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The relationship between future time perspective and breast self-examination in young adult women

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THE RELATIONSHIP BETWEEN FUTURE TIME PERSPECTIVE
AND BREAST SELF EXAMINATION
IN YOUNG ADULT WOMEN

by

Nancy M. Ronan

A thesis submitted in partial fulfillment
of the requirements for the degree of
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May 1997
Abstract

The purpose of this study was to explore the relationship between future time perspective (FTP) and frequency and quality of BSE performance. FTP relates to the way an individual views her own personal future, which may influence many aspects of her life, including behavior. Recent studies show FTP to positively relate to other health behaviors.

The sample consisted of 153 young adult women from the Student Health Center of a large University who took an informational health class which included BSE instruction. A demographic questionnaire, Champion's Quality of BSE survey, and Heimberg's FTP Inventory were used to obtain data. A conceptual model was proposed to show the relationship of variables to FTP and BSE performance.

The study showed a significant relationship exists between FTP and BSE frequency, but not quality, of performance. Stepwise multiple regression identified level of confidence in performing BSE as a strong variable for both BSE frequency and quality.
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The culmination of a project, such as this, gives one cause to ponder the many hours spent doing research, formulating ideas, writing (sometimes with painstaking effort), and overcoming seemingly insurmountable computer difficulties. No one accomplishes such feats alone.

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CHAPTER 1

INTRODUCTION

Breast cancer is the most common type of cancer among American women. It was the leading cause of death in women from cancer until 1987, when breast cancer mortality was surpassed by that of lung cancer. In 1996, the National Cancer Institute (NCI) reports that 185,700 women in the United States were diagnosed with breast cancer and, in that same year, 44,560 women died of the disease. Although the incidence of breast cancer has remained fairly constant, increasing only about 1.5% since 1973 (NCI, 1997), the probability of a woman developing breast cancer within her lifetime is now one in eight (NCI), up from one in nine in the last few years.

The profundity of this problem is recognized. The United States Department of Health and Human Services (DHHS) has set, as an objective to be accomplished by the year 2000, a reduction in breast cancer deaths to no more than 20.6 per 100,000 (a decrease of 2 per 100,000 at the current rate) (DHHS, 1990). This goal is to be accomplished through increased use of breast cancer screening exams, mammography, clinical breast exam, and breast self exam (BSE). A midcourse review of this nationwide effort shows progress being made, with a decline in female breast cancer death rates to 21.9 per 100,000 in 1992 (DHHS, 1995). In the absence of a cure for cancer, guidelines for the three screening methods have been made by
national health institutes and cancer centers, all recommending their use (to one
degree or another). Such recommendations are made based on research showing that
five-year survival rates from breast cancer are markedly improved when the cancer is
detected at an early stage when treatment options can be used (Feldman, Carter,
Nicastri, & Hosat, 1981; Foster & Costanza, 1984; Foster et al., 1978; Foster,
Worden, Costanza & Solomon, 1992; Greenwald et al., 1978; Huguley, Brown,
Greenberg, & Clark, 1988; Korolitchouk, Stanley, & Stjernsward, 1990). The
problem that arises is that most women do not utilize any or all of these screening
methods (Hailey & Bradford, 1991; O’Malley & Fletcher, 1987; Schapira & Levine,
1996).

Of the three cancer detection methods, BSE has the advantages of being a
safe, economical, easily accessed way for women to screen for breast cancer. Still,
the literature reveals very low rates of performance not only with respect to
frequency, but also in the quality of exam being performed. Moreover, research has
not yet uncovered the primary reason(s) women do not practice BSE, since the
hypothesized reasons studied thus far have not been shown to account statistically, to
any great extent, for women’s lack of BSE performance.

Considering the possible benefits women may realize by practicing routine
BSE, and the lack of a clear understanding of why most women do not perform BSE,
the need for further research is evident. Other variables need to be considered which
may affect women’s performance of BSE. Future time perspective (FTP) is a concept
first developed in the philosophical and psychological fields which involves how a
person’s temporal perspective affects his overall thoughts, feelings, and behavior. Applied first in research relating to abnormal psychology, sociology, and academia, it has only in the last decade been looked at as a variable of health-related behaviors.

Statement of the Problem

Breast cancer remains the second leading cause of cancer deaths in women, with incidence rates remaining virtually unimproved in the last several decades. There is documented evidence that the screening methods of mammography, clinical breast exam, and breast self exam will detect breast cancers at an earlier stage when cancer treatment is more effective, and thereby will improve mortality and morbidity rates. Despite the relative advantages which BSE offers, few women use this method of cancer screening.

Purpose of the Study

The purpose of this study was to explore the relationship between BSE frequency and quality of performance with FTP in young adult women.

Significance of the Study

Given that the literature has shown little basis for women not performing BSE, there was a need to investigate alternative variables which may explain, and lead to interventions to correct, this lack of performance. The ultimate goal of promoting the practice of BSE is to decrease morbidity and mortality in women from breast cancer. Future time perspective is a concept that has only recently been applied to the area of
health care. The health related areas in which FTP has been studied have shown FTP to be a significant factor in health behavior. Should a relationship between FTP and performance of BSE be found, new and innovative interventions to increase women's frequency and quality of BSE would be possible.
CHAPTER 2

REVIEW OF LITERATURE

The literature is replete with studies done on breast self exam (BSE). Much of the research is clinically focused, attempting to show a relationship between BSE and breast cancer detection. Another large area of published data looks at the practice rate and quality of the BSE done by women of different demographic populations. Variables that affect BSE performance and interventions to facilitate practice comprise still another large section of research.

The review of literature begins with an overview of studies which critique BSE as an efficacious cancer detection method. In order to facilitate an appreciation and understanding of the clinical significance of BSE, an overview is given of the clinical aspects of breast cancer, including an explanation of the three screening methods used for breast cancer detection. A review of studies both supporting and refuting the relationship between BSE and breast cancer survival is then discussed, followed by recommended guidelines for breast cancer screening. Research focusing on the frequency and quality of BSE performance in different groups of women follows. In conjunction with frequency of BSE practice, variables and barriers which have been found to significantly affect BSE performance are summarized. The
literature review concludes by looking at suggested interventions to improve adherence to BSE performance.

Efficacy of BSE

Clinical Aspects of Breast Cancer

Breast cancer is a leading cause of death worldwide with a conservative estimate of one-quarter of a million women dying of this disease each year (Foster & Costanza, 1984). The prudence of early detection of breast cancer is based on the rationale that systemic metastases, in at least most types of breast cancers, occur later in the disease progression, when the tumor size has reached a larger size (Foster, Worden, Costanza, & Solomon, 1992). The smallest breast tumors detectable by palpation are approximately one centimeter in size which means the cancer has probably been present for six to eight years, the single cancer cell having gone through about thirty doublings in that time (Foster et al., 1992; Otto, 1991). Some types of cancers metastasize earlier than others, and there is speculation if the capacity for systemic spread is intrinsic to cancer type, if it is dependent on tumor size (and therefore, time is an important factor), or if tumor metastasis is based on a combination of both these factors (Foster, 1992; Otto, 1991). If there is a time factor dependency for at least some types of breast cancers, meaning that metastasis occurs only after the tumor has reached a palpable size, then detection at an earlier size could play a part in improving survival.
Two variables which can adversely affect the study reliability and, thereby, the value of early detection – lead-time bias and length-biased sampling – should be considered when reviewing research conducted on any disease (Foster & Costanza, 1984; Foster et al., 1992). Lead-time bias is the notion that earlier detection and treatment of a disease does not actually change the time of death, but the survival time is lengthened only by virtue of the fact that the disease was discovered earlier. The individual does not actually live longer, but is only aware of the disease diagnosis for a longer period of time. Length-biased sampling error may occur when a new technique is used to screen for a disease in a population and affects reliability by identifying persons with slowly progressive disease in disproportionate number to those with rapidly progressive disease. Indeed, the identification of disease progression may be accurate, but the process does not account for the many individuals who have already died from the more virulent disease, thereby altering the population sample. Controlling for lead-time bias and length-biased sampling error will add to the reliability and rigor of a research study by eliminating these confounding variables in reporting survival rates and efficacy of screening methods.

Risk Factors for Breast Cancer

Every person is at risk for breast cancer. There are, however, certain factors that increase this risk. Being female is the greatest of these risk factors, since breast cancer is the leading type of malignancy in women, accounting for 28% of cancers in women and 1% of cancers in men (Otto, 1991). As a woman ages, her chances of
having breast cancer progressively increases, so that at age 25 years the odds are one in 19,608, at age 50 years it increases to one in 50, and after age 85 years, there is a one in eight chance of being diagnosed with breast cancer (National Cancer Institute, 1997).

Early onset of menarche, before age 12 years, and late menopause, after age 50 years, will increase a woman’s chances for breast cancer, probably as a result of prolonged exposure to the hormone, estrogen (Otto, 1991). In 1996, the American Cancer Society (ACS) has also named lengthy exposure to exogenous cyclic estrogen as a risk factor for this disease.

Childbirth before age 20 years will decrease the risk for breast cancer while having no children or the first child after age 30 years will increase the chances (ACS, 1996; Otto, 1991). Women with some forms of benign breast disease, particularly gross cystic disease, multiple intraductal papillomas, and atypical hyperplasia will have a greater affinity for developing a malignancy (ACS; Otto).

An increased incidence of breast cancer is noted in industrialized countries where the socioeconomic status is relatively high and the intake of dietary fat excessive. It has not been firmly established, however, what, if any, role dietary fat has in the occurrence of breast cancer. It is speculated that a high fat diet will result in obesity which can increase levels of circulating estrogens and which, in turn, affect hormone-dependent breast cancer cells (ACS, 1996; Otto, 1991).
Increased exposure to radiation has been noted to increase breast cancer incidence, as seen in survivors from the atomic bombs in Nagasaki and Hiroshima and in individuals treated with ionizing radiation for tuberculosis or postpartum mastitis (Otto, 1991). Low-dose, modern day radiation exposure from chest x-rays and mammograms have not been linked with a higher incidence of breast cancer, however.

A family history of breast cancer in a first degree relative (a mother, sister, or daughter) increases the risk by two to three times, particularly if the relative had bilateral breast malignancies or was premenopausal at the time of diagnosis (Otto, 1991). If the woman herself had a previous history of breast cancer, the chances of her developing a second primary neoplasm is 15% (ACS, 1996; Otto).

One more factor, which can increase the risk for breast cancer by up to 50%, is having a genetic predisposition for this disease. Although possibly related to family history of breast cancer, a genetic predisposition to breast cancer is distinguished by its ability to be traced to either a mother's or father's genes. Women who have this hereditary risk factor often present with an early age of diagnosis, bilateral breast disease, and a predisposition to cancers in other sites.

Other factors, currently being studied, which may increase risk for breast cancer are: induced abortion, pesticide and other chemical exposures, physical inactivity, and a high alcohol consumption (ACS, 1996).

Although scientific evidence points towards these factors as contributing to breast cancer incidence, the ACS (1996) indicates that 75% of women who are
diagnosed with breast cancer have none of these recognized high-risk factors.

Moreover, research is ongoing in evaluating the relationship of these and other characteristics to the occurrence of breast cancer. For example, a prospective study conducted by the Nurses’ Health Study Research Group (Colditz, Rosner, & Speizer, 1996) compared women with and without a history of breast cancer in a first degree relative with age of first pregnancy or nulliparity, multiparity, age of menarche, age of menopause, a history of benign breast disease, past use of oral contraceptives and use of postmenopausal replacement hormones. Results showed that three recognized protective factors for breast cancer – late age at menarche, multiparity, and being young when giving birth for the first time – gave little protection against breast cancer for the women with a family history of breast cancer in this study. This implies a lack of support for the previously established association between hormonal factors and breast cancer risk (Parazzini, Vecchia, Chatenoud, Negri, & Franceschi, 1996).

Risk factors show correlations with the high incidence of breast cancer and do not offer practical ways for preventing this disease. It is highly likely that survival chances are directly dependent on stage of cancer diagnosis (Koroltchouk, Stanley, & Stjernsward, 1990). In the United States, a woman diagnosed with an early stage of breast cancer (Stage I or II) has a five-year survival rate of about 90% because of the treatment options available to her at that point, while those who find their cancers at the most advanced stage (Stage IV) have only an 18% chance of living another five years, their disease being too far progressed to offer anything but palliative measures.
(Koroltchouk et al., 1990). Given these statistics, it would seem that the best protection from breast cancer is with early detection.

**Breast Cancer Screening Methods**

The three methods commonly used to screen for breast cancer are mammography, or the radiographic imaging of breast tissue; clinical breast exam, an exam of the breasts performed by a health care provider; and breast self exam, a visual and tactile exam of the breasts performed by the woman herself. The use of these methods vary according to individual client, health care provider, and health care system (Mccool, 1994), and although the importance of each method is controversial, the efficacy of screening over nonscreening has been established (Koroltchouk et al., 1990).

**Mammography**

The issues of sensitivity and specificity play an important role in screening methods. Specificity is the ability of a test to confirm the absence of disease. Sensitivity is the ability of a test to find the disease (Rudolph & McDermott, 1987). The accuracy of the test considers both specificity and sensitivity. The literature regards mammography as an accurate screening method for breast neoplasms, having the ability to detect tumors less than one centimeter in size with an 85% to 90% rate of accuracy (Foster et al., 1992; Huguley, Brown, Greeberg, & Clark, 1988; Mccool, 1994). Yet despite its high rate of combined specificity and sensitivity, drawbacks are
identified which decrease the feasibility for using mammography as a screening tool, at least for some individuals and in some populations. Foster et al. (1992) point out that in the United States, the annual cost of screening only one-quarter of women in their forties is approximately $360 million. Additional mammogram screening of women older than this, since this is the population known to be at higher risk, would make this screening method cost prohibitive. Less developed countries would not only be unable to afford this approach for screening all women at risk, but resource limitations would not allow state-of-the-art equipment to reduce the risk of radiation exposure, which would ironically increase the carcinogenic effect of mammography (Koroltchouk et al., 1990). Additionally, mammography does not detect up to 15% of breast tumors for a variety of reasons, including not all of the breast tissue being shown on the mammographic image, the cancer being obscured by highly dense normal breast tissue, and technician and radiologist error (Foster et al., 1992). The sensitivity rate is relatively high for mammography, but those women who do have false-positive results will undergo unnecessary biopsies and anxiety (Koroltchouk et al.). The relative discomfort of having this test done is another reported deterrent of this screening method (McCool).

