequency of breast self-examination. The choice of variables was based on three considerations: 1) the conceptual importance of the independent variable; 2) the correlation between the independent variable and the dependent measure (frequency of breast

self-examination); 3) the inter-correlations among the independent variables. Table 9 summarizes the selection process, and indicates which of the three considerations was employed in the decision to enter that variable or not. (Means, standard deviations and numbers of subjects are also provided for each variable in this table.)

The following fourteen variables were, then, entered stepwise:

General Preventive Health Orientation (GPH)

Knowledge Question 1 (KQ1)

Knowledge Question 3 (KQ3)

Benefit Question 1 (BQ1)

Susceptibility Question 1 (SQ1)

Reported Performance of BSE (RP)

Confidence in Competence to Perform BSE (CC)

Body Image (BI)

Self Esteem (SE)

Importance of Breasts (IB)

Response to Breast Development (RBD)

Sexual Experiences with Breasts (SEB)

Subject's Anticipated Response to Breast Cancer (SAR)

Subject's Acquaintance with a Breast Cancer Victim (SKV)

The probability of F-to-enter (PIN) was raised to .10 because of the exploratory nature of the study. Missing values were deleted pairwise, leaving an N of 159 cases. The multiple regression equation that is the best predictor of BSE frequency for this group of variables utilizes the following variables: reported accuracy of performance of BSE, the benefit question (examining breasts is a good idea, but embarrassing to do), the susceptibility question (present

Table 9

Basis for Decisions to Enter Independent Variables into Multiple Regression Equation and Means, Standard Deviations and Number of Subjects for Independent Variables

<u>Variable</u>	<u>Basis*</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>N</u>
Hypothesis 1				
General Preventive Health Orientation	1	22.66	3.73	191**
Hypothesis 2				
Knowledge Question #1	1	.39	.49	195
Knowledge Question #2	3	.69	.46	195
Knowledge Question #3	1	.68	.47	195
Knowledge Question #4	3	.60	.49	195
Benefit Question 1	1	3.01	.98	195
Benefit Question 2	3	2.77	.84	195
Susceptibility Question 1	1	3.14	.94	195
Susceptibility Question 2	3	3.02	.82	195
Susceptibility Question 3	3	1.97	.66	195
Reported Performance of BSE	1,2	1.58	1.46	195
Ideal Performance of BSE	3	2.59	1.71	195
Confidence in Ability to Perform BSE	1	2.75	1.12	194
Hypothesis 3				
Body Image	1	167.36	22.27	169**
Self-Esteem	1	30.89	4.33	193
Hypothesis 4				
Importance of Breasts	2	7.97	1.50	195
Attractiveness of Breasts	3	10.45	2.23	195
Satisfaction with Breasts	3	4.45	1.06	195
General Comfort with Breasts	1	29.33	7.28	104**
Response to Early Breast Development	1	2.69	1.23	162***
Sexual Experiences with Breasts	1,2	49.13	5.90	181**
Response of Known Breast Cancer Victim	3	7.58	1.75	64****
Impact of Known Breast Cancer Victim's Experience on Subject	3	15.02	2.16	84****
Subject's Anticipated Response to Breast Cancer and Mastectomy	1	11.98	1.92	192**
Subject's Knowledge of Breast Cancer Victim	1	1.50	.50	192**

* Key for basis to enter variable in regression or not

1 = conceptual as reason to enter

2 = correlation with dependent variable as reason to enter

3 = inter-correlation with other independent variable as reason not to enter

Explanations of other starred items on following page.

Table 9 (cont'd).

** Each of these variables is a scale consisting of multiple items. Subject totals less than 195 reflect the number of subjects who skipped one or more items. Before entering these variables into the regression analysis, adjustments were made so the average rating given by subjects who responded to a significant number (although not all) of the items comprising the scale (e.g., to five of the nine comfort items) would have their average rating included. The purpose of the procedure was to increase the number of subjects included in the multiple regression analysis.

*** The N of 162 reflects the 33 students who skipped the question or endorsed the options of "unknown response" or "appeared to respond with mixed feelings."

**** Of the 95 subjects who reported knowing a breast cancer victim, varying numbers of subjects (64, 84) responded to these two sets of questions.

health too good to think about breast cancer), subjects' acquaintance with a breast cancer victim and sexual experiences with breasts. The predicted frequency of BSE is obtained by substituting those 5 variables into the following formula:

$$\text{Predicted BSE} = .803 + .539(\text{RP}) - .277(\text{BQ1}) - .246(\text{SQ1}) + .371(\text{SKV}) + .355(\text{SEB}).$$

The multiple R for this equation is .66 which accounts for about 43.1% of the variance of frequency of BSE.

Table 10 further describes the findings of the multiple regression equation, including the beta weights for each variable.

Table 11 (Appendix G) presents the inter-correlations of the variables included in the multiple regression analysis.

The reported correct performance of BSE clearly dominates the equation, accounting for 35.4% of the variance by itself. An additional 7.7% of the variance is accounted for by utilizing these variables: the embarrassment question (3%), the susceptibility item (2%), acquaintance with a breast cancer victim (1.5%), and sexual experience (1.2%).

Table 10

Summary of Multiple Regression Steps

Step Number	Variable entered or continued	multiple R	R ²	F
1	Reported Performance	.60	.35	86.04***
2	Benefit Question 1	.62	.38	48.67**
3	Susceptibility Question 1	.64	.40	35.09**
4	Knowledge of B.C. Victim	.65	.42	27.80**
5	Sexual Experience	.66	.43	23.17*

Significance of F change

*	p < .10
**	p < .05
***	p < .001

<u>Variable</u>	<u>Beta Weights</u>
General Preventive Health Orientation (GPH)	-.058
Knowledge Question 1 (KQ1)	-.010
Knowledge Question 3 (KQ3)	-.076
Benefit Question 1 (BQ1)	-.180
Susceptibility Question 1 (SQ1)	-.129
Reported Performance of BSE (RP)	.519
Confidence in Competence to Perform BSE (CC)	-.014
Body Image (BI)	.031
Self Esteem (SE)	.003
Importance of Breasts (IB)	.026
Response to Breast Development (RBD)	-.013
Sexual Experiences with Breasts (SEB)	.109
Subject's Anticipated Response to Breast Cancer (SAR)	.044
Subject's Knowledge of Breast Cancer Victim (SKV)	.123

DISCUSSION

Introduction

The purpose of this study was to investigate the variables that influence the frequency of breast self-examination by young women. Four factors suggested by the literature were investigated: a lack of a general preventive health orientation, difficulties with the specific health behavior of BSE, the lack of a general positive body image, and problems arising from the focus on the particular body part of the breasts.

Before proceeding with the discussion of the results, two points about the study need to be emphasized. The first point is the size of correlations that reached significance. Because of the large N (195), small correlations ($r = .15$) attained significance ($p < .05$). Obviously, the strength of those relationships is very low. Such low correlations were expected after a personal communication with Lau, who indicated that correlations of .2, .3 or less were usual in the area of health behavior research. The low correlations are also thought to be a result of the exploratory nature of the study; that is, in an early stage of investigation, one is looking for promising areas to explore in the future, not zeroing in on already clearly-defined influential factors.

The second point that requires emphasis is the sample of young women. As indicated in the Methods section, the modal subject in this

study in 18 years old and a freshman at a large Midwestern state university. The results, then, are generalizable to this relatively select group. Of particular importance is the youth of these subjects. Most of the research on breast self-examination has involved subjects that range in age through the young and middle adult years (18-65). Selecting a sample so young and so homogeneous was purposeful in that this particular group is seen to need information about breast self-examination and to be a subject population that has not been adequately studied (personal communication with Barbara Rosnick, American Cancer Society). The selection involves the assumption that this particular group may show a different pattern of results from other samples because of its youth or because it comprises a different cohort. Its homogeneity with respect to age may also have implications for the results of the study.

Overview of Subjects and their Practice of BSE

These young women are white, of Catholic or Protestant religious preference, single, and from suburban homes. They report being taught BSE from 1-3 years ago by a pamphlet or a doctor. Sixty-one percent of these college women report that they never do BSE or perform it once or twice a year.

The majority of the subjects perform BSE when they think of it (rather than on a routine basis) and indicate that they think of it when they notice their breasts during another activity, or read about breast cancer, or have the "idea just come to mind." Those subjects who indicated that they never perform BSE cited the need for information about the procedure and breast cancer and reminders to do BSE as being necessary to their beginning to practice this health

behavior.

Investigation of the entire sample reveals that, when these young women do perform breast self-exam, it is because of a general concern about health, as an effort to protect themselves from breast cancer, or because of a sense of personal responsibility to perform BSE. The young women also indicate that their lack of performance of BSE is a result of forgetting, having difficulty discriminating breast abnormalities, not knowing how to perform BSE, and not being worried about developing breast cancer at this time or because it does not run in their families.

Prediction of Frequency of Breast Self-Examination

For this sample of young women, frequency of breast self-examination is best predicted by five factors: the accuracy of their knowledge and performance of the basic steps involved in BSE, their embarrassment about the procedure, their view that their present health is too good to worry about breast cancer, their acquaintance with a breast cancer victim, and the impact of their sexual experiences on their views of their breasts.

As noted in the Results section, the initial factor, the reported correct knowledge and performance of the basic steps involved in BSE, accounts for most of the variance (35.4%, $R^2 = .60$) that the multiple regression equation explained. The implication of the finding appears to be that, if the subject knows the basic steps of BSE and reports that she actually performs them as she examines her breasts, the frequency of her performance of this behavior is higher than for those subjects who know or perform fewer of the basic steps. This result supports the findings of Kelly (1979), Sheley (1983), and Spring and

Kosch (1982) that knowledge of BSE influences frequency of performance. It may also offer some evidence for Roberts' et al. (1984) and Pennypacker et al.'s (1982) conclusions about the importance of practice in developing knowledge and proficiency of BSE.

The second predictor of the frequency of breast self-examination, which accounts for an additional 3% ($R^2 = .062$) of the variance, is the subject's degree of embarrassment in examining her breasts.

Embarrassment enters the equation as a negative variable; that is, its impact causes a decline in frequency of breast self-examination. This finding supports the conclusion about the importance of modesty and inhibition in non-performance of BSE reached by Howe (1981), Miller et al. (1980), Stillman (1977), Stromborg (1981), and Zapka and Mamon (1982). It is interesting to note that the impact of inhibition observed in the subjects of other studies, who represented a wider age range, is also found with the young women subjects in this study.

The third predictor of frequency of breast self-examination is the subject's view of her present health ($R^2 = .064$). It also enters the equation as a negative variable and accounts for an additional 2% of the variance. Its negative significant relationship with BSE is inferred to be a result of the youth of the subjects. The lack of these subjects' perceived susceptibility is consistent with the data on breast cancer, which suggests that it is very uncommon under the age of 35. This finding lends support to Edwards' conclusion (1980) that her younger subjects may have been less frequent practitioners of BSE than those older because they perceive themselves as being less susceptible to breast cancer. It also offers support in an inverse way for Spring and Kosch's (1982), Stillman's (1977), and Hallal's

(1982) conclusions; that is, this study shows that a lack of perceived vulnerability has a negative impact on BSE frequency, while the perspective from the other studies was that increased perceived susceptibility increased BSE frequency.

The fourth predictor, acquaintance with a breast cancer victim, accounts for an additional 1.5% of the variance ($R^2 = .65$). This finding is consistent with the results obtained by Senie et al. (1981) and Huguley and Brown (1981) that history of breast cancer in the family is related to BSE frequency. As noted earlier, the issue was broadened for this study to include knowing anyone who has had breast cancer. It is interesting that acquaintance with a breast cancer victim is an important variable in predicting the frequency of breast self-examination for these young women who largely consider themselves free from breast cancer. It appears that knowledge of a victim may be a sobering reality that brings the need to protect against breast cancer more clearly into focus. This hypothesized explanation receives some support from the negative significant correlation ($r = -.32$, $p < .01$) between the scale that measured the impact of knowing a breast cancer victim and the susceptibility item (health too good at present to consider getting breast cancer).

The final predictor, the impact of sexual activities ($R^2 = .66$), accounted for 1.2% of the variance, bringing the total variance accounted for by the five variables to 43.1%. The entrance of this variable into the equation predicting frequency of breast self-examination is thought to be a result of the current importance of sexual exploration and activity for this particular age group. Fifty-three percent of these young women reported that they are

currently sexually active (defined as "having intercourse or oral-genital contact with a partner"), a figure that is very close to Kallen and Doughty's (1982) finding of 55%. Eighty-three percent had engaged in petting (stimulation of breasts and genitals) with clothes on, while 72% had engaged in petting with clothes off. The salience of sexual experiences for these young women appears to be strong enough on the average that this variable has an impact even on a tangentially-related health behavior like BSE.

Having presented the five variables that entered the multiple regression equation, the next segment of the discussion will focus on the relationships between frequency of BSE and the remaining independent variables. These variables will be presented in the clusters that formed the four hypotheses.

The Effect of General Preventive Health Orientation

The predicted positive association between frequency of BSE and a preventive health orientation was not found in this sample. This finding is inconsistent with the results obtained by Haran, et al. (1981), Howe (1981), and Senie et al. (1981), who found women who perform BSE more likely to engage in various other health behaviors. Several possible explanations can be offered for these discrepant findings. First, the measurement of general preventive health orientation was obtained through different means in this study. As indicated in the Methods section, the Lau scale contains both physician-based behaviors and self-care (autonomous) behaviors. In contrast, Senie et al. and Haran et al. focused on physician-based health care only. Although Howe and Roberts investigated both kinds of health behaviors, they did not measure the same behaviors as the

Lau scale does.

A second possible explanation for the difference in findings centers on the age of these subjects. It is possible that health behaviors may not be as salient or as highly developed for these young women as for the older women investigated in the other studies. It is interesting to note that one finding of the study contradicts this possible explanation: the majority ($n=107$) of these subjects report that they perform BSE because of a general concern about health.

A third possible explanation for the difference in findings has to do with the internal consistency of the Lau scale. As indicated in the Methods section, the alpha for the scale was very low (.33) and efforts to improve it by considering different combinations of health behaviors were ineffective in obtaining a more highly reliable scale. The accuracy, then, of the scale as a measurement of a preventive health orientation is very questionable. Future work with a more reliable scale is necessary before the impact of a preventive health orientation on frequency of BSE can be ruled out for young women.

The Effect of Awareness of Breast Cancer and BSE

The purpose of this area of investigation was to explore whether or not there were specific aspects of the disease of breast cancer or the health behavior of BSE that influenced the frequency of its practice. One facet of the investigation focused on breast cancer — knowledge of it and awareness of personal susceptibility to it. A second facet centered on the BSE procedure — knowledge of it, awareness of its benefits, confidence in competence to perform it, and social influence to perform it.

As noted earlier, the Stillman (1977) scales, involved in the

tests of this hypothesis, showed poor internal consistency. Because of that, individual questions were selected to represent the three areas of knowledge of breast cancer, awareness of susceptibility to it, and awareness of benefits of BSE. Generalizing from the individual items to the broader concepts must be done very cautiously. Further work refining scales that reliably measure these variables would be useful.

Knowledge of Breast Cancer. Knowledge that there is an increased risk of breast cancer for those whose relatives have had the disease is the one aspect of knowledge of breast cancer that showed a significant positive (although low) correlation with frequency of BSE ($\underline{r} = .17$). The finding is interesting because this risk factor, assumed by many to be genetic, is one of a very few factors (along with previous breast cancer, increase in age) that has been clearly identified with the development of breast cancer (National Cancer Institute, 1979). It is also interesting in that Stromborg (1981) notes the particular importance and common recognition of this risk factor. Those young women, then, who are aware of the familial link for breast cancer perform BSE more frequently than those who are unaware of the connection. Awareness of the link may, of course, be a result of familial experience with breast cancer. Thus, this piece of information may be confounded by such experience; that is, it may not involve knowledge alone, but also the experience of knowing a breast cancer victim. Investigation of the current data offers some support for this possibility: it reveals a significant correlation ($\underline{r} = .26$, $p < .05$) between the scale that measured the impact of acquaintance with a breast cancer victim and knowledge of the familial link.

The lack of a positive association between the remaining three items of the knowledge scale and frequency of breast self-examination is also of interest. The first of those questions involves knowledge of the chance of a woman in this country getting breast cancer sometime during her lifetime. Interestingly, in the 6 or 7 years between Stillman's publication (1977) and the data collection of this study that figure changed from 9% to 11%. The correct answer, then, also changed from "a) Under 10 per cent" to "b) 10-25 per cent." Twelve percent of Stillman's sample endorsed the previously correct "under 10 per cent" response, while 39% of this sample endorsed the currently correct "10-25 per cent" response. A higher percentage of this sample, then, got the answer correct. Although this finding may indicate that the current subjects are more knowledgeable about this issue, it also seems possible that choice "b" was a more likely estimate for both groups of women. Efforts to check this hypothesized interpretation with the Stillman data were frustrated because she does not report the percentages of incorrect responses.

The second question asks for knowledge of the age at which incidence of breast cancer increases. Stillman notes that options of 30th birthday (b) and 40th birthday (c) are both acceptable because the ages of 35 and 40 are most frequently cited in the literature (1977, p. 124). Sixty-eight percent of this sample chose one of those two options, compared to 92% of Stillman's. The final question concerned knowledge of the non-cancerous nature of most lumps found in the breast: 70% of this sample knew that most lumps do not turn out to be cancer, compared to 96% of Stillman's. For two of these three questions, this sample of young women shows less knowledge than

Stillman's subjects and for the third the comparison is confounded by the change in the correct answer. It appears, then, that these college students are less knowledgeable about breast cancer than the older women Stillman sampled; a likely explanation for the difference is their youth, which involves both a lack of perceived susceptibility to the disease and a lack of peer experience with the disease.

That conclusion does not, however, explain the lack of a relationship between knowledge of breast cancer and BSE frequency. Perhaps the equivocal information available about these aspects of breast cancer engenders sufficient confusion to cloud the impact of accurate knowledge about them. If not, it appears that knowledge of the disease is largely unrelated to BSE frequency for these young women. These results are not consistent with the findings of Spring and Kosch (1982), Olenn (1981) and Stromborg (1981). They do offer related support to Celentano and Holtzmann's (1983) finding that knowledge of warning signs was unrelated to BSE competence.

Perceived Susceptibility to Breast Cancer. Of the three items chosen to represent perceived susceptibility to breast cancer because of the extent to which they discriminated among subjects, only one -- present health too good to consider thinking about getting breast cancer -- showed a significant association with frequency of BSE. That association is negative, indicating that the stronger one's belief is in that view, the less frequently one performs BSE. Discussion of that finding appears above. Investigation of the other two susceptibility items reveals that there is not a significant association for these young women between frequency of BSE and 1) getting older and thinking more of the possibility of getting breast

cancer and 2) their estimations of their chances of getting this disease someday. The lack of association between these items and reported frequency of BSE seems to result from the age of these subjects -- because of their youth, it seems probable that they have not gotten "old enough" to face the serious possibility of getting breast cancer at the present time nor are they likely yet to feel vulnerable to the disease in the future.

Knowledge of BSE. As discussed earlier, accurate knowledge and performance of BSE appears to be very influential in predicting frequency of BSE. Further investigation of the correlations between the two knowledge of BSE scores and the frequency of performance reveals two interesting points. First, it is interesting to note that in the second situation (which steps should be performed in comprehensive BSE) a fifth step, standing before a mirror and inspecting breasts for anything unusual while holding arms over head, was so highly correlated with the other four that it was included in the scale. It is curious that subjects report knowing that step, yet not performing it; particularly, since it seems like such an easy one to perform. Of greater importance, perhaps, is the second point that the scale focusing on what should be done did not show nearly as strong a correlation with frequency of breast self-examination as did the first scale ($r = .31$, $r = .60$). It is apparent, then, that accurate knowledge does not appear to be as influential in the frequency of BSE as does accurate knowledge combined with performance of the basic steps of this procedure. Again, the conclusions of Roberts et al. (1984) and Pennypacker et al. (1982) about the importance of actual performance of BSE in developing knowledge and proficiency is

underscored.

Perceived Benefits of BSE. Investigations of the subjects' awareness of the benefits of BSE involved consideration of two items, one of which showed the predicted association and one which did not. The significant association, which was a negative one, exists between frequency of BSE and embarrassment about examining breasts. Although the relationship between this response and BSE frequency was examined previously in the section on prediction of BSE, it is important to note here that the significant negative correlation is stronger than that for many of the independent variables in this study ($r = -.30$).

The second benefit item, which involved unnecessary worry about breast cancer resulting from performance of BSE, did not show a significant association with frequency of BSE. It seems likely, in keeping with the results discussed above, that for these young women the realistic evaluation that they are unlikely to get breast cancer at this time overrides any connection that they might make between the performance of BSE and their worry about the disease. The endorsement of "I'm afraid of how I'll react if I do find something abnormal" as a reason for non-performance by only 15 subjects may support this interpretation. The lack of worry by these young subjects contrasts with the anxiety and worry reported by the older subjects in the studies by Keller, et al. (1980), Kelly (1978), Stillman (1977), and Turnbull (1978).

Confidence in Competence to Perform BSE. Confidence in competence to perform BSE resulted in the predicted positive, significant association with frequency of BSE ($r = .16$). Confidence is, then, a relatively important aspect of BSE performance for these

young women, a finding that is consistent with those of Celentano and Holtzmann (1983), Edwards (1980), Keller et al. (1982), Reddy (1984), Spring and Kosch (1982), and Zapka and Mamon (1982). Further investigation of this variable reveals that confidence also showed a significant correlation with the reported performance of BSE ($r = .22$). Confidence is, then, also related to accurate knowledge and performance of the health behavior.

Social Influence to Perform BSE. Finally, social influence in the form of encouragement to practice BSE is associated with significantly more frequent performance of the procedure (means of 3.40 for those who receive it and 2.30 for those who do not differ at the $p < .001$ level). Apparently, young women benefit from the interest and concern of significant others in their practice of BSE. This result supports Howe's (1981) investigation which revealed that lack of social influence was associated with non-performance of BSE. It is further supported by these students' responses to an item which asked what kind of reminder might be helpful to them in performing BSE. A majority ($n=103$) indicated that a reminder from a significant person (lover, physician, parent) would be helpful to them.

The Effect of Body Image and Self-Esteem

As indicated in the Results section, the predicted relationships between BSE and body image and self-esteem were not found. These results are inconsistent with those of Scilken (1977) and Hallal (1981), both of whom found significant relationships between frequency of BSE and the related factors of body image and physical self-concept. While the difference with Hallal's findings may be explained by measurement techniques (she used the Tennessee

Self-Concept Scale physical self-concept measure), that explanation does not hold for Scilken's study which also employed Secord and Jourard's Body Cathexis Scale. It seems more likely that the current lack of findings are, again, related to the youthfulness of this sample. Body image may be less important or less well-defined for these young women than for the older women Scilken and Hallal studied. Rosenbaum's (1979) comments about the revisions in body image that are required during adolescence may lend support to the latter possibility.

The lack of relationship between self-esteem and frequency of BSE, which also contrasts with Hallal's (1981) findings, may again result from differing measurement tools. She used a self-esteem score from the Tennessee Self Concept Scale, while this study employed the Rosenberg Self-Esteem Scale. In addition, an argument similar to the one above (that is, that these young women may have a less well-defined and stable sense of self-esteem) could also be made.

A final possible explanation for the lack of significant findings with both of these variables involves the homogeneity of the sample with respect to age. Perhaps the homogeneity in age is associated with homogeneity on these variables, and, therefore, with the lack of significant results.

The Effect of Perceptions of and Experiences with Breasts

This final area of investigation grew out of the possibility that the particular body part involved in this health behavior may have some special significance for the performance or non-performance of BSE. Reasoning in a fashion similar to that of Scilken (1977) and Hallal (1981), who hypothesized that feelings about the body as a

whole would affect performance of BSE, this hypothesis proposes that feelings about and experiences with the breasts in particular might also influence BSE frequency.

Four perceptions of breasts were investigated: importance, satisfaction, attractiveness, and comfort. Two of those perceptions showed positive significant (although low) correlations with frequency of BSE: importance of breasts ($r = .14$) and comfort with breasts ($r = .14$).

Importance of Breasts. The interesting aspect of the two-item scale measuring importance of breasts is that the criteria that were used to evaluate importance are not readily apparent. This researcher's intuition was that, at this age of sexual exploration, attractiveness and satisfaction would be very salient aspects of ratings of importance of breasts. That intuition is, apparently, an inaccurate one because efforts to combine the measures of those variables with the measure of importance resulted in a scale of very low internal consistency. It seems that importance must be determined by some aspect other than attractiveness or satisfaction, perhaps by functioning of the breasts. Possible support for that connection may be seen in the relatively high correlation between importance of breasts and sexual experiences ($r = .36$, $p < .001$). Perhaps the function of breasts in sexual activities as objects and sources of arousal may be more important than attractiveness and satisfaction.

Comfort with Breasts. A significant correlation was also found for the perception of comfort with breasts and frequency of BSE ($r = .14$). This study and others have found that lack of comfort, which has been defined as embarrassment, modesty, uneasiness about the body

and breasts, is associated with non-performance of BSE (Howe, 1981; Miller, Norcross & Bass, 1980; Stillman, 1977; and Zapka & Mamon, 1982). Approaching this same issue from the opposite vantage point, the current study also suggests that more frequent BSE is associated with greater comfort with breasts.

Attractiveness of and Satisfaction with Breasts. The finding that attractiveness and satisfaction are not related to BSE is somewhat surprising, as suggested above. It is noteworthy that both that both variables show significant positive correlations with body image ($r = .18$, $p < .05$; $r = .29$, $p < .001$; respectively) and that satisfaction also shows a positive correlation with self-esteem ($r = .16$, $p < .05$). The latter result supports Lerner, Orlos, and Knapp's (1976) finding that feelings about breasts were related to self-concept in college women.

In addition to perceptions of breasts, several kinds of experiences with breasts were also examined: developmental experiences, sexual experiences, and experience with breast cancer.

Developmental Experiences with Breasts. The prediction that experience with early breast development would be associated with frequency of BSE received no support. This prediction was based on Benedek's (1979) evaluation of the significance of the adolescent's response to her early breast development and the inference that those early emotional responses would affect later feelings about breasts. The lack of an association here suggests that the inference is incorrect. Perhaps these young women's early responses are sufficiently in the past or sufficiently resolved that they do not influence their current responses to their breasts, or at least their

current behavioral response of BSE practice.

Sexual Experiences with Breasts. The importance of which kind of experience is most recent receives some possible support from the observed positive association between the second experience, sexual activities, and frequency of BSE. It seems to this researcher that for these late adolescent and young women, their current awareness of their breasts is more likely to be focused on their role in sexual activity than on their previous early development. Sexual activity does show a significant (although low) association with the dependent measure ($r = .19$) and also enters the prediction equation. Discussion of this variable was presented earlier.