Clinical Breast Exam (CBE)

Research findings concerning the efficacy of CBE varies, but most investigators have found this to be a beneficial method of cancer screening. Physical exam is less sensitive but more specific than a mammogram, indicating that a portion
of breast neoplasms (10% to 15%) will not be detected by mammography, and some of these will have reached a size palpable by CBE (Foster et al., 1992; Rudolph & McDermott, 1987). Yet, although the accuracy of CBE is potentially high, the sensitivity and specificity of the test is solely dependent on examiner skill. In addition, many clinicians have limited experience with regard to palpation of breast cancer, resulting in a lack of accurate findings (Foster et al., 1992; Rudolph & McDermott). A study done on the breast lump detection skills of 80 general physicians using six silicone breast models constructed to resemble the breast tissue of a 50-year-old woman revealed that out of a total of 18 lumps, the group detection mean was eight lumps or 44% (Fletcher, O'Malley & Bunce, 1985). With regard to cost, CBE is much less costly than mammography, but for some women, the expense of an office visit may still be beyond their ability to pay. Embarrassment in being examined by a health care practitioner may also prevent some women from utilizing this screening method (McCool, 1994). Despite these disadvantages, however, CBE is considered to be a safe and effective means of cancer detection and is the most commonly used screening method for breast cancer (Rudolph & McDermott).

**Breast Self Exam (BSE)**

BSE was first recommended for widespread cancer screening in the early 1950’s, and four decades later its efficacy is still being debated. Research describes BSE as a simple, inexpensive, non-invasive, low-risk technique of breast cancer detection (Foster et al., 1992; Korolchtchouk et al., 1990; O'Malley & Fletcher, 1987).
It is also widely recognized as being substantially less sensitive and specific than either mammography or CBE (Huguley et al., 1988; Koroltchouk et al.; McCool, 1994; Rudolph & McDermott, 1987). O'Malley and Fletcher's study, which compared BSE to combined screening by mammogram and CBE, showed BSE to be only one-third as sensitive (26%) as the other two methods (75%). False positive results, reflecting the test's lower rate of specificity, add to the cost of screening with follow-up physician visits and diagnostic tests. Ease and accuracy of assessment by the woman herself varies with breast size, body weight, manual dexterity, and individual assessment skill, implying that many individuals may perform BSE inefficiently.

However, studies (many of which have not accounted for performance quality) have shown that with routine or even sporadic BSE, breast cancer mortality has been reduced anywhere from 8% to 30% (Mant, Vessey, Neil, McPherson, & Jones, 1987; McCool). Another recognized benefit of BSE is that it encourages the woman herself to maintain at least partial responsibility for her own health care (Koroltchouk et al.). Increased individual responsibility for health care may relate to the fact that women who practice BSE are found to use other breast cancer screening methods more frequently and follow up with breast abnormalities more consistently (Foster et al.; Huguley et al.; Koroltchouk et al.; McCool).

Clearly, there are advantages and disadvantages to all three breast screening techniques. The general consensus of the literature is that a combination of screening tools – BSE and mammography, BSE and CBE, or all three methods – is most
advantageous in cancer detection (Foster et al., 1992; Huguley et al., 1988; McCool, 1994; O'Malley & Fletcher, 1987). It is noteworthy that the screening benefit of both BSE and CBE have the potential to increase as training and skill levels improve. A study done in the 1970s (Mahoney, Bird, & Cooke, 1979) found that of the three screening modalities, CBE was most successful in detecting cancer (66%). However, in the last two years of the study, BSE increased in its detection rate from 23% to 39%, lending merit to the opinion that BSE improves with training and performance and can be a useful adjuvant screening tool.

Breast Self Exam and Breast Cancer Survival

Numerous studies have been done in the last few decades looking at the relationship between BSE and survival from breast cancer. Much of the research supports the overall advantages of BSE to increased survival rates, while some studies challenge these advantages and question the limited evidence for effectiveness of BSE. Difficulty in comparing studies regarding the efficacy of BSE have been noted by a number of researchers (Hill, White, Jolley, & Mapperson, 1988; Mant, Vessey, Neil, McPherson, & Jones, 1987), primarily because differing study methodologies do not produce common dependent variables among variables. Conclusive evidence with respect to BSE efficacy is further limited by the fact that, to date, randomized, controlled research has not been done for BSE, and the literature, therefore, is only reflective of observational, non-experimental data.
Supportive of BSE

In 1978, Greenwald et al. conducted a study looking at the estimated effects of BSE and CBE on breast cancer mortality. Women (N = 414) newly diagnosed with breast cancer over a 28-month time period from a northeastern New York and western Massachusetts cancer registry comprised the sample. Individual interviews were conducted to collect medical information, including detailed information on how the breast cancer was detected and the woman's experience with BSE. Results showed that breast cancer was detected at Stage I, an early clinical stage, significantly more often by BSE (37.7%) than by accident (27%), and significantly more often by CBE (53.8%) than by accident (27%). There was, however, no statistically significant differences by stage between tumors detected by BSE and CBE. When detection method, tumor size, and nodal involvement were considered, it was found that tumors, discovered by the BSE and CBE groups combined, were, on average, 20% smaller than those found by accident. However, there was no significant difference in axillary node involvement between the three detection methods. Estimates of five-year survival rates, done by applying five-year, stage-specific survival rates to the clinical stage distributions, showed a rough estimation of 18.8% reduction in deaths for women who discovered their cancer by BSE and a 24.4% reduction for those whose breast cancer was detected by CBE.

The same year, Foster et al. (1978) conducted a similar 23-month study on the relationship between BSE and breast cancer stage, using 246 female breast cancer
patients from the Vermont statewide breast cancer registry. Of the sample, 25% reported doing BSE on a monthly basis before being diagnosed with breast cancer, 28% did BSE on less than a monthly basis, and 47% stated they had never performed BSE. Chi-square statistics and Scheffe multiple comparisons showed strong findings that there was a significant relation between frequency of BSE and lower clinical stage of breast cancer at diagnosis. Of the monthly BSE performers, approximately 50% were diagnosed with early stages of cancer (Stages 0 or I), whereas 33% of those who practiced BSE less than monthly had Stage 0 or I disease, and only 20% of women who had never practiced BSE were diagnosed with low-grade cancers at these same stages. The relation between BSE frequency and axillary lymph node involvement did not quite reach significance but showed a strong negative association, the women doing BSE more frequently having less nodal involvement. Furthermore, a significant inverse relationship was found between age and whether or not BSE was done at all with 60%, 39%, and 21% practicing BSE in the age groups of 28 to 49 years, 50 to 69 years, and 70 to 98 years, respectively. Such results are alarming, since older women are at higher risk for breast cancer disease.

The Vermont study was continued by Foster and Costanza (1984) for a total of 7.5 years, with a total sample size of 836 women with newly diagnosed breast cancer. Chi-square analysis and Bonferroni multiple comparisons substantiated the results found in the first two years of this study. With 23% of the women performing BSE monthly, 28% less often than monthly, and 49% never doing BSE, 42%, 31%,
and 16% were diagnosed with stage 0 or 1 breast cancer, respectively. Younger women were found, once again, to be more frequent performers of BSE. Additional findings from this study were that among performers of BSE, most detected their own cancers (90% for the monthly performers and 82% for the less than monthly performers) while 54% of the women who did not practice BSE detected their own breast cancer. When five-year survival rates for BSE performers and non-performers were considered, and after controlling for lead-time bias and covariant factors such as age, family history of breast cancer, and delay in treatment and method of cancer detection, the overall survival rate for those who practiced BSE was 75% versus 57% for non-performers.

Research done in 1988 (Huguley et al.) supported results of the Vermont study. A cohort of 2,083 women from fourteen hospitals in Georgia, diagnosed with breast cancer over a 31-month period, was prospectively followed to determine the relationship between five-year survival rates with BSE frequency. Overall, it was found that 76.7% of women who examined their breasts survived to the five-year point as opposed to only 60.9% of the non-examiners, again after controlling for lead-time bias and confounding variables. The disparity in survival rates was even greater at eight years, with 70.1% of examiners surviving while only 50.6% of those not practicing BSE remained. Early pathological stage at diagnosis was also greater, though not significantly, for BSE performers (29.5%) than non-performers (19.3%), as was the absence of lymph node involvement more common for performers (56.1%)
than non-performers (49.7%). The consistency of results between this and the 1978/1984 Vermont study is supportive of the association between BSE and breast cancer survival being reproducible in different populations.

A meta-analysis of twelve studies, including those done by Foster and Costanza (1984) and Greenwald et al. (1978), investigating the relation between BSE and extent of disease in patients with breast cancer was done by Hill et al. (1988). The criteria for inclusion in this study were that they reported the BSE practice of the patients prior to their diagnosis of breast cancer and the extent of cancer involvement at the time of diagnosis. The common finding of lymph node involvement was reported in all twelve studies and was therefore used as the dependent variable. The independent variable, however, differed among the studies. Six of the studies related nodal state to premorbid frequency of BSE practice while the other six related the BSE practice at the time the lump was found to nodal state (whether the woman detected her cancer by BSE or accidentally, those being diagnosed by CBE or mammography being excluded in this analysis). Logistic regression revealed that in all six studies relating node involvement to pre-diagnosis BSE behavior, the percentage of women with positive nodes were lower for BSE performers than non-performers (39% versus 50% respectively). In five of the other six studies, the percentage of women with positive nodes were lower for those women detecting their breast cancer by BSE (42%) than by accident (46%). Although variations in study methodology and populations, as well as the unknown number of unpublished research studies,
precludes stating conclusively that BSE increases the chances of detecting breast
cancer at an earlier stage, evidence suggests that it is a worthwhile screening exam for
breast cancer.

Not Supportive of BSE or Mixed Results

The usefulness of BSE and CBE was evaluated by Smith, Francis, and Polissar
(1980) with a sample of 230 women recently diagnosed with breast cancer from a
Washington state based cancer registry. In this year-long study, the women were
interviewed to obtain information including the frequency of their BSE performance
and the method in which their cancer was found. The detection categories consisted
of those found by CBE, those found by BSE in women who performed BSE a
minimum of three times a year, and women who discovered their own cancer but did
BSE no more than twice a year or not at all. No data for those women whose cancer
was detected by mammography, if any, were given. It was revealed that 76% of these
women detected their own tumors and, additionally, 72% of the women who
practiced BSE had a breast exam by a physician in the year preceding the study while
only 43% of those who did not perform BSE had a CBE during that time. No
statistical significance was found between the detection categories and tumor size,
stage, and lymph node involvement. It was shown, however, albeit not significantly,
that those women who did not practice BSE or who practiced only once or twice a
year had a greater number and larger malignant tumors than those whose cancer was
discovered by BSE or CBE. Efficacy of BSE in relation to extent of disease at
diagnosis, then, was not an unequivocal finding of this study.

Similar results were reached in research conducted at Sloan-Kettering Cancer
Center in New York (Senie, Rosen, Lesser, & Kinne, 1981) which found no
significant relationship between BSE and stage of breast cancer disease at diagnosis.
This 22-month study consisted of interviews with 1,216 women inquiring as to their
frequency of BSE, CBE, and mammography as well as the method of how their breast
cancer was detected. BSE frequency was categorized into three groups: monthly,
occasionally (defined as every two to three months), and never, with the percentage
of women in each category being 29%, 40%, and 29%, respectively. A noted
weakness of the study was that no explanation was given as to how women who
practiced BSE less than every three months were categorized. Sixty percent of the
participants were found to have had an annual medical exam, 29% were examined less
often, and 11% had not had an exam performed by a health care professional for ten
years prior to the study. Concerning the method of breast cancer detection, only 957
women in the sample were asked this information as this question was added four
months after the study began. Of these women, 80% reported self-detection, 15% by
CBE, and 5% by mammography. Chi square analysis and analysis of variance showed
the relationship between frequency of BSE and both size of tumor and axillary node
involvement to be not significant. However, for those women who reported having
annual medical exams (CBE and/or mammography), there was a significantly greater
proportion of tumors less than 2 cm in size found. Since some positive effects were seen regarding tumor size and axillary node involvement for those women who performed BSE in addition to having an annual medical exam, the researchers proposed it advantageous to use BSE in conjunction with, but not in lieu of, an annual medical examination.

Another, more recent, study (Newcomb et al., 1990) used a control group in examining the relation of BSE to the occurrence of advanced breast cancer. An inclusive group of 209 women who developed advanced-stage breast cancer between 1982 and 1988 and a control group of 433 randomly selected women from a large consumer-owned medical group practice participated in the study. Both groups were interviewed regarding their frequency and quality of BSE performed as well as their use of CBE and mammography, for the cancer group, prior to diagnosis, and for the control group, prior to a specified date. CBE and mammography information was obtained for purposes of comparing their frequencies with that of BSE. The majority (66%) of women with cancer were diagnosed, during the seven-year study period, in the early stages of disease and subsequently progressed to advanced stages, this fact in itself showing a lack of evidence for early diagnosis increasing survival time. Findings showed that 14% of the cancer group had not had a CBE in the five years prior to diagnosis while 7% of the control group had not had a CBE done in the same time period. For mammography, 79% and 81% reported never having had this screening exam done for the cancer group and control group respectively. After
controlling for confounding variables, little difference was seen between the groups with respect to BSE frequency or quality. Although the control group was found to perform BSE with greater quality, overall both groups scored low in proficiency and results were not significant. It was recognized by the researchers that such factors as confounding variables not accounted for and inaccurate self-reports may have influenced the results, but it was cautiously argued that BSE, as practiced in this population, is not an effective means of reducing mortality from breast cancer.

Other observations have also been made, through reviews and commentaries, which are critical of the use of BSE as an efficacious screening tool. O'Malley and Fletcher (1987) criticized the lack of research using quality of BSE performed as a variable. By not considering BSE proficiency in the results the operational definition and effects of BSE are obscured. This omission has been cited as a limitation in several studies (Mant et al., 1987; Senie, Rosen, Lesser, & Kinne, 1981; Smith, Francis, & Polissar, 1980). O'Malley & Fletcher, as well as Cole and Austin (1981), point out that sensitivity and specificity measurements of BSE have not been well established, even when the BSE procedure is done in accordance with recognized guidelines. It is, therefore, difficult to establish the reliability of results found by BSE. Related to this is the issue of emotional trauma experienced by women who erroneously believe they have detected cancer (Cole & Austin) and the potential tragedy of women who have been falsely reassured of having no evidence of breast
cancer by BSE when CBE or mammography might have detected the existing cancer (Moore, 1978).