Experiences involving Breast Cancer. The final kind of experience evaluated was the impact of another's breast cancer or mastectomy, and anticipated response to one's own. In addition to the simple question about acquaintance with a woman who has had breast cancer that was entered into the multiple regression analysis, three scales were involved in this investigation. The scale that asked the subject to reflect on the impact of knowing that victim on her own view of breast cancer and BSE showed a significant, positive correlation with frequency of BSE ($r = .54$). The associations between the dependent measure and the other two scales were non-significant. Therefore, it appears that the critical variable in this area is not the breast cancer victim's adjustment to her disease or the subject's anticipated response to her own potential breast cancer, but the extent to which the subject's attitudes toward breast cancer and BSE changed as a result of knowing a breast cancer victim. Perhaps awareness and fear of the disease increase substantially with actual

acquaintance with a person undergoing the experience and, consequently, willingness to perform BSE conscientiously increases. As noted earlier, this hypothesized connection receives some support from the significant correlation ($r = -.32$) between the impact scale and the susceptibility item (health too good at present to think about getting breast cancer). This interpretation suggests that the powerful impact of breast cancer and mastectomy on the victim reported by Polivy (1975) may influence those acquainted with her. It is not, of course, possible to establish the direction or even the causal nature of the hypothesized relationship on the basis of these correlational data. A very plausible alternate explanation may be that those who feel susceptible to breast cancer (or are very aware of it) are more likely to recall their acquaintance with a breast cancer victim and retrospectively attribute their feelings of susceptibility (or their commitment to BSE) to it. Further investigation is needed to understand fully the impact of acquaintance with a breast cancer victim.

✓ The lack of impact of the anticipated response variable may again reflect the difficulty these young women appear to have in perceiving their vulnerability to the disease.

Comparison of the Results of this Study to the Literature

The purpose of this study was to investigate the reasons for performance and non-performance of BSE and the variables that differentiated performers from non-performers in a college-aged population. The study was exploratory in that it focused on this young population and it incorporated investigations of perceptions and experiences with breasts into the more usual set of variables

considered by previous researchers.

As noted in the Review of the Literature, there are few consistent findings of variables that differentiate performers from non-performers of BSE. The most consistent findings are found with a preventive health orientation, confidence in ability to perform BSE, and embarrassment/inhibitions about examining breasts. The first two involve a positive relationship (increases in them are associated with more frequent BSE); the last a negative relationship (the greater the embarrassment, the less frequent BSE). In this sample of young women, the predicted associations were found for confidence and embarrassment, but not for the preventive health orientation.

More inconsistent findings are found in the literature for the relationship between BSE performance and knowledge of breast cancer, perceived vulnerability to it, familial history of the disease, and knowledge of the breast self-examination procedure. In this sample of young women, accurate knowledge and performance of the procedure was a very strong differentiating variable. A factor related to familial history of breast cancer, acquaintance with a breast cancer victim, was also very influential, especially as it focused on the consequences of that experience for the subject. Perceived vulnerability was significantly associated in a negative direction with BSE frequency. Finally, knowledge of breast cancer was inconsistently associated with BSE frequency. A positive association was found for only one of four knowledge questions; namely, knowledge of the increased risk of breast cancer if one has relatives who have had the disease.

A final pair of variables introduced in the literature review

were body image and self-esteem. These variables had not been investigated often (two studies were found for body image, one for self-esteem). The predicted results were not found in this study.

Within the particularly exploratory area of perceptions of and experiences with breasts, breast importance and the impact of sexual activity showed significant positive correlations with BSE, while attractiveness, satisfaction, and early breast development did not.

The major differences in results observed between the literature in general and this study, then, are two:

- 1) the relationships between BSE frequency and knowledge of BSE and acquaintance with a breast cancer victim are stronger than would be predicted from the literature, which reveals inconsistency with respect to these two variables;

- 2) the lack of a relationship between BSE frequency and a preventive health orientation in this study is very different from the consistent relationship found in other research.

In addition, the role of perceived susceptibility appears to have a stronger impact on these young women than one might expect on the basis of the inconsistent findings reported in the literature review. More minor, but noteworthy, discrepancies involve the lack of relationship between BSE frequency and body image and self-esteem.

The three variables where the expected relationship was not observed — preventive health orientation, body image, and self-esteem — have at least one explanation in common. That explanation rests on the youth of these subjects and the decreased likelihood that they have a clearly developed preventive health orientation, or a stable body image or sense of self-esteem.

Practical Implications

Given the similarities and differences of the results of this study in comparison to the literature in general, what practical implications are there for young women's performance of BSE?

The major finding is that accurate knowledge and performance of BSE are very important to its frequency for this population. Opportunities to gain knowledge of the procedure and to perform it correctly should, then, be a central focus of the campaign for BSE performance by young women. Investigation of the most effective means of transmitting the knowledge and of promoting performance in these young women is needed.

It is interesting to note that knowledge of the elementary aspects of the procedure (lying down, putting arm behind head, pressing flat part of fingertips in circles covering whole breast, and squeezing nipples gently) was the influential factor. This finding suggests the importance of stressing the basics and, perhaps, even of simplifying the procedure. Holtzman and Celentano (1983) come to similar conclusions. They question if "all of the steps for BSE need necessarily be carried out for detection of breast abnormalities" (p. 1325). They also believe it would be useful to examine which maneuvers women are more likely to carry out and why. After investigating various BSE educational programs for this project and finding some to be both complicated and time-consuming, the possibility of a simpler approach has considerable appeal. The idea of identifying the most frequently practiced maneuvers and women's reasons for practicing those steps and building a program on that foundation makes good common sense.

The impact of embarrassment on these young women as well as on women of all ages needs to be addressed. One approach to this difficult and affect-laden issue would involve discussing the discomfort directly during the educational program. Perhaps talking openly about embarrassment and hearing others' feelings would reduce its impact. The effect of discussion on inhibition has not been investigated, but Bond (1956) found that discussion in general can be a useful aspect of BSE education. His educational discussion groups showed significantly higher follow-up BSE practice rates than those in his lecture groups. Behavioral techniques of desensitization, modeling, and/or guided participation may also alleviate some of the embarrassment. As Worden et al. (1983) suggest, this sensitive subgroup requires further study.

Thirdly, the lack of perceived vulnerability among these young women needs to be addressed. The major difficulty in this issue is the epidemiology — the fact that breast cancer affects women over 35 much more often than those younger. The rationale that has been employed to counteract this difficulty is the notion that it is important to establish health behaviors early in a woman's life. Holleb (1966) reports that "the purpose of teaching the technique during the high school years is not to detect cancer. It is to develop a health habit. The more experience they gain, the more adept they'll be when they're older" (p. 7). Neeman and Neeman (1974) concur and elaborate on this early health habit theme:

The most desirable timing for breast cancer prevention education would be during the woman's formative years, namely early adolescence when the girl is highly interested in all aspects pertaining to her body, development and sex, and being at very low immediate risk

of breast cancer, is not subject to the same barrier-building anxieties as is the middle-aged woman (p. 546).

Stromborg (1981) sees the college health service as an "ideal" setting for teaching BSE and Zapka and Mamon (1982) are in the process of designing, implementing, and evaluating a sound educational program of BSE for college students. Stressing to young women the importance of their discovering cancer through BSE (when its incidence under age 35 is very low) or focusing on establishing a habit for the future (when they generally lack a sense of vulnerability to the disease) seem to be relatively ineffective approaches. Reporting the epidemiology accurately and emphasizing the importance of getting to know one's own breasts over time and the unlikelihood of finding an anxiety-producing symptom at this low-risk age may be more useful aspects of training in BSE.

The finding of the importance of acquaintance with a breast cancer victim also needs to be investigated for practical implications. Such a relationship appears to impact on the frequency of BSE performance, perhaps because it brings the disease more clearly into focus for these young women. One way to increase the contact between breast cancer victims and other women would be to have a woman who has experienced breast cancer tell her story as part of the educational process. Obviously, there are differences between such an experience and the more involved contact with a victim who is a relative or close friend. It is not clear if a one-time, non-intimate, but informative, presentation would have an impact. It seems, however, to be a possibility worth investigating.

Finally, the relationship between sexual activities and BSE

frequency may suggest the importance of appealing to these young women's sexual awareness of their breasts as a motivator for BSE. It also seems that discussion about their sexual feelings and the protection of their breasts as sexual body parts through BSE may facilitate commitment to the procedure.

Future Research

Several areas of future research are suggested by these considerations. The first is the development of scales that adequately measure (particularly with respect to internal consistency) general preventive health orientation, knowledge of breast cancer, perceived susceptibility to it, and perceived benefits of BSE.

A second area focuses on investigation of the most effective means for transmitting information about BSE and promoting its practice in young women. Some of the potentially important aspects of that investigation have been suggested above: the role of discussion in instruction, the emphasis on the importance of getting to know one's breasts over time, the lack of anxiety in performing the procedure at a low risk age, the impact of a speaker who has had breast cancer, and the appeal to the sexuality of the breasts.

A third and very important area for future work that has also been introduced above is investigation into sensitive subgroups, like those women who report that inhibitions or embarrassment are associated with BSE non-performance (Worden, et al., 1982). Roach and O'Fallon (1983) extend this approach by stressing the importance of targeting any groups of women that appear to be resistant to performing BSE for more intensive investigation. One subgroup highlighted by Stillman (1977) that is particularly intriguing is the

group that reports high beliefs in perceived susceptibility to breast cancer and perceived benefits of BSE, but infrequent performance of BSE.

A fourth area for future work that the current study anticipated is the need to measure both proficiency and frequency of BSE. Much of the empirical work done before 1982 focused on frequency as the most significant factor in BSE performance; however, recent investigators (Holtzman & Celentano, 1983; Roberts, et al., 1984; Sheley, 1983) have discovered that only a small percentage of the women in their studies who reported frequent BSE actually knew and performed the technique correctly. In contrast, this study revealed a strong relationship between frequency and accurate knowledge and performance. Further investigation of the relationship between frequency and proficiency is, then, indicated. In addition, it is very important to note that the measurement of proficiency is critical to the adequate evaluation of the efficacy of this health behavior. Fortunately, the focus on proficiency is likely to increase because a number of the current researchers appear to agree on the importance of measuring the quality of performance of BSE. Scales or indexes of correct technique, similar to that employed in this study, have been developed and/or utilized by Calnan, Chamberlain, and Moss (1983); Celentano and Holtzman (1983); Howe (1980); and Zapka and Mamon (1982).

A final area for future research that contrasts strongly with the approach of the present study is introduced in a compelling and controversial article by Grady (1984). She argues against the focus on characteristics of performers/non-performers in the research and against the focus on education as the "cure" in intervention

strategies. She believes that the critical factors for compliance with health practices most likely depend on the stimulus conditions and reinforcement contingencies associated with the behavior. Asserting that BSE has few intrinsic or extrinsic rewards, Grady focuses on stimulus control, the enhancement of cues for BSE. She reports 80% monthly compliance rates with subjects whose cue was an appropriately-timed postcard reminder to perform BSE. The success of Grady's approach and its basis in behavioral theory are impressive. Her focus on investigating effective cues for BSE performance appears to be a very useful, though not all-encompassing, approach to the issue of non-compliance. It deserves further investigation.

Summary

There are three sets of implications of this study of the factors that influence young women's performance of BSE. The first is the set of current practical suggestions for those concerned with BSE education for college women. The second and third involve future research directions, focusing on practical directions for the research and on more theoretical research.

The practical suggestions for those involved in developing and marketing BSE educational programs for college women are:

- 1) emphasize accurate knowledge of the basic elements of BSE;
- 2) promote accurate practice of BSE;
- 3) employ discussion about embarrassment and behavioral techniques aimed at alleviating inhibitions related to it;
- 4) emphasize the lack of anxiety involved in BSE at this low-risk age;
- 5) stress the importance of getting to know one's breasts over time;

- 6) encourage significant people in young women's lives to promote and support BSE performance;
- 7) consider having a woman who has had breast cancer tell her story as part of the BSE educational program;
- 8) appeal to the young women's awareness of the sexual nature of their breasts.

Future research oriented to the more practical aspects of BSE should focus on:

- 1) measuring both proficiency and frequency of BSE;
- 2) investigating the most effective means for transmitting knowledge of BSE and promoting its practice in young women;
- 3) investigating cues for performance that would be practical to use on a large scale;
- 4) investigating subgroups of women resistant to BSE and useful strategies for promoting their practice of this health behavior.

More theoretical research related to BSE should involve:

- 1) the accurate measurement of general preventive health orientation and its role in BSE performance;
- 2) the accurate measurement of breast cancer knowledge, perceived susceptibility to it, and perceived benefits of BSE and their relationships to BSE performance;
- 3) the relationship of this health behavior and others to body image and self-esteem;
- 4) further investigation of the role perceptions of breasts and experiences with them play in BSE for varying age groups.

It was this last aspect of the current study, perceptions of and experiences with breasts, that was new and most exploratory. Two of the independent variables involved in the fourth hypothesis entered the regression equation (acquaintance with a breast cancer victim and sexual experiences) and two more showed statistically significant

correlations with BSE (importance of breasts and general comfort with them). Those findings lend some support to the idea that underlying psychological processes play a role in the performance of BSE. This effort to respond to the National Cancer Institute's call for studies into the "subconscious factors that influence a woman's emotional response to information about breast cancer and to suggestions concerning detection processes" (1979, p. 60) has, then, been fruitful. Further work using the strategy of investigating women's perceptions of and experiences with their breasts to better understand not only BSE, but other practical and theoretical issues involved with women and their bodies, appears to be another useful direction for future psychological research.

APPENDICES

Survey of Women's Health Behaviors and Body Attitudes

Dear Women Students,

As the title suggests, the following survey focuses on women's health behaviors and body attitudes. The survey, which is part of my dissertation research, will probably take you about an hour and a half to complete. It is the only requirement for your participation in the study.

Through the survey, I'm interested in learning generally which health behaviors you perform and how you feel about your body. In addition, the survey contains questions about your attitudes, knowledge and experience with specific health practices (for example, breast self-examination) and your feelings and experiences with specific parts of your body. Some of the questions focus on feelings and experiences that people may regard as being somewhat taboo or private (for instance, sexual experiences). I can assure you that I have asked nothing in the survey that will not be useful in understanding the state of women's health practices and body attitudes and that your responses will be held in strictest confidence. To insure the anonymity of your responses, please be sure not to put any identification (name, student number) on the survey form.

Because the questionnaires are anonymous, it is not necessary for you to sign a consent form. Please read the information on the following page, which is usually found on the consent form, and understand that your returning the survey to me will be evidence of informed consent.

In closing, I would like to ask you to complete the survey as carefully as possible. As you probably know, research is only valuable to the extent that it accurately reflects what people actually do or feel. I ask, then, that you be as honest and complete in your responses as you can be. To this end, PLEASE make any additional comments on the questionnaire that you feel would help me better understand your experience or point of view. Even a careful completion of the questionnaire should take no more than an hour and a half.

Thank you for your help!

Sincerely,

Pat Ponto

Please read this page and take it with you.

1. I have freely consented to take part in a scientific study being conducted by Patricia Ponto, M.A., under the supervision of Elaine Donelson, Ph.D., Professor of Psychology.
2. The study has been explained to me and I understand the explanation that has been given and what my participation will involve.
3. I understand that I am free to discontinue my participation in the study at any time without penalty.
4. I understand that the results of the study will be treated in strict confidence and that I will remain anonymous. Within these restrictions, results of the study will be made available to me at my request. Please contact Pat Ponto, %Department of Psychology after 6/1/84 for the results.
5. I understand that my participation in the study does not guarantee any beneficial results to me.
6. I understand that, at my request, I can receive additional explanation of the study after my participation is completed. Please contact Pat Ponto, %Department of Psychology.
7. I understand that, should the study prove upsetting to me in any way, I am free to discuss my feelings with the researcher, who is also a therapist. This discussion can be arranged by calling Marlene Terbush, secretary in Department of Psychology, at 353-5981.

Part 1. Personal Data Sheet. Please fill in the blanks as indicated.

1. Age ____ 2. Height ____ 3. Weight ____

4. Racial Background
(Check one.)

____ White
____ Black
____ Oriental
____ Hispanic
____ Other. Please specify.

5. Religious Preference
(Check one.)

____ Protestant
____ Catholic
____ Jewish
____ Agnostic
____ Atheist
____ Other. Please specify.

6. How religious would you say you are? (Circle one.)

anti- religious 1	not at all religious 2	slightly religious 3	somewhat religious 4	very religious 5
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7. Number of Siblings. Place appropriate number in each blank.

____ Older brothers ____ Older sisters
____ Younger brothers ____ Younger sisters

8. How would you describe the area you come from? (Check one.)

____ rural
____ suburban
____ small city (less than 250,000 people)
____ large city (more than 250,000 people)

9. Current Marital Status (Check one.)

____ Never married
____ Living with a lover
____ Married for the first time
____ Remarried
____ Separated
____ Divorced
____ Widowed

10. How many children do you have ? ____

Part II. Body Parts. Please list ten body parts.

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.
- 8.
- 9.
- 10.

Part III. Health Behaviors. Please complete the questions as indicated.

1. During the past 24 hours have you eaten: (check if yes)

☐ Fresh fruit
☐ Candy
☐ Whole grain breads
☐ Whole grain cereal
☐ Fresh vegetables
☐ Non-diet soft drinks
☐ Junk food

2. Which of these statements best describes your physical activity in general? (Check one.)

☐ Not very active physically, usually just sitting or walking
☐ Fairly active physically, moderate or strenuous activity several times a week
☐ Quite active physically, at least moderate activity every day
☐ Extremely active physically, strenuous activity most days

3. Do you think you weigh too much now, or has a doctor or nurse told you that you now weigh too much? ☐ yes ☐ no

Are you currently on a diet to lose weight? ☐ yes ☐ no

Are you doing any special exercises to lose weight?

___ yes ___ no

4. When you ride in a car or truck, how much of the time do you wear a seat belt? (Check one.)

- ___ None of the time
- ___ A little of the time
- ___ Some of the time
- ___ Most of the time
- ___ All of the time

5. How frequently do you brush your teeth? (Check one.)

- ___ Rarely or never
- ___ About once a week
- ___ 3 or 4 times a week
- ___ About once a day
- ___ Twice a day
- ___ After almost every meal, including lunch

6. How frequently do you floss your teeth? (Check one.)

- ___ Rarely or never
- ___ About once a month
- ___ Every two weeks
- ___ Once or twice a week
- ___ 3 or 4 times a week
- ___ Every day

7. When was the last time you visited a doctor for a regular check-up? (DO NOT count any check-up required for admission to MSU or for participation in athletics)? (Check one.)

- ___ Within the last 6 months
- ___ Within the past year
- ___ Within the past 2 years
- ___ Within the past 5 years
- ___ Within the past 10 years
- ___ I do not go to a doctor for a regular check-up, but only when I am sick

8. When was the last time you visited a dentist for a regular check-up?
(Check one.)

- ☐ Within the last 6 months
- ☐ Within the past year
- ☐ Within the past 2 years
- ☐ Within the past 5 years
- ☐ Within the past 10 years
- ☐ I do not go to a dentist for regular check-ups, but only if I have some specific problem with my teeth or gums

9. When was the last time you had a Pap smear done? (Check one.)

- ☐ Within the past 6 months
- ☐ Within the past year
- ☐ Within the past 2 years
- ☐ Within the past 5 years
- ☐ I've never or rarely had a pap smear

10. How frequently do you examine your breasts for lumps or other abnormalities? (Check one.)

- ☐ Never
- ☐ Once or twice a year
- ☐ Three or four times a year
- ☐ Every couple of months
- ☐ Once a month
- ☐ More than once a month

11. If you were to have heterosexual intercourse, would you use some means of contraception or birth control? (Check one.)

- ☐ Yes, without a doubt
- ☐ Yes, probably
- ☐ No

12. Do you currently use a birth control method? ☐ yes ☐ no

If yes, please indicate which by checking the appropriate blank(s).

- ☐ Birth control pills
- ☐ Intrauterine device (IUD)
- ☐ Diaphragm
- ☐ Contraceptive foam
- ☐ Condom
- ☐ Withdrawal
- ☐ Rhythm
- ☐ Other (Please specify.)

Part IV. Family Health History. Check the space under "you" or your parents if you KNOW that he, she or you have had any of the following medical disorders.

<u>Medical Disorder</u>	You	Mother	Father
High Blood Pressure	—	—	—
Heart Trouble	—	—	—
Stroke	—	—	—
Ulcer Disease	—	—	—
Kidney Disease	—	—	—
Arthritis	—	—	—
Neuromuscular Disease (e.g., muscular dystrophy)	—	—	—
Seizures	—	—	—
Diabetes	—	—	—
Cancer	—	—	—
Alcoholism/Drug Abuse	—	—	—
Mental Illness	—	—	—
Other. Please specify.	—	—	—

For the following groups of people (grandparents, other close relatives, close friends), place the NUMBER in the blank of the persons who have/have had the disorder. For instance, if two grandparents suffer/suffered from high blood pressure, put a "2" in the blank.

<u>Medical Disorder</u>	Grandparents	Other Close Relatives	Close Friends
High Blood Pressure	—	—	—
Heart Trouble	—	—	—
Stroke	—	—	—
Ulcer Disease	—	—	—
Kidney Disease	—	—	—
Arthritis	—	—	—
Neuromuscular Disease	—	—	—
Seizures	—	—	—
Diabetes	—	—	—
Cancer	—	—	—
Alcoholism/Drug Abuse	—	—	—
Mental Illness	—	—	—
Other. Please specify.	—	—	—

How trusting are you of the medical profession? (Circle one.)

very mistrusting	somewhat mistrusting	neutral	somewhat trusting	very trusting
1	2	3	4	5

Part V. Breast Associations. List the first ten words that come to mind when you think about breasts. (This is meant to be a free association exercise, so please do not censor your responses. Remember that the survey is confidential and write down the first ten words that come to mind.)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Part VI. More Breast Associations. Please check those words you associate with your breasts. Use a single check for those that stir some (moderate) association and a double check for those that elicit strong associations.

☐ maternal	☐ sensuous	☐ giving
☐ sexual	☐ nurturing	☐ powerful
☐ fulfilling	☐ nourishing	☐ protecting
☐ arousing	☐ gratifying	☐ womanly
☐ warmth	☐ vulnerable	☐ soft
☐ petting	☐ baby sucking	☐ abundant
☐ milk-giving	☐ alluring	☐ enfolding

Now, please go through the words again in the list below. In the blank before the word, please indicate if you view that word as applying more to the sexual role of breasts (put an "s" in the blank), the maternal role (put an "m" in the blank), both (put a "b" in the blank), or neither (put an "n" in the blank).

s=sexual
m=maternal
b=both
n=neither

☐ maternal	☐ sensuous	☐ giving
☐ sexual	☐ nurturing	☐ powerful
☐ fulfilling	☐ nourishing	☐ protecting
☐ arousing	☐ gratifying	☐ womanly
☐ warmth	☐ vulnerable	☐ soft
☐ petting	☐ baby sucking	☐ abundant
☐ milk-giving	☐ alluring	☐ enfolding

Part VII. Feelings about Body. On this page are listed a number of things characteristic of yourself or related to you. Consider each item listed below and decide which of the following best represents your feelings according to the following scale. Place the appropriate number in the blank in front of the item.

- 1 = Have strong feelings and wish change could somehow be made.
 2 = Don't like, but can put up with.
 3 = Have no particular feelings one way or the other.
 4 = Am satisfied.
 5 = Consider myself fortunate.

- | | |
|---------------------------------------|---------------------------------|
| ___ 1. hair | ___ 26. chest |
| ___ 2. facial complexion | ___ 27. eyes |
| ___ 3. appetite | ___ 28. digestion |
| ___ 4. hands | ___ 29. hips |
| ___ 5. distribution of hair over body | ___ 30. skin texture |
| ___ 6. nose | ___ 31. lips |
| ___ 7. fingers | ___ 32. legs |
| ___ 8. elimination | ___ 33. teeth |
| ___ 9. wrists | ___ 34. forehead |
| ___ 10. breathing | ___ 35. feet |
| ___ 11. waist | ___ 36. sleep |
| ___ 12. energy level | ___ 37. voice |
| ___ 13. back | ___ 38. health |
| ___ 14. ears | ___ 39. sex activities |
| ___ 15. chin | ___ 40. knees |
| ___ 16. exercise | ___ 41. posture |
| ___ 17. ankles | ___ 42. face |
| ___ 18. neck | ___ 43. weight |
| ___ 19. shape of head | ___ 44. sex (female or male) |
| ___ 20. body build | ___ 45. back view of head |
| ___ 21. profile | ___ 46. trunk |
| ___ 22. height | ___ 47. abdomen |
| ___ 23. age | ___ 48. buttocks (seat) |
| ___ 24. width of shoulders | ___ 49. general muscle tone |
| ___ 25. arms | ___ 50. overall body appearance |
| | ___ 51. breasts |

One or more of my body features makes me a poor sex partner. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

Part VIII. Feelings about Self. The items in this section focus on your feelings about yourself. For each item, circle the response that most closely describes your view of yourself.

1. I feel that I'm a person of worth, at least on an equal basis with others. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

2. I feel that I have a number of good qualities. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

3. All in all, I am inclined to feel that I am a failure. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

4. I am able to do things as well as most other people. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

5. I feel I do not have much to be proud of. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

6. I take a positive attitude toward myself. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

7. On the whole, I am satisfied with myself. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

8. I wish I could have more respect for myself. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

9. I certainly feel useless at times. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

10. At times I think I am no good at all. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

11. I am more intelligent than the average person. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

12. I am more likeable than the average person. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

13. I am more assertive than the average person. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

14. I am more emotional than the average person. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

15. I am more conscientious than the average person. (Circle one.)

strongly disagree	disagree	agree	strongly agree
1	2	3	4

16. How often do you dislike yourself? (Circle one.)

practically never	rarely	sometimes	fairly often	very often
1	2	3	4	5

17. When you talk in front of a class or group of persons of your own age, how apprehensive (scared, nervous) do you usually feel? (Circle one.)

not at all apprehensive	not very apprehensive	somewhat apprehensive	considerably apprehensive	very apprehensive
1	2	3	4	5

18. How confident do you feel that some day the persons you know will look up to you and respect you? (Circle one.)

not at all confident	not very confident	somewhat confident	considerably confident	very confident
1	2	3	4	5

19. How often do you feel self-conscious? (Circle one.)

practically never	rarely	sometimes	fairly often	very often
1	2	3	4	5

20. How sure of yourself do you feel among strangers? (Circle one.)

not at all sure of myself	not very sure of myself	somewhat sure of myself	considerably sure of myself	very sure of myself
1	2	3	4	5

21. How confident are you that your success in your career is assured? (Circle one.)

not at all confident	not very confident	somewhat confident	considerably confident	very confident
1	2	3	4	5

22. How often do you worry about how well you get along with other persons? (Circle one.)

practically never	rarely	sometimes	fairly often	very often
1	2	3	4	5

23. How often do you feel that you have handled yourself well at a social gathering? (Circle one.)

practically never	rarely	sometimes	fairly often	very often
1	2	3	4	5

24. How uncomfortable are you when you start conversations with persons you don't know? (Circle one.)

not at all uncomfortable	not very uncomfortable	somewhat uncomfortable	considerably uncomfortable	very uncomfortable
1	2	3	4	5

25. Overall, how confident do you feel about your abilities? (Circle one.)

not at all confident	not very confident	somewhat confident	considerably confident	very confident
1	2	3	4	5

Part IX. Relationship History. The following questions ask you for a description of your current and past dating relationships. Please complete the items as indicated.