**Recommendations for Breast Cancer Screening**

**National Cancer Institute (NCI)**

The NCI states there is no firm clinical evidence in favor of recommending BSE as a screening method for breast cancer. BSE may be used as a supplement to CBE and mammography. CBE is recommended annually for women aged 40 years and older, and a mammogram should be done every one to two years, beginning at age 40 years, and annually after the age of 50 years (NCI, 1997).

**United States Prevention Services Task Force**

The U.S. Preventive Services Task Force, like the NCI, states there is insufficient evidence to recommend for or against the teaching of BSE. The Task Force also states a lack of conclusive support from research for the use of CBE alone for cancer screening. However, routine screening every one to two years with mammography alone and in conjunction with an annual CBE is recommended for women aged 50 to 69 years. The Task Force states that for women aged 40 to 49 years and 70 years and older, there is a lack of research evidence to recommend for or against either mammography or CBE screening. Exceptions may be made, however, for women at high risk for breast cancer between the ages of 40 to 49 years, or healthy women over the age of 70 years (U.S. Preventive Services Task Force, 1996).
American Cancer Society (ACS)

The ACS recommends monthly practice of BSE be done by women 20 years and older as part of a good health habit routine. Additionally, the ACS recommends a clinical breast exam be done by a health care professional every three years for women between the ages of 20 and 40 years, and yearly after age 40. Screening mammography is recommended to begin by age 40, with women aged 40 to 49 years having a mammogram every one to two years, depending on physical and mammographic findings, and women aged 50 years and older having a mammogram done annually (ACS, 1996).

BSE Performance

Frequency of Performance

Despite the fact that the American Cancer Society recommends monthly performance of BSE, studies early on have shown that few women examine their breasts this often, and many report never performing BSE. Turnbull (1978) found that 22% of her population, women in graduate programs, did not do BSE. Another study done with well educated, white middle-class women revealed an 18% non-practice level (Stillman, 1977). Even in populations where the risk of cancer is known to be higher, thereby (one might think) evoking a greater consciousness of the need for BSE, compliance has proven to be disappointingly low. In a group of highly educated
women seeking care for breast lumps, pain, and other physical complaints, 34% reported having never examined their breasts (Kelly, 1979).

More current studies have not shown an improvement in frequency of BSE performance. O’Malley and Fletcher (1987) report that although 90% to 99% of women are aware of BSE, only 15% to 40% practice BSE monthly. Women over 50 years of age, reported to be at higher risk for breast cancer, were found to examine their breasts less frequently than their younger cohorts (Champion, 1992a; Foster et al., 1992; McCool, 1994; Rudolph & McDermott, 1987). This finding is especially worrisome in view of current research findings – the probability of a woman 40 years of age having breast cancer is one in 217 (McCool), while the odds progressively increase to the point that a woman who lives to age 85 years and beyond stands a one in eight chance of having a breast malignancy (NCI, 1997). Although variables influencing BSE behavior are not always significant between age groups, the frequency of BSE performance is consistently inversely related to age (Champion 1988, 1992a, 1992b; Senie et al., 1981; Smith et al., 1980). An exception to this was a study done looking at BSE among rural women (Gray, 1990). Results showed that older women, aged 51 to 60 years, performed BSE more frequently than their younger cohorts. However, a convenience group of voluntary participants was used, which may not be representative of the rural population, and thereby limits the generalizability of the study.
A good deal of research about BSE has been done on women in the college sector. One surveyed group, with a mean age of 21.4 years, showed that although 99% thought BSE important, only one in three did self-exam with any regularity (Katz, Meyers, & Walls, 1995). Similarly, a study using the methods of interview and observation of BSE performance of college women (with a mean age of 27 years), revealed 97% being aware of the practice of BSE, but the majority (56%) had never practiced BSE (Kenney, Hovell, Newborn, & Elder, 1989). An audit conducted on students (most between the ages of 18 to 27 years) at a nurse practitioner run university health center, showed the nonperformance of BSE to be ranked among the top nine most prevalent behaviors associated with potential health risks.

Questionnaire results of Hailey’s 1986 research with undergraduate psychology students, aged 20 to 51 years (mean of 23.9 years), showed that less than one in four were compliant with the American Cancer Society’s recommendation for monthly BSE, and less than half of these students examined their breasts six times a year. Ruda, Bourcier, and Skiff (1992) compared BSE compliance in a group of female senior nursing students with that of non-nursing students at a Catholic liberal arts college, the average age being between 20 and 29 years. Although not a random sample, results showed no significant difference between the two groups with regard to frequency, with nearly one-quarter of these students practicing BSE less than once a year or not at all. Female undergraduate nursing students were again the subjects of another questionnaire study (Budden, 1995) looking at BSE compliance. It was found
that 99% of the participants (with a mean age of 19 years) reported having performed BSE in the last year, with frequencies of nine to twelve times (27%), five to eight times (25%), and one to four times (47%). Although the results of this study may seem more encouraging with regard to frequency of performance, the non-randomness of the sample and lack of a comparison group limits the generalizability.

**Quality of Performance**

Virtually all of the research conducted on BSE will report some type of frequency of performance in conjunction with different variables or for a general population. Fewer studies have been done, however, which examine the quality of performance of BSE. Women vary in their technique and thoroughness of exam as well as in the amount of time they devote to each exam, and this information is most often not reflected in study findings (O'Malley & Fletcher, 1987). Although this weakness in study design has been recognized by numerous researchers (Gray, 1990; Massey, 1986; O'Malley & Fletcher; Schapira & Levine, 1996; Turnbull, 1978), it is only in the last decade or so that efforts have been made to control for quality.

Champion and Scott (1993) investigated quality of BSE by using observation, as well as a questionnaire, to measure proficiency of exam. The devised questionnaire was based on specific BSE procedural techniques recommended by the American Cancer Society, and had a Cronbach alpha of 0.73 and a test-retest score of 0.74. Content and construct validities for the tool were established prior to initiation of the study. After verbal instruction and demonstration of correct BSE procedure,
competency of BSE performance for each participant was evaluated with a return demonstration on a silicone breast model while being observed by a trained graduate nurse research assistant. Ten procedural components were evaluated and corresponded to items on the BSE questionnaire. Inter-observer reliability for this study was high (0.90). An interesting finding of this study was that frequency differences between groups studied were not significant while competency score differences were significant, indicating that frequency alone is an inadequate measure of BSE performance and implying that data from studies which evaluate only frequency may represent overestimates of BSE thoroughness with each BSE event.

In 1994, Stevens, Hatcher, and Bruce, as part of a larger BSE intervention project, conducted a prospective six month study examining compliance with the three positions for BSE recommended by the ACS. All participants received the same initial BSE instruction and additional treatment components were offered according to group assignment – a control group, rehearsal group, feedback group, and a group combined with treatment components of the rehearsal and feedback groups. On the occasion of each self-examination, participants were instructed to mail in a questionnaire specifying the date of the exam and the positions they used while performing BSE. While direct observation of BSE performance might have strengthened the study results, it was speculated that reliability might have been compromised had the women been asked to examine themselves in a place other than their “natural” environment.
Recognizing the fact that most research concerning BSE does not consider the quality of the exam, Coleman and Pennypacker (1991) undertook the task of developing a reliable scoring method for an existing tool, the MammaCare BSE evaluation method. This innovative tool to evaluate quality of BSE performance consisted of a grid projected onto the woman's chest by an overhead projector. The observer could readily identify the boundary of projected squares palpated and score accordingly on a matching score sheet. The limitations of this tool included not being able to objectively measure the other seven components of BSE used in teaching the MammaCare method – pressure type, motion, part of the hand used, pattern of exam, number of fingers used, number of motions, and duration. A two-stage study was then planned, the first endeavor being to develop a weighting scheme from a series of paired comparisons of each of the eight components of the tool, two components being compared in every possible combination. Subsequently a method of scoring each of the other seven components was developed. Development of this and other reliable objective checklist measures serves to significantly increase the ease and accuracy of evaluating BSE competency (Coleman & Pennypacker).

**Self-Reporting of BSE**

Most research on BSE has been done retrospectively and frequently relies on the self-reporting method of data collection. Consequently, the assumption is often made that the participants are responding honestly, correctly, and to the best of their abilities. Some researchers, however, have questioned the reliability of this method,
pointing out that compliance may be overestimated while noncompliance is underestimated (Mayer, 1986; Stevens et al., 1994).

Mayer (1986) recognized the problems associated with self-report measures and suggested verbal distortions might relate to the subject not remembering data accurately or succumbing to demand characteristics and giving more socially desirable responses. In an effort to control for the unreliability of self-response, Mayer developed an indirect behavioral measure for evaluating the frequency of BSE. The measure involved the woman placing baby oil on her fingers prior to performing BSE. At the conclusion of the exam, tissue paper was placed over the entire chest to absorb the excess lubricant. Participants were asked to initial and mail the used tissue paper to the investigative researcher after each BSE event. In this way a tangible product documented BSE occurrence, and verbal report was not required. Use of the method revealed several advantages which helped to remedy the problems found with self-report: since the participants mailed the tissues on a regular basis, faulty recall was not a factor; by returning the tissues only after BSE was performed, it was not required that performance or nonperformance of BSE be reported on a monthly basis, thereby eliminating the temptation to report a more socially desirable response if BSE was not done; and replication of a tissue required as much effort as doing BSE, leaving no advantage to falsifying the response (Mayer). The primary disadvantage of this method is that although a simple procedure, it may have increased the amount of effort of doing BSE without tissue and oil, and it can be speculated that some
participants did not practice BSE for this reason. The fact that some stated they did do BSE, but without using the oil, adds credence to this conjecture (Mayer).

Beach and Mayer also used the oil and tissue method of measurement in a 1990 study when they further examined the effects of social demand on BSE and self-report using a random sample of consenting women at a shopping mall. This investigation consisted of two similar, yet separate, studies. In the first, a short, face-to-face interview of 37 women which queried their personal BSE practice, half of the women were given a "high demand" and the other half a "low demand" preface to the question. The high demand preface was: "Breast self-examination is an important health habit for women to develop. It is easy to perform and may save a woman's life when done on a monthly basis". Those women in the low demand group were given the following preface: "Although most women are aware of breast self-examination, most do not practice it on a monthly basis. This is due to many understandable reasons such as fear, lack of knowledge, forgetting, etc."

Results showed a significantly higher number of BSEs reported by the women receiving a high demand preface than by those in the low demand group. The second part of the study, again using consenting women from a shopping mall (n = 87), used the same methodology, save for the addition of a control group. The control group received no preface to the question regarding personal frequency of performing BSE, which is the more typical condition used in BSE research. Results were not significantly different between the mean reported BSE frequencies of the three
groups. However, the low demand group reported the lowest frequencies, the high demand group reported the highest number of BSEs, and the total self exams reported by the control group was closer to that of the high demand group than the low demand group. Although not quantitatively significant, the qualitative implications may be that the control group did feel more pressure to give socially acceptable answers.

To further delineate the usefulness of Mayer’s oil and tissue self-report method, Lavine and Hailey (1991) conducted a study comparing different methods of reporting BSE compliance. Noting the recognized awkwardness and relative expense of using oil and tissue to document compliance of BSE (Mayer et al., 1987), this method was compared to the effectiveness of using self-report with monthly postcards and with retrospective verbal self-report. A group of 32 volunteer undergraduates from a university setting were educated about BSE via video, pamphlets, and lecture. The women were then assigned to one of three groups: the Mayer method, monthly postcards, or retrospective verbal report. A significant difference between frequency of BSE was found between the retrospective verbal group, who reported either “performing” or “not performing” BSE for each of the six months prior to the study, and the monthly self-reported Mayer method and postcards, which were not significantly different in frequency from each other. The implication of this study is that retrospective self-report may be higher possibly as a result of poor memory of their BSE performance in the past six months, or as a result
of the greater need of these participants to give socially desirable answers, since this was the only group who had direct contact with the investigator. Because there was no significant difference between the self-reported oil and tissue method and the postcards, it was not possible to determine which method was more accurate.

**Variables Related to BSE Performance**

Researchers, noting the generally low compliance rates of BSE, have looked for factors which differentiate those women who perform and do not perform BSE. These variables can be classified as those which significantly increase, and are possibly predictive, of BSE compliance, and those which act to deter the practice of BSE.

**Variables Associated With Increased BSE**

Although many specific variables have been studied in conjunction with BSE, there is a lack of subsequent research done to either support or refute the effects of these variables. Likewise, for those variables which have been included in different studies, findings often conflict, possibly as a result of different populations, analytical methods, or other factors related to study design. Consequently, there is little conclusive knowledge which can be derived from the literature with regard to factors which support or predict BSE performance. Despite these inconsistencies, however, a few variables, such as demographics, personal characteristics, and external factors have been identified as significantly influencing women’s practice of BSE.
A review of literature shows that variables thus far examined generally lend themselves to classification in one of three areas – demographics, external factors, and personal characteristics and attitudes. While some research looks globally at all three areas, other studies are more focused in scope. Glenn and Moore (1990), for example, looked at the personal characteristics of self-concept, knowledge about breast cancer treatment options, and three aspects of locus of control – internal, powerful others, and chance – in relation to frequency of BSE performance in a convenience sample of 235 women from a mammography breast cancer screening center. A factor which may have had a bearing on BSE practice that was not controlled for was that of family history of breast cancer – nearly 19% had a first degree relative with breast cancer, which theoretically could have either increased or decreased their frequency of BSE. Scores from three questionnaires, one for each variable measured, were correlated with self-reported frequency of BSE. Self-concept was found to have a significant, positive relationship with BSE frequency and knowledge of breast cancer treatment options showed a significantly positive, albeit weak, relationship with BSE frequency. Interestingly, only chance health locus of control was found to be weakly significant and positively related to BSE frequency, indicating that these women felt their health is controlled more by accident, or chance. This was contrary to earlier studies where internal locus of control was found to be the stronger correlate.
Another study (Katz, Meyers, & Walls, 1995) examined health locus of control, and the additional personality variables of loneliness, worry about physical symptoms or "hypochondriasis," fear of cancer, and confidence that self-exam was being done correctly in relation to both cancer knowledge and frequency of BSE in women and testicular self-exam in men. With regard to BSE, a multi-part questionnaire measuring each of these variables was given to a group of 100 college women. Using multiple regression analysis, and a composite score of breast cancer knowledge and BSE frequency as the dependent variable, fear of cancer and confidence in doing BSE were found to be the only significant variables. Two findings of particular import from this study were, first, that knowledge of cancer and frequency of self-exam were independent of each other, indicating that being better informed about cancer does not necessarily mean appropriate precautionary action will be taken. Secondly, all of the variables combined accounted for only 15% of the variance on the dependent measure, implying that, at least for this population, other factors would exert greater influence on how much one knows about breast cancer and frequency of BSE.

Kelly (1979) attempted to elicit differential personal characteristic variables that distinguish examiners from non-examiners by doing qualitative interviews with a group of ambulatory care patients being seen for current breast complaints. The two reasons for doing BSE mentioned most frequently by the 99 examiners were an increased awareness that it is necessary to detect breast cancer early (56%) and
feeling personally vulnerable to breast cancer (44%). Reasons given by the 54 non-
examiners for not practicing BSE were not feeling personally at risk for breast cancer
(42.6%), BSE was frightening (26.8%), and they did not know how to do BSE
(22.7%).

Hailey (1986) later used the results of Kelly's (1979) study as a guide in
developing a survey to again measure factors which influence and differentiate women
who practice BSE with those who do not, this time in undergraduate college students.
Of the 113 examiner respondents, 90.3% chose “I realize the importance of early
detection of breast cancer,” and 42.5% chose “my doctor tells me to do it” as reasons
for doing BSE. Not remembering to do BSE was the primary reason chosen by most
(86.3%) non-examiners, followed by “my health is good” (61.5%), not knowing how
to do BSE correctly (46%), and not wanting to find anything wrong (38.5%).
Stepwise discriminant analysis was used to distinguish items differentiated by the two
groups. Three variables were found to significantly predict a greater likelihood of
BSE performance: a greater familiarity of BSE technique, a higher degree of worry
about cancer, and more willingness to learn about BSE. As noted by Hailey,
clarification of the notion that increased worry about cancer increases likelihood of
self-exam is needed since some previous research has found worry about cancer to
inhibit BSE. It is possible that certain aspects of worry, such as awareness of personal
susceptibility to cancer, may increase BSE practice while generalized anxiety about
the unknown may inhibit practice (Hailey).
Studies which purview all three realms of variables, demographics, personal characteristics, and external factors, include that done by Howe (1981). A telephone survey was conducted on a systematically selected, large group (N = 708) of predominantly white, married women of higher socioeconomic status. From factor analysis with varimax rotation, five significant variable areas emerged from the interviews: attitude, or the value one placed on BSE; social influence, the support received for doing BSE; inhibition, the amount of confidence in performing BSE and comfort in talking about breast concerns; preventive health behaviors which require a visit to a healthcare provider; and preventive health behaviors performed independently by the individual. Using BSE frequency as the dependent variable, individual variable measures from each of the five areas revealed that most associations were significantly positive. Positive correlations were found for BSE knowledge, attitude about BSE, ease in remembering to do BSE and in what was felt, preventive health behaviors performed both by a health care provider and independently, social influence for BSE, and level of education. Only inhibition had a negative relationship with frequency of BSE, indicating that as women felt less inhibited, their BSE frequency increased. Age (mean = 42 years), as a variable, had mixed results when compared with frequency of BSE performance. Most of the women who never performed BSE (70%) and only 42% of those who practiced monthly were over the age of 40 years. Yet, 65% of the women who practiced BSE more than monthly were from this same older age group. Perceived risk of breast
cancer was the only variable which had no correlation with how often a woman performed BSE. Most of the sample believed they were at low risk, despite the fact that many of these same women had family histories and past medical histories of breast cancer.

In another study (Hailey & Bradford, 1991), university faculty and professional staff women (N = 201) completed a mailed survey eliciting information about familiarity with BSE, frequency of BSE practice, family history of breast or other cancers, source of BSE training and information, interest in learning more about BSE, and their preference for a learning setting. Demographic information pertaining to age, highest degree achieved, and position and college at the university was also asked. Of this group of highly educated women (most having their doctorate and all having at least a bachelors degree), no correlation was found between frequency of BSE practice and educational level, position (faculty or staff), and college within the university. Interestingly, family history of breast cancer was not found to significantly relate to BSE practice, but a family history of other types of cancer was significantly and positively related. It is speculated that a heightened awareness of cancer vulnerability is achieved when an individual’s family member experiences cancer, which acts to increase BSE practice for that individual, but that a family member diagnosed specifically with breast cancer is more threatening and may deter BSE performance (Hailey & Bradford).
Still one more study took a slightly more comprehensive approach by relating different predictor variables (demographic, personal characteristics, and external) to several outcome variables for BSE (Kenney, Hovell, Newborn, & Elder, 1989). Data were gathered from female university students, faculty, and staff (N = 73) by way of a demographic questionnaire, direct observation of their BSE technique, observation of subject ability to detect lumps in breast models, and interviews measuring confidence in performing BSE and anxiety related to BSE and breast cancer. Descriptive analysis was done to determine the specific variables that accounted for most of the outcome variance: for BSE frequency, 20% of the variance was accounted for by employment status, caffeine consumption, and cyclically enlarged breasts; professional BSE training, length of training, and bra size accounted for more than 31% of BSE competency; BSE confidence was influenced most (more than 26% of variance accounted for) by employment, bra size, and professional training; 27% of the variance concerning breast cancer anxiety was attributed to professional training, BSE practice during the training, and cystic breasts; and age and length of BSE training accounted for 13.6% of the variance for competency in the examining the breast model. Although the sample size was relatively small for the number of variables used (no report of power analysis was given), and there was no description of the predictor variables given (for example, the difference between BSE training and professional training), one noteworthy point is that BSE frequency was not shown to be related to any type of training. This further substantiates the findings from Katz, Meyers, and
Walls's (1995) study that knowledge of BSE and performance of BSE are not necessarily related.

**Barriers to BSE Performance**

An inherent negative aspect of BSE, described by Grady, Goodenow, and Borkin (1988), is the fact that BSE lacks the positive health rewards that most other preventive health behaviors have. The gamut of BSE outcomes range from, at best, neutral, if no lump or irregularity is found, to negative, if a possible malignancy or other problem is detected. In an effort to understand what specifically discourages women from doing BSE, find ways to decrease these factors, and compensate for the lack of positive reward of BSE, some researchers have been prompted to consider variables which act as barriers to women performing BSE.

One such study looked at the perceived barriers to performing BSE of women in three different age groups and educational levels (Sensiba & Stewart, 1995). Questionnaires were received from a convenience sample of 374 women which elicited demographic information and perceived barriers to BSE rated on a five-choice, Likert-type scale. The group was classified into three predetermined age groups (18 to 34 years, 35 to 54 years, and 55 years and older) and three predetermined educational levels (12 years or less, 13 to 16 years, and 17 or more years). Chi-square analysis revealed no significant differences in frequency of BSE according to age or educational level. However, some trends in chosen barriers were seen to differ among age groups and educational levels. Middle-aged women were
more afraid of finding a lump and older women were least afraid, and while highly educated women showed less fear in finding a lump they tended to forget to do BSE more frequently than the other groups. Overall, the two barriers chosen most frequently were fear of finding a lump and difficulty remembering to do BSE.

Barriers to BSE, as well as cervical cancer screening, were studied in a group of underserved women (N = 339) in the District of Columbia (Burnett, Steakley, & Tefft, 1995). Intent to perform BSE monthly was used as the dependent variable in this cross-sectional, correlational design study, which was derived from a three-part questionnaire developed by the investigators. Multiple regression was used to determine the independent variables of demographics, attitude towards BSE, intent to perform BSE, knowledge of breast cancer, and personal or family history of cancer. Through chi-square analysis and analysis of variance it was found that intent to perform BSE was strongly related to attitude toward BSE, influence of significant others, and whether the woman had ever performed BSE, these three variables accounting for 36% of the variance. No other variables were significant. The implications of the study are that a negative attitude towards BSE, non-support of health professionals or significant others towards BSE, and unfamiliarity with doing the exam will act as barriers to women performing BSE.

Several barriers of BSE performance in elderly women (over the age of 60) were addressed by McCool (1994). Individual barriers included embarrassment about examining their breasts, lack of confidence in performing BSE, disbelief that they
would get breast cancer, a lack of knowledge about breast cancer, and alterations in physical and mental abilities such as visual acuity, memory, balance, and joint mobility. Compounding the individual barriers are those imposed by healthcare providers who, if they recommend any preventive screening care for the elderly at all, will most usually recommend mammography and clinical breast exam, without even addressing BSE. The health care system also provides its own set of barriers to BSE screening in older women. The fact that elderly women are often on fixed incomes and are financially unable to participate in screening services, and that these services are often not available in retirement communities and long-term care facilities, decreases the odds that elderly women will perform BSE. Another system barrier is that most teaching guidelines, programs, and printed materials are geared towards young and middle-aged women, making it more difficult for older women to relate to the need for BSE.

Methods to Increase BSE Performance

In view of the infrequency most women are found to participate in BSE and the inconsistencies with which variables are significantly related to BSE behavior, some researchers have endeavored to find ways to increase BSE acceptance and performance among women. Descriptive research by Budden (1995) showed media, in the form of printed material, video, discussion group, or a combination of these methods, was most effective in disseminating knowledge about BSE. Another study (Gravell, Zapka, & Mamon, 1985) found that a significant increase in BSE practice

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could be attained by teaching students about BSE and encouraging them to, in turn, talk with their mothers about this subject. This social networking resulted in positive communication regarding BSE, as well as increased frequency and quality of BSE performance in both mothers and daughters.

Rewards have also been shown to have a significant positive effect in increasing frequency of BSE practice. A study (Grady et al., 1988) comparing the effects of external rewards and self-rewards with two groups of women, and a control group, showed the reward groups practiced BSE more often than the control group. Interestingly the external reward group had a sharp decline in performance frequency after the rewards were stopped as opposed to a more moderate decrease in the self-reward group, indicating there may be more longlasting benefit if self-reward can be instilled.

The use of prompts is one more intervention shown to have increased the frequency of BSE performance in women (Bennett et al., 1990; Mayer, Beach, Carter, Hillman, & Kellogg, 1991; Mayer et al., 1987; Mayer et al., 1991). These prompts included a variety of methods such as personal contacts reminding women of the time BSE is due to be done, mailed reminders, record forms, and stickers to be placed in key locations, such as on the calendar or menstrual supplies. For all types of reminders, the BSE practice increased.
Theoretical Basis of BSE Literature

The vast majority of studies done regarding BSE have used the Health Belief Model, first derived from Lewin and Becker's social-psychological theory, and developed by Rosenstock in 1966 (Champion, 1992b). The basic assumption of this model is that particular types of attitudes will predict health behavior, these attitudes represented by a number of different variables (perceived susceptibility to and seriousness of a disease, perceived benefits and barriers to preventive behaviors, cues, and perceived control of one's health).

Champion (1988) has used this model as the basis of several studies on BSE. In a sample of women aged 35 and older, barriers showed to be the strongest indicator affecting frequency of BSE and health motivation was the strongest predictor for quality of BSE performance. A later study (1992) done on women of three different age groups (35 to 44 years, 45 to 54 years, and 55 years and over) also found barriers to be the strongest predictor of both frequency and quality of BSE in all three age categories. Gray (1990), in a study using questionnaires to measure frequency of BSE, found all of the variables except seriousness of disease to affect BSE frequency.

Other studies using this model found fewer variables significantly influential. Ruda, Bourcier, and Skiff (1992) looked at only knowledge and health beliefs as independent variables of BSE performance in nursing and non-nursing students. Findings revealed no differences between the two groups, and no significant influence
of either variable on BSE performance. Stillman (1977) chose to investigate the effects of susceptibility and benefits on BSE, finding only a weak relationship between the two variables and BSE practice. Though most of the women scoring high in both variables tended to do BSE to some extent, only 40% of the entire sample practiced monthly. Upper middle-class women were the subjects of another study (Rutledge, 1987) using this model. Regression analysis showed perceived benefits minus perceived barriers to be the only significant predictor of BSE.

Summary

In this literature review, the clinical aspects of breast cancer and an overview of other breast cancer screening methods were presented as a foundation for understanding the implications and purpose of performing breast self exam. Research investigating the efficacy of BSE as a screening method to decrease breast cancer morbidity and mortality reveals the controversial nature of this issue. The lack of conclusive evidence with regard to the efficacy of BSE indicates a need for further research.

The acceptance of BSE by women, exhibited by frequency and quality of BSE practice, is shown to be generally low in different populations. Variables found to be both positively and negatively related to women’s performance of BSE encompass three general areas: demographic, personal characteristics, and external factors. Although studies vary markedly in their findings of significant relevant variables, it was generally found that high self-concept, confidence in doing BSE, having social
support, training in BSE technique, and being younger related positively to BSE performance. Likewise, those variables found to relate negatively or act as barriers to the performance of BSE were: being non-white, being in lower education and socioeconomic levels, having a lack of confidence in performing BSE, embarrassment about doing a self-exam, the negative influence of significant others, and being older. Fear of cancer was found to be a motivating factor in some studies, while other research showed it to be a barrier to BSE practice.

Research exploring different methods to increase BSE performance were reviewed, showing that with all of the types of interventions (media, social networking, rewards, and prompts) increased practice of BSE. Though not looked at as a separate variable, education about BSE was endemic to each of these studies, and may also be found a factor in increasing BSE performance of women.

Since much of the literature on BSE is conceptually based on the Health Belief Model, research relating the specific variables of the theory to BSE behavior was reviewed separately. Even with a common framework and specific variables, use of this model showed no firm consensus as to the effect these variables have on health behaviors.

As seen, a great deal of research has been done on breast self exam. Whether or not it is a viable method to use in screening for breast cancer remains to be shown with further research. It is evident, however, that since one of the three national medical organizations who set the standards for cancer screening recommends monthly BSE,
the other two not rejecting its use, and by the propensity of literature either supporting or not firmly negating BSE as an efficacious screening method, that BSE has the potential to prevent breast cancer mortality and should be encouraged. Yet, it is also apparent from the literature that although BSE is recommended by many health care professionals, most women do not practice BSE. Research, thus far, has not been able to account, to any great extent, for what variables differentiate women who perform BSE and those who do not. The purpose of this study, therefore, was to explore the relationship between BSE and the influence of another variable, not yet considered in relation to BSE performance.
CHAPTER 3

CONCEPTUAL FRAMEWORK

The ultimate purpose of this frame of reference is to develop a conceptual model whereby the understanding of the relationship between future time perspective with a present health behavior, namely BSE, may be enhanced. This will be accomplished by presenting an overview on the development of the concept of “time,” in general. The characteristics of time, nature of time, and sense of time will then be described with the presentation of various theoretical perspectives. The sense of time through different stages of human development will follow, with a focus on how young adults, in the approximate age range of 18 to 40 years, experience the concept of time. A summarized conception of future time perspective, as it relates to behavior, will then be given, with further clarification provided by a conceptual model. The conceptual framework will conclude with a review of how the concept of future time perspective has been applied to different areas of research and, in particular, to that of health behaviors.