1. What phrase best describes your current situation? (Check one.)

- ☐ not dating
- ☐ dating occasionally, but no one in particular
- ☐ dating frequently, but no one in particular
- ☐ dating one person occasionally
- ☐ dating one person steadily
- ☐ engaged
- ☐ married or cohabiting (living together)
- ☐ other (Please describe.)

2. If you are dating one person steadily, engaged, married, or cohabiting, how long have you been involved with that person? (Check one.)

Check here if not applicable. ☐

- ☐ six months or less
- ☐ six months to one year
- ☐ one to two years
- ☐ three to five years
- ☐ more than five years

3. How would you rate the physical attractiveness of your current partner or the average attractiveness of the people you've dated in the last year? Circle one. Check here if not applicable. ☐

- | | | | | |
|-----------------------------------|---------------------------------------|----------------------------|---------------------------------------|-----------------------------------|
| much less
physically
than I | slightly less
physically
than I | as
physically
than I | slightly more
physically
than I | much more
physically
than I |
| 1 | 2 | 3 | 4 | 5 |

4. How satisfied were you with your dating relationships during adolescence? Circle one. Check here if not applicable. ☐

- | | | | | |
|----------------------|--------------------------|---------|-----------------------|-------------------|
| very
dissatisfied | somewhat
dissatisfied | neutral | somewhat
satisfied | very
satisfied |
| 1 | 2 | 3 | 4 | 5 |

5. If you are not married or cohabiting, how satisfied are you with your dating relationships now? Circle one. Check here if not applicable. ☐

- | | | | | |
|----------------------|--------------------------|---------|-----------------------|-------------------|
| very
dissatisfied | somewhat
dissatisfied | neutral | somewhat
satisfied | very
satisfied |
| 1 | 2 | 3 | 4 | 5 |

6. How satisfied are you with your present marriage or cohabitation?
 Circle one. Check here if not applicable. ____

very dissatisfied	somewhat dissatisfied	neutral	somewhat satisfied	very satisfied
1	2	3	4	5

7. How important do you think physical attractiveness is in day-to-day social interactions for most persons? (Circle one.)

almost irrelevant	slightly important	moderately important	very important
1	2	3	4

8. How important do you think physical attractiveness is for most persons in acquiring mates? (Circle one.)

almost irrelevant	slightly important	moderately important	very important
1	2	3	4

9. How important do you think physical attractiveness is for most persons in acquiring sexual partners? (Circle one.)

almost irrelevant	slightly important	moderately important	very important
1	2	3	4

Part X. Knowledge of Breast Cancer. Please read the following questions and circle the letter of the statement which you think is currently true about breast cancer.

1. The chances of a woman in this country getting breast cancer sometime during her lifetime are
 - a. Under 10 per cent (less than 10 women of every 100 will someday have it.)
 - b. 10-25 per cent (10 to 25 women out of 100 will someday have it.)
 - c. 26-50 per cent (26 to 50 women out of 100 will someday have it.)
 - d. 51-75 per cent (51 to 75 women out of 100 will someday have it.)
 - e. Over 75 per cent (More than 75 women out of 100 will someday have it.)
 - f. have no idea
2. Most lumps discovered in the breast turn out to be cancer.
 - a. Yes
 - b. No
 - c. Have no idea
3. On the average, the chances of a woman developing breast cancer begin to increase after she passes which birthday?
 - a. 20th
 - b. 30th
 - c. 40th
 - d. 50th
 - e. 60th
 - f. have no idea
4. A woman is more likely to develop breast cancer if she: (Circle as many as you feel are correct.)
 - a. is single.
 - b. has been married, but has no children.
 - c. has been married, and has had children.
 - d. has breastfed her children.
 - e. has had a hysterectomy (surgical removal of the uterus)
 - f. has relatives who have had breast cancer.
 - g. is past menopause (change of life).
 - h. takes birth control pills.
 - i. has been hit in the breast.
 - j. have no idea.
5. Five-year survival rates for breast cancer victims with "early breast cancer" are estimated at: (Circle one.)
 - a. 55%
 - b. 65%
 - c. 75%
 - d. 85%
 - e. 95%

6. The number of breast cancers that are discovered by women (rather than physicians) is estimated at: (Circle one.)

- a. 55% b. 65% c. 75% d. 85% e. 95%

7. At what point following mastectomy (surgical removal of the breast because of cancer), do most women resume normal productive lives? (Circle one.)

- a. 2 weeks b. 1-2 months c. 3-4 months d. 5-6 months e. 1 year

For the following statements, indicate the extent of your agreement by circling the number that best represents your response

8. A woman is more likely to develop breast cancer if she has had no children. (Circle one.)

- | | | | | |
|----------------------|----------------------|-------------------------------|-------------------|-------------------|
| disagree
strongly | disagree
somewhat | neither agree
nor disagree | agree
somewhat | agree
strongly |
| 1 | 2 | 3 | 4 | 5 |

9. A woman is more likely to develop breast cancer if she has breastfed her children. (Circle one.)

- | | | | | |
|----------------------|----------------------|-------------------------------|-------------------|-------------------|
| disagree
strongly | disagree
somewhat | neither agree
nor disagree | agree
somewhat | agree
strongly |
| 1 | 2 | 3 | 4 | 5 |

10. A woman is more likely to develop breast cancer if she has taken birth control pills. (Circle one.)

- | | | | | |
|----------------------|----------------------|-------------------------------|-------------------|-------------------|
| disagree
strongly | disagree
somewhat | neither agree
nor disagree | agree
somewhat | agree
strongly |
| 1 | 2 | 3 | 4 | 5 |

11. A woman is more likely to develop breast cancer if she has had previous breast cancer. (Circle one.)

- | | | | | |
|----------------------|----------------------|-------------------------------|-------------------|-------------------|
| disagree
strongly | disagree
somewhat | neither agree
nor disagree | agree
somewhat | agree
strongly |
| 1 | 2 | 3 | 4 | 5 |

12. A woman is more likely to develop breast cancer if she has cystic breast disease [non-cancerous cysts (lumps) in the breast]. (Circle one.)

- | | | | | |
|----------------------|----------------------|-------------------------------|-------------------|-------------------|
| disagree
strongly | disagree
somewhat | neither agree
nor disagree | agree
somewhat | agree
strongly |
| 1 | 2 | 3 | 4 | 5 |

13. A woman is more likely to develop breast cancer if she has been exposed to someone with breast cancer. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

14. A woman is more likely to develop breast cancer if she has had a hysterectomy (surgical removal of the uterus). (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

15. A woman is more likely to develop breast cancer if she has been hit in the breast. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

16. A woman is more likely to develop breast cancer if she has been exposed to radiation. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

17. Breast cancer cannot be prevented at this time, it can just be detected early. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

18. The removal of the entire breast is always involved in the treatment of breast cancer. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

19. The degree of development of a breast cancer at the time of diagnosis strongly influences success in treatment. (Circle one.)

disagree strongly 1	disagree somewhat 2	neither agree nor disagree 3	agree somewhat 4	agree strongly 5
---------------------------	---------------------------	------------------------------------	------------------------	------------------------

Please note that you have only four response options from this point on.

20. If more women examined their breasts regularly, there would be fewer deaths from breast cancer. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

21. My health is too good at present to even consider thinking that I might get breast cancer. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

22. Whether I find a lump in my breast myself doesn't really matter because by then it's too late anyway. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

23. Whenever I hear of a friend or relative (or public figure) getting breast cancer, it makes me realize that I could get it, too. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

24. If I examined my own breasts regularly, I might find a lump sooner than if I just went to the doctor for a check-up. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

25. There are so many things that could happen to me that it's pointless to think about any one thing like breast cancer. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

26. Even though it's a good idea, I find examining/having to examine my breasts an embarrassing thing to do. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

27. The older I get, the more I think about the possibility of getting breast cancer someday. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

28. Examining my breasts often makes/would make me worry unnecessarily about breast cancer. (Circle one.)

disagree
strongly
1

disagree
a little
2

agree
a little
3

agree
strongly
4

29. If I had to think about the possibility that I might someday get breast cancer, I would rate my chances as compared with other women as (Circle one):

- a. average
- b. above average (more likely that I would get it)
- c. below average (less likely that I would get it)

Please explain your rating.

30. How many times have you examined your breasts in the last twelve months? (Check one.)

- ___ 0 times
- ___ 1-2 times
- ___ 3-4 times
- ___ 5-7 times
- ___ 8-11 times
- ___ 12 or more times

Part XI. Knowledge and Practice of Breast Self-Examination. Please feel free to comment about any of the following questions if you wish to add some information or feel that an explanation would help me understand your situation more fully. Use the empty space near the questions or the back of the paper. Please use the number of the question to identify your comments.

1. Have you been taught the procedure for breast self-examination (BSE)? ☐ yes ☐ no

If yes, answer questions 2-5. If no, skip to question 6.

2. How were you taught? (Check as many as apply to you.)

- ☐ By reading a pamphlet or book.
- ☐ By attending a demonstration or class.
- ☐ By having a doctor teach you.
- ☐ By having a nurse teach you.
- ☐ By seeing it demonstrated on television.
- ☐ Other (Please describe.)

If you were taught by a person(s), please indicate with a check if that person(s) was(were) ☐ male ☐ female ☐ both

3. As part of the learning procedure, did you examine your own breasts? ☐ yes ☐ no

If yes, did a professional person (doctor, nurse) observe your breast self-exam? ☐ yes ☐ no

4. When were you taught breast self-examination? (Check as many as apply to you).

- ☐ Within the last three months.
- ☐ Three to six months ago.
- ☐ Six months to one year ago.
- ☐ One to three years ago.
- ☐ More than three years ago.

5. How would you evaluate the BSE educational program? (If you've been taught several times, rate the best program you've been exposed to). (Circle one.)

very inadequate	somewhat inadequate	neutral	somewhat adequate	very adequate
1	2	3	4	5

6. How many times in the last three months have you examined your breasts? (Please be exact.) _____

7. How often should BSE be performed? (Check one.)

- ___ every week
- ___ every month
- ___ every 3 months
- ___ every 6 months
- ___ annually

8. Which best describes when you examine your breasts?

- ___ on a routine basis
- ___ when I happen to think of it
- ___ not at all

If you answered on a routine basis, what reminds you to do so?
(Check as many as apply.)

- ___ certain day in menstrual cycle
- ___ certain day in birth control pills
- ___ certain date of month
- ___ other (Please describe.)

If you answered when I happen to think of it, what makes you decide to do so? (Check as many as apply.)

- ___ talking with others about breast cancer
- ___ reading about breast cancer
- ___ hearing about breast cancer on television
- ___ experiencing breast tenderness or pain
- ___ noticing breasts while showering, dressing, looking in mirror
- ___ noticing breasts while sitting or laying around without much to do
- ___ thinking about breasts during sexual activities
- ___ receiving encouragement from others
- ___ having the idea just come to mind
- ___ other (Please describe.)

If you answered not at all, what would it take for you to start to do so? (Check as many as apply.)

- ___ more information about breast cancer
- ___ more information about breast self-examination
- ___ more confidence in ability to perform breast self-examination
- ___ a consistent reminder to perform breast self-examination
- ___ other (Please describe.)

If you checked the last statement (a consistent reminder), what would be a good reminder? Please take a minute to think about this and be as specific as you can be.

Your ideas _____

Would any of the following work for you? (Check as many as apply.)

- ☐ reminder on television
- ☐ reminder through mail
- ☐ reminder from significant person (lover, physician, parent)
- ☐ reminder in the form of a sticker in the shower or on the bathroom mirror

9. For pre-menopausal women (those still having menstrual periods), the best time to examine their breasts is: (Check one.)

- ☐ on the first day of the month
- ☐ on the last day of the month
- ☐ about a week before the menstrual period
- ☐ about a week after the menstrual period
- ☐ it doesn't matter
- ☐ other. (Please describe.)

10. Which of the following describe your reasons for performing BSE? (Check as many as apply.)

- ☐ I'm generally concerned about my health.
- ☐ I'm trying to protect myself from breast cancer.
- ☐ I feel it is my personal responsibility to perform BSE.
- ☐ I have a family history of lumps and/or breast cancer.
- ☐ Someone reminds me to perform BSE.
- ☐ My breasts become tender and that worries me, so I perform BSE to check on them.
- ☐ It's a habit.
- ☐ Other. (Please describe.)

11. Which of the following describe your reasons for not performing BSE? (Check as many as apply.)

- ☐ I'm not generally concerned about my health at this point in my life.
- ☐ I'm not concerned about getting breast cancer at this time.
- ☐ I feel that breast examination should be performed by doctors or nurses.
- ☐ I do not have a family history of breast cancer or breast disease.
- ☐ No one reminds me to perform BSE.
- ☐ The tenderness of my breasts prevents me from examining them.
- ☐ I don't remember to do it.
- ☐ I don't know how to perform BSE.
- ☐ I don't feel confident enough that I perform BSE correctly.
- ☐ I can't tell for sure what's normal and what's abnormal in my breasts, especially because the tissue changes.
- ☐ I'm afraid of how I'll react if I do find something abnormal.
- ☐ I feel uncomfortable touching my breasts.
- ☐ Other. (Please describe.)

12. Does anyone actively encourage you to examine your breasts?

☐ yes ☐ no

If yes, who?

- ☐ physician
- ☐ nurse
- ☐ mother
- ☐ female friend
- ☐ male friend
- ☐ Other. (Please specify.)