Overview of Time as a Concept

The concept of temporal perspective has intrigued the mind of man from early philosophical times. In his work at the turn of the twentieth century, Sigmund Freud
alludes to the dimension of time with reference to the “conscious” and the “unconscious” (Melges, 1982). In the 1930s, the subject of time was further explored in the psychological literature, predominately with the work of Lawrence Frank and Kurt Lewin. Although these first writings were philosophical in nature, these relatively ethereal concepts were generally well grounded with verbal imagery, allowing for operative understanding. The first applied studies using time perspective were seen in the 1940s, again primarily within the psychological realm. In the ensuing years this concept has been further developed and applied to many areas of study including sociology, academia, developmental psychology and, most recently, healthcare.

Aspects of the concept of time have been discussed in the literature with differing terminology, among the more common being “time orientation,” time perception,” and “time perspective.” Wallace (1956) proposed that such incongruencies of terminology tend to obscure the conceptual and operational meanings. Despite the confusion these inconsistencies may have caused, time, as a phenomenological entity, has evolved to a conceptual level applicable in research investigation.

The Nature of Time

Aristotelian Treatise on Time

According to Heidegger (1982), Aristotle (384-322 B.C.) "expressed [time] in clear conceptual form, for the first time and for a long time after, the common
understanding of time, so that his view of time corresponds to the natural concept of time” (Heidegger, p. 232). What Heidegger is referring to is Aristotle’s treatise on time as published in his book of Physics and used centuries later as a framework for conceptualization. Aristotle likens time to two outstretched arms in different directions of “non-being,” for the past is “no longer” and the future is “not yet,” and all that exists is “now.” These “nows” are constantly changing, encapsulated within a heavenly sphere which embraces all that exists, and so the very basis of time is said to be identical to the outermost heavenly sphere. Since we speak of time as elapsing, time and motion are related. Yet, just as an object that is moving is not “motion” itself, so motion is said to be close to time, but not time itself. Time and motion, then, necessarily exist together, and yet, Aristotle does not mean “motion” per se, but the “counting of motion,” or a series of numbers assigned to track movement. Every movement is a change of place, implying that something moves from point A to point B, thereby creating what Aristotle refers to as “stretch” and all that exists is included within this linear movement. The definition of time, therefore, as stated by Aristotle, is: “Time is something counted in connection with encountered motion with a view to the before and after, in the horizon of the earlier and later” (Heidegger, p. 240).

Other Conceptions of Time

In essence, Sir Isaac Newton (b. 1642, d. 1727), the English mathematician and physicist, adopted Aristotle’s view of time, but expounded on the notion of movement by formulating an equation depicting time as a measurement – time equals distance
divided by velocity (Melges, 1982). Albert Einstein and the Russian mathematician, Hermann Minkowski (b. 1864, d. 1909), in their “fourth dimension” conception of time, fixed the upper limit of velocity at the speed of light. Their work greatly influenced many aspects of physics, but also created new dilemmas in explaining how objects moving beyond the speed of light traverse time (Melges). The commonality of this general view of time is that time is linear, moving forward in direction, and as such has three fundamental constructs: duration, or “passing by”; succession, or the order which marks events; and temporal perspective, the direction that duration and succession are extended. All three must coexist, for successive events are separated by durations and, similarly, durations are defined by an ordering, or succession, of events. Viewing durations and successions either forward or backwards, in other words, according to temporal perspective, is what defines the future and the past (Melges).

Western civilization thinks of time in terms of linearity. Some Eastern and Oriental cultures look at time not as a line, but as a circle. Time is cyclical, moving in a general downward direction, and when conditions are at their worst, the spiral turns upward (Melges, 1982). Still other cultures do not conceive of time within any particular framework. The Hopi Indians do not have the concepts of past, present or future in their vocabulary and so think of time as an ongoing, ever-present, reality. Rain, for example, is not viewed in terms of falling from the sky, hitting the ground, and making puddles. Rather, the entire process is conceived of as an entirety and
described as such in their vocabulary. Likewise, the people of the Trobriand Islands (off the coast of New Guinea) do not think of time as being directed by past events leading to the future, but rather as the present evolving into a pattern that is continually creating itself (Melges).

Clock Time versus Psychological Time

Though conceptual frameworks of time may vary, common to all views is the fact that time exists as perceived reality – a process that one experiences, as opposed to something one imagines as being. All living organisms, ranging from man to creatures of the lowest developmental level, have an inner time, or “psychological time,” that contributes, to one degree or another, to the behavior of that being. Aristotle points out the paradoxical nature of the existence of time stating that in a sense, it exists everywhere and yet, in every instance it only exists within the soul (Heidegger, 1982). Yet despite the overall existence of time, it is observed that living things have a biological timing which functions independently of any timekeeping mechanism, such as a clock (Melges, 1982). Bees, for example, are in synchrony with the pollen cycle of plants in their quest for nectar, salmon return to their place of birth to spawn in conjunction with their life cycle, and the swallows return to Capistrano precisely on March 19th every year. The concept of “now” is important to psychological time, for synchronization of the “now” with the environment or other organisms necessitates taking into consideration the “now” of these systems. By contrast, the “now” has little relevancy in the linear progression of clock time, since
time progresses uniformly, from past to future, and in an established sequence after having occurred. Psychological time is not bound to such orderliness, and the basic constructs of duration, succession, and temporal perspective can be modified by the mind as, for example, when we subjectively experience the duration of time as being accelerated or decelerated, when we reorder the sequence of events in our mind, and when we consider the past and the future (Melges). In this respect, then, clock time can be thought of as a template modifiable by psychological time.

The Sense of Time

How a person experiences the passage of time is what Melges (1982) refers to as "time sense." In essence, it is how the individual experiences his psychological time, for an alteration in one (or more) aspects of psychological time will change how time is perceived. Many common examples of changes in the sense of time exist. The dream experience often condenses the past, present, and future and transposes their order. People who have experienced "near death" report having seen a panoramic life review in their mind's eye, spanning their entire life in seconds or minutes. Hypnosis can alter the duration of time, causing it to speed up or slow down, and can allow one to experience his past as though actually reliving it. Finally, there is no individual who has not either felt the clock "dragging" or "flying by" at one time or another (Melges).

Research done on time sense has attempted to uncover the deeper psychological processes involved in modifying the subjective perception of time.
(Fingerman & Perlmutter, 1995; Melges, 1982). It has been found that as psychological time speeds up, outward clock time appears to slow down. Duration, however, is not only measured by a comparison between psychological and clock time. Further research has shown that as the complexity and organization of stimuli within the span of consciousness becomes more complex, the duration of time also appears to be prolonged, perhaps attributable to an apparent “crowding” of incoming stimuli causing a sensation of increased time. Similarly, if one has many tasks to accomplish in a short time span, time within, psychological time, feels lengthened while clock time passes all too quickly. An example of this would be attempting to complete a difficult assignment for school while the deadline date fast approaches.

The Structure of Time

Content of the Present

The human mind, being more highly developed than any other living organism, has the ability to process thoughts, to transcend the present to consider the past and the future, and to make extended time connections to perform functions such as learning and planning (Melges, 1982). It is psychological time, coexistent with clock time, that impacts the being and creates what we think of as life. Time has been likened to a journey, being the “substances of movement on [a] road trip” which is marked by life events (Fingerman & Perlmutter, 1995, p.
As one approaches a destination, or life event, along the way, thoughts and feelings center on that place and give structure to one's life (Fingerman & Perlmutter).

Frank (1939) discusses how these events in life become the structure of time with an example of potty training. The infant innocently responds to a physiological need directly with the physiological response of voiding. As the infant matures, awareness of internal pressure becomes an event which precedes voiding, and this stimulant, or event, becomes attenuated with the ultimate event of voiding. Further development brings an awareness of parental and cultural expectations of voiding in the proper place, the toilet, and so another event, finding a toilet, is attenuated in the sequence of events leading to the final act of voiding. In this way, life is structured in accordance with the cultural “field” which molds, both internally and environmentally, the events of time.

Still, the structuring of time is not so straightforward, since it involves one's perspective of past, present and future impacting events. Lewin (1936) makes the point that:

Neither past nor future psychological facts but only the present situation can influence present events, only what exists concretely can have effects. Since neither the past nor the future exists at the present moment it cannot have effects on the present. In representing the life space therefore we take into account only what is contemporary. (p. 34-35)
Although Lewin's account of the structure of time sounds as though life occurs in a vacuum, each moment that has happened or will happen having no effect on the now, further explanation clarifies this viewpoint. A child wanting to reach a box of cookies that is visible but high in the cupboard has not accomplished the future event, that is, obtaining the cookies. The content of the goal, actually reaching the cookies, lies in the future. Yet, the psychological goal of wanting the cookies is in the present, actually existing and creating part of that momentary life space. Whether or not the child attains the content of the goal is irrelevant to the present realism of the psychological goal (Lewin, 1936).

Frank (1939) also talks about how time perspective can influence and alter the structuring of time:

The future is that name we give to the altered dimensions of the present. Every scientific discovery that reveals the sequence of events and thereby shows that a specific point-event, A, is the antecedent of B, C, D, E...N, immediately alters the time perspective of those who are informed of this discovery; thereafter they can no longer ignore A nor regard A as an isolated event or as a part of the sequence taught by folklore and superstition (early scientific attempts) but as the initial step leading to N, to be responded to in terms of B, C, D, E...N. (p. 299)

Frank makes the observation that as science makes its cumulative discoveries about the sequence of events, one's ability to live spontaneously and unreflectively
becomes limited. This scientific knowledge casts a new dimension on the present, which man by his awareness is forced to recognize and which, consciously or subconsciously, affects the decisions, and thereby, behavior.

**Time Structure and Behavior**

Just as knowledge about what outcome an event will perpetuate influences one's awareness, so also the outcome of events already happened pervades awareness and therefore, behavior. Man looks toward the past as a resource for knowledge and guidance. Frank (1939) makes a distinction between perspectives of future and past, stating that as we look toward the future timeline, the dimensions of the present are shaped by the focus of the future whereas in looking back in time, it is the past that is shaped (and “re-shaped” as time continues) by the present, since we impose on the past the values of the present. The present, situated between the immediate past and the immediate future, has its dimensions set by the focus of the future even as past events are being attenuated according to present dimensions.

It would follow, then, that it is actually the future that shapes the past, since future shapes the present which, in turn, shapes the past. Frank (1939) would disagree with this notion, stating that:

> We stand astride time, as it were, and, Janus-like, face the future and the past, looking at once forward and backward and seeing events in both directions in a time perspective that is never fixed. In these projections
forward and backward, the largest influence, unless somewhat checked but never eliminated by scientific methods, is the immediate present with its beliefs, necessities, perplexities and emotional feeling tones. (p. 303)

It is as if the present were at once a mirror and a solar screen, reflecting back what is absorbed from the forward direction, yet being a barrier between the two.

Still, according to Frank (1939), this is not the total relationship between past, present and future. The present, he states, is the threshold to the future, but behaviors of the present are only valued in accordance to what impact they have on the past, giving them their present meaning. In this way, the past impinges upon the future by generating the expectations and awareness of present behavior. Behavior is determined by the future, to which we direct our sequence of events with expectations, and by the past, from which we modify our present conduct with learned alterations. Frank succinctly describes the past as “persistent modifications in the behaving organism” and the future as “the controlling direction or pattern imposed upon the unfolding behavior according to those persistent modifications” (p. 305). Balance is seen as one lives with a forward and a retrospective orientation, continually reordering and giving new interpretations of the past, and shaping the future even as it shapes the present (Frank).

Future Time Perspective

The essence of future time perspective (FTP) does not exist only in the philosophical realm, but is a critical variable which “gives dimensions to our
values and order to our lives" (Frank, 1939). The assimilation of the past cannot be accomplished without first projecting it into the future, thereby bringing the past into relation with the present. The variability in future perspective is what determines the meaningfulness of life, for if one projects ahead towards the remote future, the present diminishes in value by its lack of directness of impact. Likewise, if the forward span is too brief, the present is also rendered meaningless since it leads to nothing of enduring value. What gives life its significance is a future time perspective with a "vital sensibility," having a forward focus long enough to provide meaning and tension to our present endeavors, yet short enough to avoid diminishing the present by sacrificing life to the remote future (Frank).

**Heimberg’s Theoretical Basis**

In her development of the Future Time Perspective Inventory, Heimberg (1963) identifies the significance of FTP as being a determinant of behavior. Behavior, then, is the anchor point, or operational outcome, of FTP. A single act of behavior will generate a series of consequences, spaced unevenly along the time line, which affects the present by the individual’s ability to bring the future time structure into present consciousness. According to Heimberg, distance in time affects the consequence’s magnitude of effect in determining present behavior. Immediate consequences have greater impact and remote consequences, lesser effect, on present behavior. This gradient for performance is represented in
Behavior, however, is not determined by a mathematical equation. Individual differences exist in this performance gradient so that for some, more distant events and consequences weigh relatively heavy in present behavior, while for others, even immediate consequences seem to have little import in determining behavior. It is this weighting of consequences as a function of their distance in time that acts as a crucial determinant of behavior and to which we refer to as “future time perspective.” As represented in Figure 1, a shorter FTP means that the length of future time having current relevance is shorter and that the magnitude of effectiveness of any consequence as a determinant of behavior is also less for any given distance in time. The opposite is true for a longer FTP.

The question remains, however, of what constitutes an individual’s FTP. Heimberg (1963) identifies three factors which determine the importance and magnitude of effect that one gives to a consequence: a clear conception of the consequence and its potential effects on the individual’s goals; the subjective probability that the consequence will occur; and the individual seeing that specific acts will predictably determine the occurrence of the consequence. Heimberg makes the point that the effect of these factors tends to decrease as temporal distance increases, but that it is likely they would decrease less for a given length of time if the individual has greater trust in the reliability of prediction of present to future, sees personal behavior as a determinant of the course of future events,
and envisions a future with well-defined expectations and goals. On this theoretical basis, Heimberg’s definition of FTP is: “the degree to which the future is seen as predictable, structured and controllable, these symbolic differences leading to individual differences in the slope of the goal gradient.” (p. 3)

Goals and Plans

Implicit in Heimberg’s definition of FTP, is that the individual sets goals and makes plans to achieve these goals. Lewin (1942) states that a goal includes an individual’s “expectations for the future, his wishes and his daydreams” (p. 58) which are determined by the individual’s values and his belief in the probability of attaining the goal. Nurmi (1991), as well, has a theoretical schemata consistent with Heimberg’s definition of FTP. FTP, to Nurmi, involves three psychological processes: motivation, planning, and evaluation. An individual first sets a goal in accordance with motivational values and expectations of the future. Secondly, plans are constructed to achieve this goal. Finally, the individual evaluates the likelihood of realizing the goal and actualizing the plans.

The relationship between planning and goal achievement with time perspective was studied by Murrell and Mingrone (1994). A group of 187 college students were asked to keep a time diary in which they recorded their activities throughout a 24-hour period from one to seven consecutive days. These activities were coded according to four dispositional indices (need for achievement, work ethic orientation, self-monitoring, and evaluation anxiety) and then correlated with
the Gonzalez and Zimbardo scale to measure future and present temporal perspective. Regression analysis indicated a significant correlation between FTP and need for achievement, self-monitoring, and the number of activities in the diary per 24-hour time period. An individual with a high FTP, then, would be expected to place greater emphasis on success with goal-directed behavior, being more attentive to environmental cues, and participating in a greater number of activities to achieve these goals.

Nurmi (1991) makes the observation, supported by the literature, that behavior does not occur in the theoretical vacuum of this FTP schemata. Rather, behavior is the ultimate outcome of the conscious and subconscious interaction and influences of many variables, those being internal and external attributes, affect, anticipation, and developmental level.

Components of Behavior

Internal Attributes

Internal attributes are those endemic characteristics which an individual has by the very virtue of being. Although some of these traits can be affected by situational and external variables, they exist within the person, creating the "identity" of that individual. The literature explores four internal attributes in relation to FTP – gender, age, cognitive abilities, and self concept.
Gender

Greene and Wheatley (1992) compared FTPs of 39 male and 43 female late adolescents, consisting of both college and non-college participants of both genders. In an attempt to control for extraneous variables, the sample was restricted to Caucasian working-class late adolescents between the ages of 18 to 21 years from two-parent families having no more than a total of three children and who had completed their secondary education on time. Information obtained by interviews assessing aspects of future narratives revealed differences between males and females with regard to the content and timing of adulthood events. More females anticipated marriage and parenthood, and at younger ages, than did males. In addition, the females projected a greater number of events related to family than did their male counterparts. The males, however, projected a greater overall extension of FTP than did the females. There were no significant differences between males and females with respect to FTP in the area of occupation.

Another study (Blinn & Pike, 1989) also investigated differences in FTP by gender in a group of 125 middle and late adolescents. A written inventory (Future Likelihood Inventory) was used to ascertain differences in how males and females viewed their future with respect to the environment, work life, health, and interpersonal life. Only the interpersonal life portion was reported, the other areas being presented at subsequent times. It was found that a significant gender
difference existed in how this group viewed their interpersonal futures, females finding it more likely than males to find themselves in a traditional nuclear family.

Verstraeten (1980) studied gender differences in relation to realism of goals in a sample of 15 to 17 year-olds. The operational definition of realism required that first, the subject perceives the goal as attainable and, secondly, that there be a rational, structured plan for attainment. The participants were asked to list their goals, and then asked a series of questions eliciting their level of realism in reaching these goals. Once again, significant gender differences were noted in that females projected farther into the future than did males, having goals for their old age, but the goals of the females were generally less realistic than the males, consisting of more spontaneous daydreaming type activity with consistently less planning than the males showed.

Age

Conflicting evidence has been found regarding the relationship between age and FTP. Greene (1986), in a study utilizing a cross-sectional sample of Caucasian middle-class adolescents divided into three groups by grade levels (ninth grade, twelfth grade, and college sophomores), hypothesized that the older youths would project a greater number of events, a more extended, and a more consistent set of events than would the younger participants. Although no differences were seen in the number of events and consistency in types of events,
the college subgroup projected significantly farther into the future than did the younger groups.

Lessing (1972) also predicted that the span of time projected into the future would increase with age and, additionally, that the degree of motivation in giving priority to attaining long-range goals would also increase as age increases. Two groups of females, aged nine to 11 years, and 12 to 15 years, were each further divided into working-class and middle-class groups, and then administered the Heimberg FTP Inventory. The first hypothesis, that the time extension into the future increases with age, was not supported. The prediction regarding motivational level in giving priority to goal attainment was significant only between the middle-class age groups. The older middle-class females showed significantly more desire to give priority to goals than did the younger middle-class group.

Research conducted on 124 Israeli Jewish families (Seginer, 1991) examined age-related differences in FTP according to two different principles. The first principle, the "least necessary expenditure principle," states that adolescents’ investment in the future is guided by economic considerations of controllability and utility, meaning the adolescent becomes concerned about the future only to the extent that such concern is deemed profitable. If action is judged to be unproductive or unnecessary, adolescents will plan less for the future. The second proposition holds that there are set normative and sex-typed
life courses which adolescents must follow to maintain social control and continuity. The life stages are differentiated and organized by chronological age. The hypothesis in accord with the first principle is that younger adolescents, being farther away from adulthood than older adolescents, would feel less independent about their behavior and would, therefore, have a shorter FTP. The hypothesis derived from the second principle is that there is no difference between older and younger adolescents in their FTPs, since both groups would latch on to their normative societal roles early in life. Dividing the sample into three age groups, junior high seniors, senior high seniors, and college seniors, results were most supportive of the prediction based on the “least necessary expenditure” principle. There were significant age differences, especially in terms of the more established life course events of young adulthood and adulthood (such as graduating from school, career opportunities) rather than with existential life events (such as leisure goals, realizing aspirations, and other goals associated with the self). Other evidence in support of the age difference in FTP is that projected events reflected specific age-related concerns, such as the junior high seniors showing more future concern for graduation from school than the senior high seniors. This difference can be attributable to the fact that this is a future event for the junior high seniors, while graduation exists as a present event for senior high seniors.

Fingerman and Perlmutter (1995), on the other hand, found little difference in FTP between younger (aged 20 to 37 years) and older (aged 60 to
81 years) men and women. Since a self-report instrument was used to assess FTP, an attempt was made to match the educational levels of both groups. Although the researchers recognized the possible limitation that using a highly educated older population would have on the generalizability of findings, it was done in order to maintain reliability of the instrument. Findings showed that both the younger and older participants thought in terms of the “next few months” and that thinking about the future was associated with positive events in the immediate past for both groups. The one significant difference between the older and younger participants was that, though they both think in the same time frame (a few months in the future), younger adults simultaneously consider that near future in the context of a more distant future, that is, one or more years.

A study looking at response rates of older persons (Staats, Partlo, & Stubbs, 1993) also found a lack of evidence to support age differences in FTP. A previous research study showed a relationship between age and response rate on future oriented questionnaires, which was attributed to apprehension in responding. The purpose of the study by Staats et al. was to further evaluate the reasons for the decreased response rate with age found in the earlier study. Similar instruments were used to measure the FTP of 251 men and women over the age of 50 years. Changes in data collection methods were made from the previous study in that much information was obtained by personal interview rather than solely by questionnaires and the questionnaires had enlarged print and were
presented on an individual, rather than group, basis. Whereas the earlier study revealed a 29% failure to respond rate, this study found that non-response to questions was the exception rather than the rule, implying that a decreased response rate may be attributable to method of tool administration, and not to apprehension about the future.

Cognitive abilities

In 1958, Teahan looked at how FTP related to academic achievement, theorizing that high academic achievers, having been found in previous research to possess a greater concern for future goals, would therefore display a longer FTP than less successful students. Three different instruments measuring FTP (a story completion technique, a tool identifying the recent thoughts of each subject, and the Thematic Apperception Test) were administered to a group of 60 sixth and seventh grade boys, 30 of whom were in the top quartile of their class, the other 30 being in the lower quartile. Significant differences on all three tests were found between high and low achievers, the high achievers having more extensive FTP in all cases.

De Volder and Lens (1982) also investigated the relationship between academic achievement and FTP, but operationalized FTP differently than most previous research. Rather than ascribing to the definition used most often for FTP, that of being the length of the future time span projected, they conceptualized of FTP as consisting of two aspects. The dynamic aspect of FTP lies in one's ability
to give strong meaning to goals in the distant future, while the cognitive aspect relates to the ability to internalize the long-term consequences of actual behavior. The distinction is made that FTP involves distant goals and long-term consequences, outwardly evident by the degree of motivation expressed. In this way, every type of behavior has its own FTP. This point was made by Frank (1939) when he stated:

Thus a single individual may develop a variety of time perspectives, each applicable to a different aspect of living, so that he may view economic events in one dimension, political in another, social in another, sexual in another, and so on, with little or no apparent conflict; or he may develop a more or less homogeneous set of dimensions for all aspects of life, bringing his conduct into a well integrated pattern. (p. 305)

The hypotheses of this study were that students with high GPAs and high study persistence value distant goals and the behavior to achieve these goals more so than students with low GPAs and, secondly, that students with high GPAs and high study persistence would not differ from those with low GPAs and low study persistence with regard to the value placed on short-term goals and means to attain them. Both hypotheses were found to be significantly true. What is observable, therefore, in an individual with a long FTP is increased motivation resulting from an ability to place import on more distant goals and value on the behavior needed to achieve these goals.
Determining the relationship between creativity and FTP was the purpose of a research study done by Ononye, Blinn-Pike, and Smith (1993). Just as FTP has been conceptualized as a cognitive process (Nurmi, 1991), so research has linked creativity with also requiring various cognitive abilities, such as pattern recognition and perceiving of things in new and different ways. T-test analysis of scores obtained on written creativity and FTP instruments showed that, indeed, creativity and FTP are significantly and positively related, indicating that FTP is not only dependent on how far one looks towards the future, but also requires the use of cognitive skills, such as ideation and originality.

Self concept

A dissertation by McKaig (1989) examined the interrelationship between demographic characteristics, FTP, and self-esteem as well as the influence these variables have on health behaviors in 303 high school adolescents ages 14 to 18 years. Data were collected using three written instruments, Heimberg’s FTP Inventory, the Teen Wellness Check, and the Coopersmith Self-Esteem Inventory. Through multiple regression, it was shown that three variables were predictive of positive health behaviors – high self esteem, and the two demographic variables of church attendance weekly or more often and having a father with less than a high school education. Of these three predictors, self esteem accounted for most (6.8%) of the total variance (17.9%) of health behaviors. As a single variable, a longer FTP was found to significantly correlate with performance of health
behaviors. However, when considered along with self esteem in a regression equation, the probability of FTP accounting for a significant amount of variance exceeded the 0.05 level of significance set for the study (p = 0.35). Regression analysis showed the total variance accounted for by these two variables to be 9.7%, self esteem accounting for 9.4% of this total.

Research by Walsh (1993) looked at what effect an innovative art future-image intervention (AFI) had on the self-esteem, FTP, and diagnosed depression of hospitalized suicidal adolescents (aged 14 to 17 years). A pretest-posttest experimental design was used, the experimental group receiving the AFI which consisted of a three hour activity in which each participant created a future self-image caricature poster from an enlarged polaroid photograph and from a career/body-image packet. The control group received three hours of gymnasium free time in place of the AFI. (The intervention was also offered to this group after data collection was complete so they could also benefit should the intervention prove to be helpful.) Three instruments, the Coopersmith Self-Esteem Inventory, the Heimberg FTP Inventory, and the Beck Depression Inventory, were used to measure the variables, each participant being given these tests once before intervention, again soon after intervention, and a third time, 30 days after the first post-test. Although analysis of covariance showed no significant differences for any of the instruments between the two groups on either the pre-test or two post-tests, a trend analysis demonstrated that the group given the AFI
showed greater improvement over time than did the control group. Additionally, the qualitative responses shown by adolescents in the AFI group were very positive, many of them indicating pride and hopefulness in someday fulfilling the career option. Overall, then, FTP and self-esteem were found to covary positively as a result of this intervention.

**External Attributes**

The discussion by Frank (1939) of how a child becomes potty-trained through the structuring of time provides an example of how behavior is influenced by external variables.

Cultural training creates a "field" in which events, both internal and environmental, are warped or distorted, contracted or expanded to dimensions that are relative to the specific individual who is so trained, since each person will receive that general training in a highly idiosyncratic manner due to the parental stresses and emphases and his own peculiar idiomatic organism. Thus we begin to see how in a common, public world of objects, persons, events, and situations, each individual creates a private, personal world by "structuralizing his life space," as Kurt Lewin has termed the process, in accordance with his life experiences. (Frank, p. 296-297).
Culture

Early research done by Sheikh and Twerski (1974) revealed no significant differences between FTPs in White and Black high school students of lower socioeconomic level. The Thematic Apperception Test (TAT) was used to measure FTP, with three cards from the traditional Murray set (showing Caucasian figures) and three cards from the Thompson set (showing Black figures). Yet, although there seemingly was no difference in FTP between Black and White participants, there was a difference (though not significant) in how each group viewed their FTP between the two versions of the TAT. Blacks showed no difference in FTP between the Murray and Thompson cards, while Whites showed a longer FTP for the Murray (Caucasian figure) cards. The researchers speculated possible cultural reasons influencing this difference, one possibility being that Blacks do not feel differently about their own futures from those of their white peers, while Whites do think of Blacks as having an even more constricted future than themselves, hence their differences in FTP for black and white figures. Another possible explanation suggested was that the Whites think of Blacks as being more present oriented and so, when responding to the black figures on the Thompson cards, revealed their beliefs about Black FTP rather than their own FTP.

A more recent study looking at cultural aspects of FTP was that done by Page, Reed, Ruammake, Taffel, and Bailey in 1995. A comparison was made
between the FTPs of two groups of Masters degree counseling students, one
group being from Thailand and the other from the United States. The semantic
differential instrument was used to measure FTP, the researchers choosing to use
both evaluative and potency adjective pairs for their assessment. For each pair, the
participants were asked to rate the adjectives according to the concepts of past
and future. The evaluative adjective pairs provide information on how subjects
think about a concept while the potency adjectives reflect the subjects’ feelings
about a concept. Significant cultural differences were noted in how the two
groups viewed both the past and the future. The United States group indicated
significantly stronger feelings about the past as well as the future by scoring
higher on the potency scales for these two concepts, while the Thai students rated
the future higher on the evaluative scale, indicating they think more about the
future than the Americans. Speculative cultural explanations were offered for
these results, the poor socioeconomic conditions in Thailand in the recent past
suggested as being the underlying cause for the differences between the two
cultures. It is possible that the psychological painful situation in Thailand
influenced Thai students to feel less strongly about the past, but because of the
situation these same students felt more need than the Americans to focus
cognitively on the future. The fact that Americans felt stronger about the future
may be a result of the Thai students feeling it necessary to look toward the future
on a cognitive level but not internalizing this focus on a feeling level. Buddhism,
the predominant religion in Thailand, may also play a role in the differences noted, since it encourages a focus on the present, thereby hampering subjective feelings for the past or future for the Thai students.