Does your mother examine her breasts?

☐ yes ☐ no ☐ I don't know

Do the majority of your female friends examine theirs?

☐ yes ☐ no ☐ I don't know

13. How confident are you of your ability to perform breast self-exam? (Circle one.)

not at all confident	not very confident	somewhat confident	considerably confident	very confident
1	2	3	4	5

14. Which of the following do you do as part of your usual breast self-examination procedure? Check as many as apply.

- ☐ lie flat on back
- ☐ put arm of breast to be examined at side
- ☐ inspect breast by pressing palm of hand into breast in circles that cover the entire breast
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms at shoulder height
- ☐ bend forward from waist and look down at breasts to inspect for anything unusual
- ☐ inspect breast by pressing flat part of fingertips into breast in circles that cover entire breast
- ☐ put arm of breast to be examined behind head
- ☐ squeeze each nipple gently and look for discharge
- ☐ stand before mirror and inspect breasts for anything unusual while placing arms in front of body
- ☐ sit up in straight back chair
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms at side
- ☐ squeeze each nipple vigorously and look for discharge
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms over head
- ☐ stand before mirror and inspect breasts for anything unusual while bending forward from waist
- ☐ other (Please describe on reverse.)

15. Which of the following should be done as part of a comprehensive breast self-examination? Check as many as apply.

- ☐ lie flat on back
- ☐ put arm of breast to be examined at side
- ☐ inspect breast by pressing palm of hand into breast in circles that cover the entire breast
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms at shoulder height
- ☐ bend forward from waist and look down at breasts to inspect for anything unusual
- ☐ inspect breast by pressing flat part of fingertips into breast in circles that cover entire breast
- ☐ put arm of breast to be examined behind head
- ☐ squeeze each nipple gently and look for discharge
- ☐ stand before mirror and inspect breasts for anything unusual while placing arms in front of body
- ☐ sit up in straight back chair
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms at side
- ☐ squeeze each nipple vigorously and look for discharge
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms over head
- ☐ stand before mirror and inspect breasts for anything unusual while bending forward from waist
- ☐ other (Please describe.)

16. Which of the following are symptoms that should lead you to seek medical attention? (Check as many as apply.)

- ☐ breast tenderness
- ☐ a lump, hard knot, or thickening
- ☐ clear discharge from the nipple
- ☐ bloody discharge from the nipple
- ☐ milky discharge from the nipple
- ☐ inversion of nipple
- ☐ continual erection of nipple
- ☐ scaly skin around nipple
- ☐ scaly skin on edge of breast
- ☐ rash on breast skin
- ☐ dimpling or puckering of breast skin
- ☐ swelling
- ☐ discoloration
- ☐ alteration in size
- ☐ alteration in shape

17. Do you have people to talk with if you aren't sure you're doing the procedure correctly or when you experience other difficulties or concerns? ☐ yes ☐ no

If yes, please indicate with whom you talk.

- ☐ physician
- ☐ nurse
- ☐ mother
- ☐ female friend
- ☐ male friend
- ☐ Other. (Please specify.)

If no, what are the reasons that you do not discuss these concerns? (Check as many as apply.)

- ☐ I don't think about it.
- ☐ I don't worry about it.
- ☐ I don't know who to ask.
- ☐ The topic never comes up.
- ☐ I feel it is a private concern.
- ☐ I would find it embarrassing to talk about.
- ☐ I am too uncomfortable with my physician to discuss it.
- ☐ I refer to books instead.
- ☐ Other. (Please specify.)

Part XII. Views of Breasts. The following questions focus on your breasts and your perceptions of them and of other body parts. Please answer the questions as accurately as possible.

1. What is your bust measurement? (Specify number and cup size.) ____

2. What, in your opinion, is the ideal bust measurement for someone of your height and body build? (Specify number and cup size.) ____

3. How important are your breasts to you? (Circle one.)

very unimportant	somewhat unimportant	neutral	somewhat important	very important
1	2	3	4	5

4. How comfortable are you viewing your own breasts? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

5. How comfortable are you touching your own breasts? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

6. How comfortable are you viewing your friends' breasts? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

7. How comfortable are you viewing your mother's breasts? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

8. How comfortable are you viewing your sisters' breasts? Circle one. Check here if not applicable. ____

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

9. How comfortable are you appearing nude in front of lovers? (Circle one.) Check here if not applicable. ____

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

10. How comfortable are you appearing nude in front of friends? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

11. How comfortable are you appearing nude in front of your mother? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

12. How comfortable are you appearing nude in front of your sisters? (Circle one.) Check here if not applicable. ____

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

13. How important are your breasts to your view of your body? (Circle one.)

very unimportant	somewhat unimportant	neutral	somewhat important	very important
1	2	3	4	5

14. How do you feel about your body as a whole? (Circle one.)

very negatively	somewhat negatively	neutral	somewhat positively	very positively
1	2	3	4	5

15. Would you say you tend generally to emphasize or de-emphasize your breasts by the way you dress? (Check one.)

____ emphasize ____ de-emphasize

The next few questions ask you to rank body parts on the basis of their importance to you in various ways. To make sure the process of rank ordering is clear, the following example of ranking school subjects is given as an illustration. If you were asked to RANK ORDER subjects on the basis of your enjoyment of them (1=enjoy most, 4=enjoy least) and you like Psychology the most, English second best, Math third best, and Physics the least, you would RANK ORDER them as follows:

4 Physics
2 English
1 Psychology
3 Math

For each of the following questions, proceed as in the example and remember to use each ranking only once.

16. RANK ORDER these body parts with respect to their importance to your view of the physical attractiveness of your body (1=most important, 6= least important). Use each ranking only once.

___ face
 ___ arms
 ___ legs
 ___ breasts
 ___ pubic area/vagina
 ___ buttocks (seat)

17. RANK ORDER these body parts with respect to their important to your view of the functioning of your body (1=most important, 6=least important). Use each ranking only once.

___ face
 ___ arms
 ___ legs
 ___ breasts
 ___ pubic area/vagina
 ___ buttocks (seat)

18. RANK ORDER the following on the basis of how upset you would feel psychologically at the loss of that body part (1= most upset, 5= least upset). Use each ranking only once.

___ leg
 ___ arm
 ___ eye
 ___ breast
 ___ teeth

Part XIII. 1. Breast Appearance. Describe the appearance of your breasts.

If you could change your breasts, would you? ☐ yes ☐ no

If yes, how important would it be to change them? (Circle one.)

very	somewhat	neutral	somewhat	very
unimportant	unimportant		important	important
1	2	3	4	5

If yes, how would you change them? (Check as many as apply.)

- ☐ make them smaller
- ☐ make them larger
- ☐ make them both the same size
- ☐ make them firmer
- ☐ remove hair from them
- ☐ change the nipples
- ☐ remove stretch marks
- ☐ other (Please describe.)

If no, why wouldn't you change them? (Check as many as apply.)

- ☐ I am satisfied with my breasts as they are.
- ☐ I believe in accepting my body as it is.
- ☐ It's not important enough to me to change them.
- ☐ other (Please specify.)

How attractive do you feel your breasts are? (Circle one.)

very unattractive	somewhat unattractive	neutral	somewhat attractive	very attractive
1	2	3	4	5

How attractive would most other women say your breasts are? (Circle one.)

very unattractive	somewhat unattractive	neutral	somewhat attractive	very attractive
1	2	3	4	5

How attractive would most men say your breasts are? (Circle one.)

very unattractive	somewhat unattractive	neutral	somewhat attractive	very attractive
1	2	3	4	5

2. Breast Ideal.

Do you have a view of the appearance of ideal breasts?

___ yes ___ no

If yes, which of the following characteristics are part of your view of the ideal breast. (Check as many as apply.)

- ___ medium size (34-36)
- ___ small size (30-32)
- ___ large size (38 or more)
- ___ size in proportion to body
- ___ firm
- ___ round
- ___ soft
- ___ full
- ___ other (Please specify.)

If yes, which statement best describes your view?

I have a view of the ideal breast and find that my own breasts are:
(Circle one.)

very different from it	somewhat different from it	neither different nor similar	somewhat similar to it	very similar to it
1	2	3	4	5

If no, which of the reasons listed below are involved in your not having a view of the ideal breast? (Check as many as apply.)

- ☐ I've never thought about it.
☐ It's not very important to me.
☐ I believe everybody's different and so are their breasts.
☐ I believe that what's ideal varies too much with body build and size.
☐ I believe that "beauty is in the eye of the beholder" and, therefore, there is no true ideal breast.
☐ I believe that every woman should accept her own breasts as they are
☐ Other (Please describe.)

3. Breast Development.

At what age did your breasts begin to develop? ____

When did your breast development begin compared to other girls in your school class? (Circle one.)

much earlier 1	somewhat earlier 2	about same time 3	somewhat later 4	much later 5
----------------------	--------------------------	-------------------------	------------------------	--------------------

Was the age at which your breasts developed a significant problem for you? ____ yes ____ no

For the following person/s, please choose the number of the phrase from the eight below that best describes their response to your early breast development as you viewed it. Put that number in the blank that precedes the name.

1. very positive response
2. somewhat positive response
3. neutral response
4. somewhat negative response
5. very negative response
6. unknown response
7. appeared to respond with mixed feelings
8. no such person/people in my life at the time

- ☐ I
☐ My mother
☐ My father
☐ My brothers
☐ My sisters
☐ My male friends
☐ My female friends

In addition to the overall response you indicated on the previous page, did you experience any of the following emotions with regard to your early breast development? How much of each? (Circle one response for each emotion listed.)

Surprise

very unsurprised	somewhat unsurprised	neither surprised nor unsurprised	somewhat surprised	very surprised
1	2	3	4	5

Fear

very unfearful	somewhat unfearful	neither fearful nor unfearful	somewhat fearful	very fearful
1	2	3	4	5

Embarrassment

very unembarrassed	somewhat unembarrassed	neither embarrassed nor unembarrassed	somewhat embarrassed	very embarrassed
1	2	3	4	5

Did you initiate (begin) conversations with any of these people about your early breast development? (Check as many as apply.)

- ☐ mother
- ☐ father
- ☐ sisters
- ☐ brothers
- ☐ female friends
- ☐ male friends

Did any of these people initiate conversations with you about your early breast development? (Check as many as apply.)

- ☐ mother
- ☐ father
- ☐ sisters
- ☐ brothers
- ☐ female friends
- ☐ male friends

Did any of these people tease you about your early breast development?
(Check as many as apply.)

- ☐ mother
- ☐ father
- ☐ sisters
- ☐ brothers
- ☐ female friends
- ☐ male friends

If you were teased, how upsetting was the teasing to you? (Check one.)

- ☐ extremely upsetting
- ☐ quite upsetting
- ☐ somewhat upsetting
- ☐ not upsetting

Did you feel embarrassed or self-conscious with any of these people?
(Check as many as apply.)

- ☐ mother
- ☐ father
- ☐ sisters
- ☐ brothers
- ☐ female friends
- ☐ male friends
- ☐ schoolmates
- ☐ salespeople

Did any of these people appear to ignore your early breast development?
(Check as many as apply.)

- ☐ mother
- ☐ father
- ☐ sisters
- ☐ brothers
- ☐ female friends
- ☐ male friends
- ☐ schoolmates

Which statement best describes your response to your first bra? (Check one.)

- ☐ positive feelings
- ☐ negative feelings
- ☐ mixed feelings
- ☐ neutral feelings
- ☐ embarrassed feelings
- ☐ fearful feelings
- ☐ surprised feelings
- ☐ don't remember

4. Sexual Activity. What is your sexual preference?

☐ heterosexual ☐ lesbian ☐ bisexual ☐ celibate

Are you currently sexually active (having intercourse or oral-genital contact with a partner)? ☐ yes ☐ no

How many male sexual partners have you had?

How many female sexual partners have you had?

For each of the following romantic/sexual activities indicate how often on the average you have engaged in the activity during the last six months. Choose the response from the seven listed below that most closely describes your situation and place that number in the blank that precedes the activity. Please note that research shows that there is a great deal of individual variation among women with respect to their ages at the time of their first sexual experiences and the frequency of their sexual contact.

- 1 = not at all
- 2 = a few times
- 3 = once or twice a month
- 4 = once or twice a week
- 5 = three or four times a week
- 6 = five or more times a week
- 7 = daily or more often

- ☐ kissing
- ☐ necking (stimulation of face and neck)
- ☐ petting (stimulation of breasts and genital areas); with clothes on
- ☐ petting (stimulation of breasts and genital areas); with clothes off
- ☐ stimulation of partner while lying down; clothes on
- ☐ stimulation of partner while lying down; clothes off
- ☐ intercourse
- ☐ oral-genital contact
- ☐ masturbation
- ☐ other (Please describe.)

Please put your age at the time of your first experience with each of the sexual activities in the blank in front of the term.

- ☐ kissing
- ☐ necking (stimulation of face and neck)
- ☐ petting (stimulation of breasts and genital areas); with clothes on
- ☐ petting (stimulation of breasts and genital areas); with clothes off
- ☐ stimulation of partner while lying down; clothes on
- ☐ stimulation of partner while lying down; clothes off
- ☐ intercourse
- ☐ oral-genital contact
- ☐ masturbation

In general, how satisfying are your sexual activities? (Circle one.)

very dissatisfying	somewhat dissatisfying	neutral	somewhat satisfying	very satisfying
1	2	3	4	5

What is the general role of your breasts in your sexual activities?
(Check one.)

- ☐ stimulated to arouse me
- ☐ stimulated to arouse partner
- ☐ stimulated to arouse both myself and my partner
- ☐ not involved in sexual activity
- ☐ other (Please describe.)