Social Environment

In 1984, Yarcheski studied the effects of parental instrumentality and expressiveness on tenth grade males and females. Parental instrumentality is defined as the degree of task-oriented behavior shown by the parents in an effort to train the adolescents for achievement and responsibility as perceived by the adolescent. Parental expressiveness is the degree of supportive, nurturing behavior given the adolescents by their parents, again as perceived by the adolescent. Each of these variables were measured on the Cornell Parent Behavior Description Questionnaire, using both a maternal and paternal scale, and FTP was assessed using the Heimberg FTP Inventory. Pearson analysis showed significant correlations which varied with adolescent and parent gender. The strongest correlations that emerged were between the fathers' expressiveness and female adolescent FTP and between the mothers' instrumentality and male adolescent FTP. This implies that fathers' nurturing behavior towards their adolescent daughters and mothers' task-oriented behavior towards their adolescent sons provided the strongest positive influences on the FTPs of these adolescents.

In 1952, Le Shan investigated FTP as it related to social class. A sample of 117 children, eight to ten years old, were asked to tell a story, the researcher
noting the span of time covered by the story from the start of action to the final action. The research-based hypothesis, that the stories told by the 43 middle class children would span a longer time period than those of the 74 lower class children, was reportedly confirmed by chi-square analysis, indicating that FTP does significantly differ by social class. Le Shan also speculated that reasons for this difference may be that lower class adolescents have less frustration tolerance and shorter time-goal orientations.

Subsequent research (Ellis et al., 1954), taking exception to Le Shan’s (1952) speculations, studied the relationship between action-time span of stories and a measurement of frustration tolerance, this time with 45 upper-middle class children (aged seven to nine years) at a summer day camp. The action-time spans were rated by two researchers of this study (interrater reliability was not reported), while frustration level was determined by three to eight of their counselors “sorting” them into one of four categories of frustration tolerance. The child was assigned a frustration tolerance according to the majority rating. Chi-square analysis again showed a distribution similar to that of Le Shan’s, although differences in time categories between the two samples differed (Le Shan’s time categories ranged from less than one hour to more than one week while Greene et al.’s time categories were from less than one day to several weeks or longer). The conclusion of this study was that there was no clear demonstration of a relationship between social class and frustration tolerance.
Still one other study (Greene & Roberts, 1961) challenged Le Shan's (1952) research findings, citing an error in Le Shan's statistical analysis which, when corrected, rendered Le Shan's results as not significant. This would indicate no significant difference between FTPs of the middle class and lower class children in Le Shan's study.

FTP and Developmental Level

Across the Lifespan

FTP and the sense of time, that is, how time is experienced, develops throughout the lifetime (Colorusso, 1988; Cartwright, 1951; Melges, 1982) and in relation to each other (Melges). An infant lives in the present, the time perspective consisting of only the immediate past and present. As the child develops, so the time perspective also increases, giving the child the capacity to delay gratification as the child learns to wait, and later, will learn to plan (Melges). It is not until about the age of eight years that the child is able to express, through language, a full understanding of the past, present, and future. Adolescence (age 13 or 14 years) marks the time of greatest change in FTP, as the individual is then able to deal with time in a more abstract way, and is thereby able to consider the future more realistically (Melges). Many choices and decisions confront the adolescent as the future time span lengthens and goal-setting and planning become the normative developmental tasks. As the one matures into young adulthood and
middle age, a shortening of the future becomes evident, and commonly the individual appraises what time is left with what is left to do. In old age, the individual has the ability, and the advantage, of being able to review and evaluate life within an overall temporal perspective (Melges).

**Young Adulthood**

Erikson (1963) defines young adulthood as beginning at approximately 18 years and ending at about age 40 years (Colarusso, 1991). In relating FTP to young adulthood, Colorusso (1991) follows Erikson’s temporal framework, recognizing that a myriad of individual differences will exist over this 20 some year span, yet finding developmental commonalities in how individuals view their futures.

In the 20s, adolescence ends and the task of the individual is to now redefine the childhood past. A sense of calm is produced as adult goals, such as career plans, intimacy, and parenthood, begin formation, yet remain rather vague as there is time to plan and postpone some decisions. Loneliness may start to pervade if a fulfilling relationship is not found, and time may become a source of anxiety, albeit still in abundant supply. While still thinking of oneself as young, a consciousness about personal aging and time limitation evolves during this decade, becoming more pronounced as the person enters the 30s. While the 20s were a transition from childhood to adult, the 30s are now dominated by adulthood themes. A sense of urgency develops, particularly if the expectations to
achieve in the workforce and to establish a family have not been met (Colorusso, 1991).

Colorusso (1991) summarized the changes in FTP that occurs during the transition phase of life, contiguous with both adolescence and mid-life. As in all other times of life, the subjective time sense is being constantly altered by those powers that determine development – the physical body, the environment, past conceptualizations, and present concerns which are being formulated from past experience and future ideations. While the future is seemingly endless during childhood and adolescence, the first inkling of change to this blissful feeling comes in late adolescence, when a person begins to loosen ties with parents and siblings. In a sense, it is like a “death” of part of oneself, as childhood becomes relegated to the past. This time may be one of loneliness as one lets go of the past, but has not yet made meaningful new connections. Signs of physical aging bring thoughts of one’s own death, and some may start to experience the loss of parents or other relatives through death. For those individuals, women especially, who were career oriented in their 20s, the “biological clock” keeps ticking into the late 30s, and those who fulfilled their family roles early may have to struggle more to meet career goals.

Major life changes, such as taking a spouse and having children, is sure to cause adjustments in time perspective. Colorusso (1991) states that marriage is “potentially one of the most important intra-psychic temporal organizers of
adulthood” (p. 131) because it defines the expectation of how time will be used and thereby defines the internal perception of time. As time passes, the marriage becomes another way to mark the passage of time, and the spousal relationship becomes strongly internalized. Regarding parenthood, Colorusso (1991) states it is the “quintessential temporal experience of young adulthood, even more so than marriage” (p. 134). A sense of expansion is given to the future as the parent experiences the developmental stages with the child while the past, by the very same way, is reshaped as memories of one’s own childhood are consciously or unconsciously relived.

In short, young adulthood is a time when one becomes singular, separates psychologically from the family of origin, begins to deal with the idea of personal death, and shapes new attitudes towards time that give new meaning to life (Colorusso, 1991). Conceivably, awareness of greater independence and personal vulnerability would increase interest in health behaviors.

Behavior as an Outcome

Definition of Behavior

Webster’s dictionary (1989) defines “behavior” as “anything that an organism does involving action and response to stimulation” (p. 141). Though simple sounding, the interactions between action, response, and stimulation, particularly when considered in terms of temporal perspective, are anything but a
simple process. The literature attempts to explain the nature of this process, some research delving into specific nuances of interactions with application to specific areas of study and other literature taking a more global, conceptual approach.

What may help clarify the mechanisms that constitute the observable end-product of behavior, is a working model. Although certainly not comprehensive of all components contributing to behavior, the following model is an attempt to operationalize the theoretical bases of behavior.

**Model of Behavioral Influences**

The model in Figure 2 depicts the interaction of variables as they relate to future time perspective, and ultimately affect the outcome variable, behavior. There is a reciprocal effect between external attributes and developmental stage such that people's normative interests and life events develop against the context of the developmental time-table while, at the same time, development varies according to such factors as culture and socioeconomic class (Nurmi, 1991). Research has shown internal variables, as well, affect developmental level. It is the cumulative interaction that all of these variables have on future time perspective that ultimately influences one's behavior.

**FTP and Health Behavior**

In 1986, Rakowski was among the first to consider FTP in relation to health practices. A parallel exists between time and health in that each continue
on, but patterns and trends become recognizable, and even expected, so that the presence of health, and of some aspects of time, is like having a “long-time personal acquaintance” (Rakowski, p. 731). The interaction between time and health becomes observable, from the standpoint of the individual, during such times as illness. A generally favorable disposition towards the future does not ensure that the individual will adjust well to an adverse health condition. However, the likelihood of coping well with an illness is severely decreased against a backdrop of an already dim future outlook.

FTP is also endemically linked to preventive health behavior, since practicing good health habits is presented to the general population as being an essential element of one’s life to ensure health and a happy future. Rakowski (1986) points out, however, that for some individuals, situations such as chronic illness, physical limitation, or other disheartening circumstances may diminish one’s drive to prolong that future. What is more, a constant awareness, and the reality, of an ever decreasing reservoir of future time remaining may mean that with respect to encouraging health preventive behaviors, at least for older people, FTP is simply not a motivator.

The behavioral responses people show in regaining and maintaining their health is highly variable and individualistic. It is also evident that the “all or none” principle does not apply to health issues, since people do not perform health behaviors in an always consistent manner. Rakowski (1986) notes that research
has shown that, at best, what has been accomplished in the trend towards health promotion is raising the "health consciousness" of people. In fact, he goes on, research does not promise finding any single variable that will account for the health behavior of people, especially since studies have shown a greater diversification in any given cohort as that cohort ages. To increase potential for direct application to practice, therefore, Rakowski takes the stance, that future research in the area of FTP and health behaviors should investigate those indices which only indirectly affect time potential, which share a health focus, incorporate a behavioral predisposition, and are assessed relative to the same circumstances in which the health behavior is likely to occur.

An exploratory study by Dilorio, Parsons, Lehr, Adame, and Carlone (1993) looked at the relationship of different factors, including FTP, on safer sex practices among college freshman. It was hypothesized that a longer FTP would enable individuals to consider the connection between sexual practice and subsequent development of AIDS and would, therefore, prompt them to either abstain from sex or use safe sex practices. Pearson's correlation and stepwise multiple regression found this hypothesis to be true for black males, but not for white males or females. The researchers concluded that though FTP was the highest predictor of safer sex practices among the black males, it accounted for only a small amount of variance and other variables, therefore, need to be explored.
A similar study by Rothspan and Read (1996) researched the relationship between HIV risk and present versus future time perspective in heterosexual college students. Correlational analysis showed that among three composite measures of preventing exposure to HIV, the more future-oriented individuals attempted to find out the sexual history of their partner, tried to stay with one sexual partner, and refrained from having sex with a new partner, while those who were more present oriented did not take these precautions.

Mahon and Yarcheski (1994) investigated FTP and health as well, this time looking at only FTP as a predictor for many health behaviors of middle and late adolescents. Pearson r correlation again showed a significant relationship between FTP and health practices, albeit the relationship was low in both the middle \((r = 0.20)\) and late \((r = 0.26)\) adolescent groups. Mahon and Yarcheski concluded, as did DiIorio et al. (1993), that Rakowski’s (1986) recommendation to look at variables sharing a health focus may produce a more powerful explanation of health practices.

Summary

The concept of time has been introduced through a presentation of various theoretical perspectives, including those of Aristotle, Newton, and other cultures. A differentiation between clock time and psychological time was made, followed by an explanation of the structural aspects of time as discussed primarily by Lewin and Frank. Future time perspective (FTP) was then focused on, with an emphasis
on Heimberg's theoretical basis in the development of her tool to measure FTP, a statement of her definition of FTP, and an explanation of goal-setting and planning as inclusive components of FTP.

The remainder of the chapter focused on behavior as an outcome of several variables found in the literature. A brief review of literature presented variables showing some positive correlations either directly with behavior, or with another variable associated with behavior. The variables found to contribute to behavior were: internal attributes including gender, age, cognitive abilities, and self-concept; external attributes including culture and social environment; and developmental level, with a focus on young adulthood, the developmental level of this research study. A conceptual model was then presented, diagramming the interrelations of these components on future time perspective and their cumulative influence on behavior.

Finally, a review of the few research studies done investigating the relationship between FTP and health behaviors was presented. Although the correlations found between FTP and health behavior were weak in all of these studies, they were significant relationships which lends support and justification for the present study.

Research Hypotheses

Given the conceptual framework and the review of existent literature, several hypotheses were proposed for this study.
Hypothesis 1: As the extent of FTP increases, the frequency of BSE performance increases.

Hypothesis 2: As the extent of FTP increases, the quality of BSE performance increases.

Hypothesis 3: As age increases, the frequency of BSE performance decreases.

Hypothesis 4: As age increases, the quality of BSE performance decreases.

Hypothesis 5: There is no relationship between age and extent of FTP.

Hypothesis 6: As the amount of embarrassment increases, the frequency of BSE decreases.

Hypothesis 7: As the level of confidence increases, the frequency of BSE increases.

Hypothesis 8: The influence of other's is positively related to the frequency of BSE.

Definition of Terms

Breast Self Exam (BSE) - an examination of both breasts as performed by the woman, herself, in a manner consistent with American Cancer Society (ACS) guidelines (1996). The ACS recommends monthly BSE performed at the same time each month for post-menstruating women or approximately one week post-menses. The exam is to be performed by using the middle three finger pads opposite the breast being examined, pressing firmly in small circular movements in an up and down, circular, or wedge-like pattern, covering all parts of the breast,
nipple areas, and axilla. The ACS recommends also standing before a mirror, with
arms pressed to waist, and observing the breasts for symmetry, changes or
discoloration of the skin, and nipple discharge, irritation, or swelling.

**Future Time Perspective (FTP)** - the degree to which the future is perceived as
predictable, structured and controllable (Heimberg, 1963). FTP, in this study, is
measured on the Heimberg Future Time Perspective Inventory. A high score is
indicative of a longer FTP, and a lower score indicates a shorter FTP.

**Reproductive Health Seminar** - a two hour class conducted at the University
Student Health Center by the health coordinator two to three times weekly,
consisting of didactic instruction on male and female anatomy, sexually
transmitted diseases, the purpose and procedure of the pap smear, and videotape
instruction for the breast self exam procedure. Attendance of this class is required
for the student to have a pap smear/pelvic exam.

**Young adulthood** - a period of psycho-social development defined by Colorusso
(1991) to occur approximately between the ages of 18 and 40 years.

**Assumptions**

The following assumptions were made in this study.

1. Future time perspective, breast self-exam frequency, and breast self
   exam quality are measurable.

2. The participants are able to understand the self-administered
   instruments and respond accurately.
3. The self-reported frequency and quality of breast self-exam reflects actual performance.
CHAPTER 4

METHODOLOGY

This chapter reviews the design, sample, setting, instrumentation, procedure, ethical considerations, and analysis of this research study which investigated the relationship between breast self exam (BSE) and future time perspective (FTP). Operational definitions, assumptions, and study limitations are also described.