How sensitive are your breasts to sexual arousal? (Circle one.)

very insensitive	somewhat insensitive	neutral	somewhat sensitive	very sensitive
1	2	3	4	5

How important are your breasts to you in your sexual activities?
(Circle one.)

very unimportant	somewhat unimportant	neutral	somewhat important	very important
1	2	3	4	5

How important are your breasts to your partner(s) in your sexual activities? (Circle one.)

very unimportant	somewhat unimportant	neutral	somewhat important	very important
1	2	3	4	5

What are your preferred forms of stimulation of your breasts during sexual activities? Check as many as apply. Use a double check to indicate the type of stimulation you enjoy most.

- ☐ holding
- ☐ caressing
- ☐ fondling
- ☐ other manual stimulation (Please specify.)
- ☐ kissing
- ☐ sucking
- ☐ licking
- ☐ other oral stimulation (Please specify.)
- ☐ attention to nipples
- ☐ no stimulation desired
- ☐ other (Please specify.)

Do you inform your partner(s) when your breasts are too tender to be touched at all or in the way that they're being touched?

☐ yes ☐ no ☐ do not experience that much breast tenderness

If no, why not?

- ☐ afraid of partner's response
- ☐ afraid to stop partner's enjoyment
- ☐ too embarrassed
- ☐ no desire to inform partner
- ☐ other (Please describe.)

Would you like changes in any of the following aspects of breast stimulation in your sexual activities. Please circle the number of the response that best expresses your feelings.

How much time and attention devoted to breasts would you like? (Circle one.)

much less	somewhat less	no change	somewhat more	much more
1	2	3	4	5

How much oral stimulation of breasts would you like? (Circle one.)

much less	somewhat less	no change	somewhat more	much more
1	2	3	4	5

How much manual stimulation of breasts would you like? (Circle one.)

much less	somewhat less	no change	somewhat more	much more
1	2	3	4	5

How much time and attention devoted to nipples would you like? (Circle one.)

much less	somewhat less	no change	somewhat more	much more
1	2	3	4	5

How much GENTLE stimulation of breasts would you like? (Circle one.)

much less	somewhat less	no change	somewhat more	much more
1	2	3	4	5

Other. (Please describe.)

Have your feelings about your breasts changed because of your sexual activities? How much of each change have you experienced?

How much change in your general awareness of your breasts have you experienced? (Circle one.)

much less aware 1	somewhat less aware 2	no change 3	somewhat more aware 4	much more aware 5
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How much change in your consciousness of the appearance of your breasts have you experienced? (Circle one.)

much less conscious 1	somewhat less conscious 2	no change 3	somewhat more conscious 4	much more conscious 5
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How much change in your confidence about your breasts have you experienced? (Circle one.)

much less confident 1	somewhat less confident 2	no change 3	somewhat more confident 4	much more confident 5
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How much change in your comfort with your breasts have you experienced? (Circle one.)

much less comfortable 1	somewhat less comfortable 2	no change 3	somewhat more comfortable 4	much more comfortable 5
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How much change in your respect for your breasts have you experienced? (Circle one.)

much less respectful 1	somewhat less respectful 2	no change 3	somewhat more respectful 4	much more respectful 5
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How much change in your pride in your breasts have you experienced? (Circle one.)

much less proud 1	somewhat less proud 2	no change 3	somewhat more proud 4	much more proud 5
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How much change in your self-consciousness of your breasts have you experienced? (Circle one.)

much less self- conscious 1	somewhat less self- conscious 2	no change 3	somewhat more self- conscious 4	much more self- conscious 5
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How much change in your acceptance of your breasts have you experienced?
(Circle one.)

much less acceptant 1	somewhat less acceptant 2	no change 3	somewhat more acceptant 4	much more acceptant 5
-----------------------------	---------------------------------	----------------	---------------------------------	-----------------------------

How much change in your satisfaction with your breasts have you experienced? (Circle one.)

much less satisfied 1	somewhat less satisfied 2	no change 3	somewhat more satisfied 4	much more satisfied 5
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How much change in your awareness of sexual attractiveness of your breasts have you experienced? (Circle one.)

much less aware 1	somewhat less aware 2	no change 3	somewhat more aware 4	much more aware 5
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Other (Please specify.)

5. Breast-feeding.

Were you breast-fed as an infant? ☐ yes ☐ no

Do you think you will breast-feed your children?

☐ yes

☐ no

☐ unsure at this time

☐ do not plan to have children (If you checked this response, skip to the first question on page 42).

If no, please check those reasons that would influence you not to breast-feed. Check as many as apply. Then, skip to the first question on page 42. ☐ would be difficult to arrange schedules if employed full-time

☐ would dislike or be embarrassed about exposing breasts

☐ would be inconvenient

☐ just don't care to

☐ other (Please describe.)

If yes, please check those reasons that would motivate you to breast-feed. (Check as many as apply.)

- ☐ contributes to baby's health and nutrition
- ☐ contributes to psychological development of baby
- ☐ contributes to psychological development of mother
- ☐ enhances the mother-child relationship
- ☐ seems to be a natural part of mothering
- ☐ would be pleasurable
- ☐ would be practical; cost-efficient
- ☐ would be convenient
- ☐ other (Please describe.)

If unsure at this time, which reasons are part of your uncertainty? (Check as many as apply.)

- ☐ need more information
- ☐ question if physically capable of breast-feeding
- ☐ depends on my work situation
- ☐ other (Please describe.)

How important would it be to you to breast-feed your children? (Circle one.)

very unimportant	somewhat unimportant	neutral	somewhat important	very important
1	2	3	4	5

Please rate the degree of comfort you anticipate you would feel breast-feeding in the following situations. Circle one response for each situation.

In front of your partner. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of of your other children. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your mother. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your father. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your sisters. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your brothers. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your close women friends. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your close men friends. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your in-laws. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In front of your other friends. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

In public situations. (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

6. Breast Cancer and Mastectomy.

Has anyone you've known had breast cancer? ☐ yes ☒ no

If no, skip to the first question on page 44. If yes, who? (Check as many as apply.)

- ☐ mother
- ☐ grandmother
- ☐ sister
- ☐ close friend
- ☐ other relative
- ☐ close friend of mother's
- ☐ other (Please specify.)

If you've known more than one person who has had breast cancer, answer the following questions with the person whose experience you knew the most about in mind.

How much did you know about the person's experience at the time? (Check one.)

- ☐ was aware of most of what was going on
- ☐ was aware of some of what was going on
- ☐ was aware of very little of what was going on
- ☐ was not aware of what was going on at the time

How difficult was it for the person to adjust to the idea that she had breast cancer? (Circle one.)

very	somewhat	neutral	somewhat	very
easy	easy		difficult	difficult
1	2	3	4	5

Did that person have a mastectomy (surgical removal of the breast because of cancer)? ☐ yes ☐ no

How difficult was it for the person to adjust to the removal of her breast? If mastectomy was not necessary, leave blank. (Circle one.)

very	somewhat	neutral	somewhat	very
easy	easy		difficult	difficult
1	2	3	4	5

Did that person's experience cause any of the following attitude changes in you? How much of each of these changes?

How much change in your awareness of breast cancer? (Circle one.)

much less aware 1	somewhat less aware 2	no change 3	somewhat more aware 4	much more aware 5
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How much change in your fear of breast cancer? (Circle one.)

much less frightened 1	somewhat less frightened 2	no change 3	somewhat more frightened 4	much more frightened 5
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How much change in your willingness to check for breast cancer? (Circle one.)

much less willing 1	somewhat less willing 2	no change 3	somewhat more willing 4	much more willing 5
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How much change in your conscientiousness about examining your breasts? (Circle one.)

much less conscientious 1	somewhat less conscientious 2	no change 3	somewhat more conscientious 4	much more conscientious 5
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Other. (Please describe.)

Describe what you believe your response would be if you, yourself, were to undergo a mastectomy by RANK ORDERING as many of the following reactions as apply. Use number one for the most important reaction, number two for the second most, number three for the third, and so on until you have ranked all the reactions that apply to you. Use each ranking only once.

- ___ would feel less feminine; that I was not a whole woman
- ___ would feel uncomfortable with idea of "damaged" body
- ___ would feel concerned about sex or about lover's response
- ___ would feel alienated from others
- ___ would feel a sense of loss
- ___ other (Please explain.)

Please further describe what you believe your response would be if you were to undergo a mastectomy by RANK ORDERING as many of the feelings listed below as apply. Use number one to indicate the strongest

feeling, number two for the second strongest and so on until you have ranked all the feelings that apply to you.

- ☐ depression
- ☐ anger
- ☐ guilt
- ☐ fear
- ☐ other (Please describe.)

Which of the following best describes what you think your overall response would be if you were to undergo a mastectomy? (Circle one.)

devastated	quite upset	upset, but assume would recover	not too upset	grateful to be alive
1	2	3	4	5

If you were to have a breast removed, do you think you would have reconstructive surgery (which aims to recreate the breast)?

☐ yes ☐ no ☐ unsure at this time

If yes, describe your choice by RANK ORDERING as many of the reasons listed below as apply. Use number one for the most important reason, number two for the second most important reason and so on until you have ranked all the reasons that apply to you.

- ☐ feel more normal; more of a whole woman
- ☐ feel more confident about self; less self-conscious
- ☐ feel more attractive; would look better in clothes
- ☐ feel that the scar or loss of breast would be less noticeable to others
- ☐ feel more comfortable sexually
- ☐ other (Please describe.)

If no, describe your choice by RANK ORDERING as many of the reasons listed below as apply. Use number one for the most important reason, number two for the second most important reason and so on until you have ranked all the reasons that apply to you.

- ☐ cost is too high
- ☐ it would never look the same
- ☐ fear of reactivating breast cancer cells
- ☐ fear of surgery
- ☐ other (Please describe.)

If unsure, describe your choice by RANK ORDERING as many of the reasons listed below as apply. Use number one for the most important reason, number two for the second most important reason and so on until you have ranked all the reasons that apply to you.

- ☐ need more information
- ☐ would depend on my age
- ☐ would depend on my marital status
- ☐ would depend on the amount of breast tissue removed
- ☐ other (Please describe.)

Overall, how difficult an adjustment would it be if you learned you had breast cancer? (Circle one.)

very easy	somewhat easy	neutral	somewhat difficult	very difficult
1	2	3	4	5

How difficult do you think it would be for you to adjust to the removal of your breast? (Circle one.)

very easy	somewhat easy	neutral	somewhat difficult	very difficult
1	2	3	4	5

Consider the following situation:

You have breast cancer and must choose between two treatments. One option is a mastectomy. Your physician states that this surgery has a 70% chance of eliminating your cancer. The second option is radiation therapy, which your physician informs you has a 45% chance of eliminating your cancer and would not disfigure your breast. The choice must be made between the two because the outcome of the radiation therapy would not be known for several months and, at that point, a mastectomy would no longer be helpful.

- ☐ I would choose the mastectomy.
- ☐ I would choose the radiation therapy.

7. Experiences with Mother.

How often have you viewed your mother's breasts? (Circle one.)

never	once or twice	several times	occasionally	frequently
1	2	3	4	5

How do you feel when you view your mother's breasts? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

How comfortable do you think your mother is about her body? (Circle one.)

very uncomfortable	somewhat uncomfortable	neutral	somewhat comfortable	very comfortable
1	2	3	4	5

Rate your relationship with your mother when you were an adolescent (ages 12-17). (Circle one.)

very negative	somewhat negative	neutral	somewhat positive	very positive
1	2	3	4	5

Rate your present relationship with your mother. (Circle one.)

very negative	somewhat negative	neutral	somewhat positive	very positive
1	2	3	4	5

8. In the last three months, have you seen any television "spots" put on by health groups that remind women to examine their breasts?
 ___ yes ___ no

Do you have other significant recollections of or feelings about the role of your breasts in your life that have not been touched on above? It would be especially helpful to hear about those that were particularly painful, wonderful, or interesting.

Comments about survey:

Feedback for Survey of Women's Health Behaviors and Body Attitudes

As is probably apparent to you at this point, this survey focuses specifically on the health behavior of breast self-examination (BSE) and on attitudes about breasts.

The focus on breast self-examination arises from troubling statistics which indicate that almost all women have received instruction in BSE, but only about one-fourth practice it regularly. The need to understand the reasons for the non-performance of BSE is felt keenly by health educators. One purpose of this survey is to explore psychological factors (like body image and self-esteem) that may be involved in non-performance.

The second focus on the body part of breasts is a result of the lack of theoretical and research information available about the role of these important body parts in women's lives. It is generally acknowledged that ours is a breast-conscious society, but little has been done to investigate the impact of that breast-consciousness. The second purpose of this study is, then, to explore women's feelings about and experiences with their breasts.

Significant survey results will be submitted for publication and made available to groups involved in BSE (e.g., the American Cancer Society). You can obtain a summary of the results by inquiring at the Department of Psychology Office (135 Snyder) after June 1, 1984 or by writing to me %Department of Psychology, Kalamazoo College, Kalamazoo, MI 49007.

Thank you for your participation in the study. I hope that completing the survey was an interesting experience for you and that it increased your awareness of BSE and of the significance of your breasts. One final note . . . the next time you visit a physician, talk with her/him about breast self-examination.

Thank you again.

Patricia A. Ponto, M.A.

PLEASE DO NOT DISCUSS THE STUDY WITH POTENTIAL SUBJECTS.

APPENDIX B

Hypothesis 1 Measure: Lau's Scale for Preventive Health Orientation

Seven variables: eating, activity, pounds, seatbelt, brush, drcheck, dencheck. Coding is assigned so that higher numbers indicate healthier behaviors.

Eating

p. 4*, #1. During the past 24 hours have you eaten: (check if yes)

- ☐ Fresh fruit
☐ Candy
☐ Whole grain breads
☐ Fresh vegetables
☐ Non-diet soft drinks
☐ Junk food

Eating = fruit+bread+cereal+vegies-candy-pop-junk. (Number of unhealthy foods eaten is subtracted from number of healthy foods eaten.)

Activity

p. 4, #2. Which of these statements best describes your physical activity in general?
 (Check one.)

- ☐ Not very active physically, usually just sitting or walking (1)
☐ Fairly active physically, moderate or strenuous activity several times a week (2)
☐ Quite active physically, at least moderate activity every day (3)
☐ Extremely active physically, strenuous activity most days (4)

Pounds

pp. 4-5, #3. Do you think you weigh too much now, or has a doctor or nurse told you that you now weigh too much? ☐yes ☐no

Are you currently on a diet to lose weight? ☐yes ☐no

Are you doing any special exercises to lose weight? ☐yes
☐no

Score of 4 given if subject answers no to first question, indicating that she does not weigh too much now.

Score of 3 given if subject answers yes to first question, indicating that she does weigh too much now, and answers yes to second and third questions, indicating that she is both dieting and exercising.

Score of 2 given if subject answers yes to first question, indicating that she does weigh too much now, and answers yes to second or third questions, indicating that she is either dieting or exercising.

*page number refers to the page in the survey where the scale is found (e.g., the Lau scale is found on pages 4-5).

Score of 1 given if subject answers yes to first question, indicating that she does weigh too much now, and answers no to second and third questions, indicating that she is neither dieting nor exercising.

Seatbelt

p. 5, #4. When you ride in a car or truck, how much of the time do you wear a seat belt? (Check one.)

- ☐ None of the time (1)
- ☐ A little of the time (2)
- ☐ Some of the time (3)
- ☐ Most of the time (4)
- ☐ All of the time (5)

Brush

p.5. #5. How frequently do you brush your teeth? (Check one.)

- ☐ Rarely or never (1)
- ☐ About once a week (2)
- ☐ 3 or 4 times a week (3)
- ☐ About once a day (4)
- ☐ Twice a day (5)
- ☐ After almost every meal, including lunch (6)

Drcheck

p. 5, #7. When was the last time you visited a doctor for a regular check-up? (Do NOT count any check-up required for admission to MSU for participation in athletics)? (Check one.)

- ☐ Within the last six months (6)
- ☐ Within the past year (5)
- ☐ Within the past 2 years (4)
- ☐ Within the past 5 years (3)
- ☐ Within the past 10 years (2)
- ☐ I do not go to a doctor for a regular check-up, but only when I am sick (1)

Dencheck

p. 6, #8. When was the last time you visited a dentist for a regular check-up? (Check one.)

- ☐ Within the last six months (6)
- ☐ Within the past year (5)
- ☐ Within the past two years (4)
- ☐ Within the past five years (3)
- ☐ Within the past ten years (2)
- ☐ I do not go to a dentist for regular check-ups, but only if I have some specific problem with my teeth or gums (1)

Scale statistics

n=191

Alpha = .33

General preventive health orientation is measured as the average rating of these seven variables.

APPENDIX C

Hypothesis 2 Measure: Stillman's Knowledge of Breast Cancer Scale

Four questions treated separately because efforts to combine them into a scale resulted in very low reliabilities.

Four variables: chances, lumpcanc, chancesa, relatbc

Chances

p. 16*, #1. The chances of a woman in this country getting breast cancer sometime during her lifetime are

- a. Under 10 per cent (less than 10 women out of 100 will someday have it.)
- b. 10-25 per cent (10 to 25 women out of 100 will someday have it.)
- c. 26-50 per cent (26 to 50 women out of 100 will someday have it.)
- d. 51-75 per cent (51 to 75 women out of 100 will someday have it.)
- e. Over 75 per cent (More than 75 women out of 100 will someday have it.)
- f. have no idea

A and B are scored as correct (1) because the popular literature in recent years has quoted both 9% and 11% as the breast cancer rates. All other options are scored incorrect (0).

Lumpcanc

p. 16 #2. Most lumps in the breast turn out to be cancer.

- a. Yes
- b. No
- c. Have no idea

B is scored correct (1). A and C are incorrect (0).

Chancesa

p. 16 #3. On the average, the chances of a woman developing breast cancer begin to increase after she passes which birthday?

- a. 20th
- b. 30th
- c. 40th
- d. 50th
- e. 60th
- f. have no idea

B and C are scored correct (1) as the popular literature is equivocal about age of onset. A, D, E, and F are scored incorrect (0).

*page number refers to the page in the survey where the scale is found

Relatbc

p. 16, #4. A woman is more likely to develop breast cancer if she:
(Circle as many as you feel are correct.)

As indicated in the complete survey (p. 16, #4.), a number of options were provided in the original Stillman scale. This item was the only one selected for inclusion in the present scale. It was chosen because it differentiated adequately among subjects and was relatively highly inter-correlated with the other three knowledge items.

f. has relatives who have had breast cancer.

This item is correct if circled, indicating that a woman is more susceptible to breast cancer if she has had relatives who have had the disease.

Scale Statistics

N=195.

Alpha=.39.

APPENDIX D

Hypothesis 2 Measure: Stillman's Benefits of BSE Scale

Subjects rate each item on scale from 1 (disagree strongly) to 4 (agree strongly).

p. 19*, #20. If more women examined their breasts regularly, there would be fewer deaths from breast cancer.

p. 19, #22. Whether I find a lump in my breast myself doesn't really matter because by then it's too late anyway.

p. 19, #24. If I examined my own breasts regularly, I might find a lump sooner than if I just went to the doctor for a check-up.

p. 20, #26. Even though it's a good idea, I find examining/having to examine my breasts an embarrassing thing to do.

p. 20, #28. Examining my breasts often makes/would make me worry unnecessarily about breast cancer.

Scale Statistics

N=195.

Alpha=.43.

Hypothesis 2 Measure: Stillman's Perceived Susceptibility Scale

p. 19, #21. My health is too good at present to even consider thinking that I might get cancer.

p. 19, #23. Whenever I hear of a friend or relative (or public figure) getting breast cancer, it makes me realize that I could get it, too.

p. 19, #25. There are so many things that could happen to me that it's pointless to think about any one thing like breast cancer.

p. 20, #27. The older I get, the more I think about the possibility of getting breast cancer someday.

p. 20, #29. If I had to think about the possibility that I might someday get breast cancer, I would rate my chances as compared with other women as:

- a. average
- b. above average (more likely that I would get it)
- c. below average (less likely that I would get it)

Scale Statistics

N=195.

Alpha=.59.

*page number refers to the page in the survey where the scale is found

Stillman's scoring scheme is as follows:

For the Perceived Benefits Scale, the first step is to re-code items 22, 26, and 28 so that the disagree strongly response receives a 4 and the agree strongly a 1. The score of 4, then, consistently indicates the most positive view of BSE. Next, the five items are summed for a maximum total of 20.

For the Perceived Susceptibility Scale, items 21 and 25 are recoded so that a score of 4 consistently indicates the strongest perceived susceptibility. Item 29 is scored so that an "above average" response receives a 3; "average," a 2; and "below average," a 1. The scales for five items are, then, summed for a maximum total of 19 (one fewer than the perceived benefits scale because the highest score for 29 is 3, not 4 as in the Likert items).

Stillman notes that totals of 15 or more on either scale represent a high degree of health belief; 9-14, a moderate belief; and below 9, a low belief.

Because of low indexes of internal consistency, Stillman's scoring procedure was not employed in this study. Individual items were selected to represent the variables involved.

APPENDIX E

Hypothesis 2 Measure: Knowledge of Breast Self-examination Scale

There are two scales involved in this variable — what the subject actually does during breast self-examination and what she knows should be done during this process. The scales were derived from questions 14 and 15 on page 25 of the complete survey. Initial reliability checks revealed very poor alphas (.29 and .30, respectively) with all items included, so the scales were shortened on the basis of inter-item correlations. The items comprising the scale that indicates what the subject does do (that is, reports doing) are:

p. 25*, #14. Which of the following do you do as part of your usual breast self-examination procedure? Check as many as apply.

- ☐ lie flat on back
- ☐ inspect breast by pressing flat part of fingertips into breast in circles that cover entire breast
- ☐ put arm of breast to be examined behind head
- ☐ squeeze each nipple gently and look for discharge

A score of one is given to each correct endorsement of these items.

Scale Statistics

N=195.

Alpha=.76.

The items comprising the second scale which indicates what the subject believes should be done as part of breast self-examination are as follows:

p.25, #15. Which of the following should be done as part of a comprehensive breast self-examination? Check as many as apply.

- ☐ lie flat on back
- ☐ inspect breast by pressing flat part of fingertips into breast in circles that cover entire breast
- ☐ put arm of breast to be examined behind head
- ☐ squeeze each nipple gently and look for discharge
- ☐ stand before mirror and inspect breasts for anything unusual while holding arms over head.

A score of one is given to each item correctly endorsed.

Scale Statistics

N=195.

Alpha=.75.

*page number refers to the page in the survey where the scale is found

APPENDIX F

Hypothesis 3 Measure: Secord and Jourard Body Cathexis Scale

p.10*, Part VII. Feelings about body. On this page are listed a number of things characteristic of yourself or related to you. Consider each item listed below and decide which of the following best represents your feelings according to the following scale. Place the appropriate number in the blank in front of the item.

The scale is the mean rating given to the forty-six items on the 1-5 scale described below.

1=Have strong feelings and wish change could somehow be made.

2=Don't like, but can put up with.

3=Have no particular feelings one way or the other.

4=Am satisfied.

5=Consider myself fortunate.

- | | |
|-----------------------------|------------------------------|
| ___ 1. hair | ___ 24. width of shoulders |
| ___ 2. facial complexion | ___ 25. arms |
| ___ 3. appetite | ___ 26. chest |
| ___ 4. hands | ___ 27. eyes |
| ___ 5. distribution of hair | ___ 28. digestion |
| ___ over body | ___ 29. hips |
| ___ 6. nose | ___ 30. skin texture |
| ___ 7. fingers | ___ 31. lips |
| ___ 8. elimination | ___ 32. legs |
| ___ 9. wrists | ___ 33. teeth |
| ___ 10. breathing | ___ 34. forehead |
| ___ 11. waist | ___ 35. feet |
| ___ 12. energy level | ___ 36. sleep |
| ___ 13. back | ___ 37. voice |
| ___ 14. ears | ___ 38. health |
| ___ 15. chin | ___ 39. sex activities |
| ___ 16. exercise | ___ 40. knees |
| ___ 17. ankles | ___ 41. posture |
| ___ 18. neck | ___ 42. face |
| ___ 19. shape of head | ___ 43. weight |
| ___ 20. body build | ___ 44. sex (female or male) |
| ___ 21. profile | ___ 45. back view of head |
| ___ 22. height | ___ 46. trunk |
| ___ 23. age | |

Statistics Scale

n=169.

Alpha=.89.

*page number refers to the page in the survey where the scale is found

APPENDIX G

Hypothesis 3 Measure: Rosenberg's Self-Esteem Scale

Subjects rate these ten items on a four point scale (1=strongly disagree, 2=disagree, 3=agree, 4=strongly agree).

- p. 11*, #1. I feel that I'm a person of worth, at lest on an equal basis with others.
- p. 11, #2. I feel that I have a number of good qualities.
- p. 11, #3. All in all, I am inclined to feel that I am a failure.
- p. 11, #4. I am able to do things as well as most other people.
- p. 11, #5. I feel I do not have much to be proud of.
- p. 11, #6. I take a positive attitude toward myself.
- p. 11, #7. On the whole, I am satisfied with myself.
- p. 11, #8. I wish I could have more respect for myself.
- p. 11, #9. I certainly feel useless at times.
- p. 11, #10. At times I think I am no good at all.

Scale Statistics

n=193.

Alpha=.84.

The self-esteem score is the mean of the ratings given on the ten items. Items 3, 5, 8, 9, 10 are recoded so that the highest rating indicates greatest self-esteem (e.g., 1=4, 2=3, 3=2, 4=1).

APPENDIX H

Table 11
Correlation Matrix for Variables Entered in
the Multiple Regression Equation

	BSE	KQ3	KQ1	KQ2	BQ1	SQ1	RP	CC	B1	SE	1B	RBD	SEB	SAR	SKV	AKS	KVS	KTS	QBY	GI	2S	1R	33	42	5Q1	1Q1	2Q2	3Q1	4Q1	5Q2
BSE																														
KQ3	.027																													
KQ1	.116	.004																												
KQ2	-.050	.014	.120																											
BQ1	-.331	-.058	-.106	.026																										
SQ1	-.228	.013	-.073	-.040	.024																									
RP	.595	.085	.198	.026	-.276	-.152																								
CC	.166	.079	.153	.073	-.300	.008	.223																							
B1	.063	.251	.006	-.097	-.054	.041	.022	.075																						
SE	.001	.047	-.104	-.100	-.014	-.032	-.049	.013	.448																					
1B	.144	.024	.184	.030	-.129	-.145	.086	.226	.040	.035																				
RBD	.040	.015	-.077	-.137	.055	-.060	.125	-.102	-.023	-.073	-.132																			
SEB	.191	.133	.011	.018	-.099	-.145	.090	.130	.144	.045	.364	-.111																		
SAR	.091	-.067	.043	.013	-.002	-.012	.079	-.157	.017	-.121	.145	.025	.059																	
SKV	.099	.123	-.053	.070	.048	-.003	-.028	-.034	.015	.090	-.039	.009	-.013	-.018																

* $p \leq .05$ ** $p \leq .01$ *** $p \leq .001$

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