Design

An ex post facto research design was used in this study, permitting a correlational description of the relationship between the measured extent of FTP and the performance of BSE, defined by frequency and quality. The relationship between age, as an independent variable, and the dependent variables of frequency and quality of BSE and extent of FTP were tested. In addition, the demographic variables of age and race, and variables regarding their confidence level, embarrassment, and social support with BSE were analyzed for relationship to BSE performance.
Population and Sample

The target population for this study was females in the young adult developmental stage of life, which extends from approximately age 18 to 40 years. The sample was chosen from all women in this age group who attended the Reproductive Health Seminar presented by a university Student Health Center within the time period of September 1995 through September 1996. The specific age range of this convenience sample was chosen, first because it is the period which constitutes young adulthood and secondly, because it closely coincides with the age the American Cancer Society recommends beginning practice of BSE, that being, age 20 years.

A total of 479 students were surveyed for this study. This represents a return rate of 31.9%, achieving the desired power level of 0.80 with an alpha level of 0.05 for a moderate effect size of 0.50 (Pagano & Gauvreau, 1993).

Setting

The sample was from a large, state university located in an urban area of the Southwestern United States. The University serves approximately 20 thousand part-time and full-time students, both resident and non-resident status, and offers a wide variety of curriculum majors at both the undergraduate and graduate levels (University of Nevada, Las Vegas, 1995).
Instruments

Three written questionnaires were used in this study: a demographic questionnaire developed by the researcher, a questionnaire measuring the quality of BSE developed by Champion (1992b), and the Heimberg Future Time Perspective Inventory (Heimberg, 1961, 1963). These instruments are discussed in terms of purpose, description, reliability, and validity. Refer to Appendix A and B for copyright/permission forms.

Demographic Questionnaire

The demographic questionnaire obtained data regarding the participant's age and race, frequency of BSE, and confidence, embarrassment, and social support with respect to performing BSE. See Appendix C. Closed-ended questions were used to elicit information about the other areas pertaining to BSE asking the participant to choose the appropriate answer. This ordinal data was included in the analysis.

Champion's Quality of BSE Survey

The Quality of BSE survey, developed and revised by Champion (1992b), measures the proficiency by which the woman performs BSE and consists of 12 multiple-choice items in this revised version. See Appendix D. Quality questions addressed the following items: length of time to examine each breast, area of the
hand used to palpate the breasts, pressure of palpation, palpating with circular
movement of fingers, overall pattern used in palpating breast tissue, area covered
by palpation, examining the breasts in a mirror, positions taken during BSE, and
frequency of examining both breasts. The interval data responses provided by this
tool are scored with a "1" for correct responses and a "0" if the response is
incorrect. A higher score represents a higher quality of BSE. Internal
consistencies for this tool were reported to be 0.73 (Champion, 1988) and 0.83
for the revised version (Champion, 1992b). No report of validity was given.

Heimberg's Future Time Perspective Inventory

Heimberg developed and refined the Future Time Perspective Inventory in
sequential studies (1961, 1963) for the purpose of measuring the future time
perspective construct. See Appendix E. In the first study, Heimberg (1961)
derived 45 items from the attributes of: causal continuity, degree of future
structure, nearness of the future, achievability of future goals, scarcity of time, and
acting in advance. Administration of the inventory first to college undergraduates,
and then to enlisted army personnel, revealed coefficient alphas of 0.86 and 0.83
respectively. Refinement of the tool, again using samples of undergraduates and
army men, was accomplished in the second study by a factor analysis of the 45
items. This yielded the present 25 items based on selection of the highest loadings.
An alpha coefficient for the 25-item inventory was found to be 0.86. More recent
studies have also shown reliability scores exceeding 0.80 (DiIorio, Parsons, Lehr, Adame, & Carlone, 1993; Mahon & Yarcheski, 1994; Yarcheski, 1984).

Construct validity was established by Heimberg (1963) through significant correlations of FTP with internal locus of control \((r = 0.50)\), anomie \((r = -0.43)\), psychopathic delinquency \((r = -0.36)\), neurotic delinquency \((r = -0.57)\), anxiety \((r = -0.53)\), as well as with semantic differential ratings of “the future,” “me,” and “understandability of other people.”

The 25-item inventory, designed at the fourth grade reading level (Walsh, 1993), consists of a seven-point Likert scale with choices ranging from “completely agree” to “completely disagree.” Each item is scored from 1 to 7, the total score range of the tool being 25 to 175. Higher scores indicate a more extended FTP.

Procedure

A list of female students who took the Reproductive Health Seminar class during the specified time period was obtained from medical records at the health clinic. Students in the approximate age range of 18 to 40 years were asked to participate in this study. Permission to access addresses of the designated students was obtained from the Medical Records department of the Student Health Center. See Appendix F. The instruments were sent from the Student Health Center to all eligible class participants along with a cover letter explaining the purpose of the study, assurance of confidentiality, voluntary nature of participation, and

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availability of results of the study upon request. See Appendix G. The participants were asked to return the written instruments in an enclosed, postage-paid, addressed envelope to the Student Health Center within a two-week time period, and were asked not to include their return address to assure anonymity. A reminder postcard was sent at the one-week point. Data was computerized as the responses were obtained from the participants. The returned data has been kept in a locked file cabinet to maintain confidentiality.

Ethical Considerations

The research proposal was submitted to the Department of Nursing for committee approval. Upon committee approval, the proposal, including a letter of consent and permission letter from the Student Health Center medical records department Office, the cover letter, and the instruments, were submitted to Human Subjects Rights committees of the Department of Nursing and the university. Approval from both of these committees were obtained prior to the initiation of data collection. See Appendix H.

Analysis of Data

The SPSS Data Analysis Computer Program was used to analyze the data of this research.
Analysis of Hypotheses

Separate Pearson r correlation coefficients were performed on each hypothesis. This is a parametric test used to state the relationship that exists between two variables and requires a normal distribution of the variable data. Simple regression analyses were used for hypotheses with variables showing significance at 0.05 or below. Cronbach alpha coefficients were determined for both the Champion Quality of BSE Survey and Heimberg Future Time Perspective Inventory.

Analysis of Study Model

To test the study model, as depicted in Figure 2, multiple regression analysis were used to test the relationship between all of the study variables (age, amount of embarrassment in doing BSE, level of confidence in doing BSE, influence of others, and FTP) for both the outcome variables (frequency of BSE and quality of BSE).
CHAPTER 5

RESULTS

The report of this study begins with a descriptive analysis of the sample of student participants derived from the Student Health Center in comparison to the target population, the university students en total. A summary of the data collected from the demographic questionnaire, Champion's BSE Quality Survey, and Heimberg's FTP Inventory is then presented, and includes a report of reliability for each tool. Correlation coefficients and simple regression analysis are reported for each of the proposed hypotheses, showing the relationships of key variables to particular outcome variables. The chapter concludes with a summary of findings, as revealed through stepwise multiple regression analyses, using the study model (Figure 2) as the conceptual framework.

Description of the Sample

A total of 506 questionnaire packets were mailed to all female students who attended the Reproductive Health Seminar at the Student Health Center during the years of 1995 or 1996. Of these questionnaires, 79 were returned to the clinic with an incorrect address and 52 of these were remailed to the forwarding addresses
provided. The remaining 27 questionnaires with addresses unknown were discarded, bringing the total number of questionnaire packets distributed to 479.

The total number of completed questionnaires received from this total of 479 was 153, which represents a 31.9% return rate. If items were left unanswered or were otherwise unclear in response (more than one answer, response options added), the questionnaire was still utilized, but those particular item responses were omitted.

**Target Population**

This study was conducted through the Student Health Center of a large university (N = approximately 20,000) located in an urban area of the Southwestern United States. The racial distribution of both the Student Health Center and the University, as shown in Table 1, is predominantly Caucasian (62.7% and 68.3%, respectively). Next most prevalent in both these populations are Asian/Pacific Islanders (Student Health Center = 12.4%, University = 11.5%).

Table 2 shows that the majority of students who attend the University are young (M = 27.4 years), and are therefore in the age range of young adulthood (approximately 18 to 40 years) (University of Nevada, Las Vegas, Fall 1995).

**Sample Demographics**

Most of the students who participated in this study were Caucasian (71.2%), followed by Asian/Pacific Islanders (13.7%) and Hispanics (9.8%) (see Table 1). This
racial distribution is fairly consistent with that of the Student Health Center and the university, although there was a slightly greater representation of Caucasians and Hispanics in the study sample than in the other populations.

The target range of students for participation in this study was young adulthood, approximately 18 to 40 years of age. The mean age of the study participants was 24.5 years, consistent for that of the University population as a whole (M = 27.4) (University of Nevada, Las Vegas, Fall 1995).

A large percentage of students in this sample (43.8%) either never performed BSE or performed BSE only once or twice a year (see Table 3). Students who practiced BSE every month or more often than monthly equaled 17.0%.

**Level of Confidence in Doing BSE**

Table 4 reveals that most of the students sampled (72.6%) have some degree of confidence in doing BSE.

**Amount of Embarrassment in Doing BSE**

Most students (86.2%) responded they were not embarrassed while performing BSE (see Table 5) with only a small percentage (4.6%) stating they were embarrassed when doing BSE.

**Influence of Others**

When asked whether most people the student knows are supportive or not of the practice of BSE, all of the students sampled stated people in their social network
were either supportive (77.1%) or did not have an opinion about BSE (22.2%). See Table 7. None indicated non-support. See Table 6.

The tool which measured these variables, the demographic questionnaire, consisted of six close-ended questions. See Appendix C. The questions asking about confidence and embarrassment in performing BSE included a response option of “I never do breast self exam.” This option was included for those students who chose “never” when asked how frequently they performed BSE. In retrospect, however, it is apparent that some students did not view this answer in conjunction with frequency of performance, but may have thought it part of the response gradient. In choosing this response, the intent of some students may have been, “I am so unsure about how to do BSE that I never do it” and “I am so embarrassed when I do BSE that I never do it.” The validity of these two questions, therefore, is questionable.

**BSE Quality**

Champion’s Quality of BSE survey was used to measure the variable of BSE quality and consists of 12 multiple-choice items with varying numbers of response options for different items. See Appendix D. An answer that represents a behavior showing high quality of BSE was scored as a “1” while a “0” was given to those items which represented BSE not being done correctly.

The highest possible score for quality using Champion’s BSE Quality survey was 12. The mean score for the students responding to this survey (N = 146) was 6.1 (SD = 2.2), indicating that, overall, students report performing BSE at a 50.8% level
of quality. The items in which more than half of the students reported performing
BSE incorrectly were: length of exam for each breast ($M = 0.47$, $SD = 0.50$); using
different types of pressure ($M = 0.37$, $SD = 0.48$); the total area examined ($M = 0.39,$
$SD = 0.49$); looking in the mirror while doing BSE ($M = 0.27$, $SD = 0.45$); looking in
three positions ($M = 0.14$, $SD = 0.35$) and lying on the side while doing BSE ($M =
0.06$, $SD = 0.24$). The Cronbach alpha for this tool was 0.64 with this study.

**Future Time Perspective**

Heimberg's FTP Inventory consists of 25 items with a four-point (low to high)
Likert scale and was used to measure future time perspective. Response options range
from “I almost never feel this way” to “I almost always feel this way.” See Appendix
E. The minimum number of points possible is 25 (less any questions left unanswered),
and the maximum points possible is 100. A higher score represents a greater extent of
FTP.

The mean score of each item for this sample was 2.9 ($SD = 0.5$). Overall, the
students in this sample were found to be future oriented at the 72.5% level. For 24 of
the 25 items, all of the students in the sample gave a minimum rating of “2” (“I rarely
feel this way”). The one item which was found to have a lower mean score ($M = 1.9,$
$SD = 0.8$) was “I have too much to do.” Cronbach alpha for this tool with the current
sample was 0.90.
Analyses of Hypotheses

Pearson r correlations with scatterplots, means, and standard deviations were done for each hypothesis, and simple regressions were run for hypotheses in which the variables were found to have significant relationships. Normality of variance and linearity of variables was assumed for this analysis. The decision level of significance for this study was set at 0.05.

**Hypothesis 1** – As the extent of FTP increases, the frequency of BSE performance increases. This hypothesis was found to be supported ($r = 0.22$, $p = 0.01$) indicating a positive relationship exists between extent of FTP and BSE frequency. The assumption of normality was met, although a violation of the assumption of linearity may exist on the lower scores. A regression analysis was done for these two variables.

**Hypothesis 2** – As the extent of FTP increases, the quality of BSE performance increases. This hypothesis did not meet the minimum assumption of correlation ($r = 0.14$, $p = 0.09$) and, consequently, a regression analysis was not done. There is no relationship between extent of FTP and BSE quality and, consequently, the null hypothesis was retained. A regression analysis was not performed on these variables.

**Hypothesis 3** – As age increases, the frequency of BSE decreases. This hypothesis did not meet the minimum assumption of correlation ($r = 0.09$, $p = 0.27$).
Age was not correlated with BSE frequency, and, therefore, the null hypothesis was retained. Consequently, a regression analysis was not done.

**Hypothesis 4 – As age increases, the quality of BSE decreases.** This hypothesis did not meet the minimum assumption of correlation \((r = 0.15, p = 0.06)\) and the null hypothesis was, therefore, retained. However, with the strong theoretical evidence supporting the hypothesis and the nearly significant findings, a regression analysis was done. The assumption of normality was generally met. The regression did not show age to be a significant predictor of quality of BSE performance.

**Hypothesis 5 – There is no relationship between age and the extent of FTP.** This null hypothesis was not rejected \((r = 0.02, p = 0.81)\), indicating age is not predictive of the extent of FTP. The assumption of normality may have been violated on the upper scores.

**Hypothesis 6 – As the amount of embarrassment increases, the frequency of BSE decreases.** This hypothesis was found to be supported \((r = 0.50, p = 0.00)\), indicating a relationship exists between amount of embarrassment and BSE frequency. The assumptions of normality and linearity may have been violated, so results should be interpreted cautiously.

**Hypothesis 7 – As the level of confidence in doing BSE increases, the frequency of BSE increases.** This hypothesis was found to be supported \((r = 0.56,\)
p = 0.00) indicating level of confidence in doing BSE is related to BSE frequency.

The assumptions of normality and linearity may have been violated, so overall results should be interpreted cautiously.

Hypothesis 8 – The influence of others is positively related to the frequency of BSE. This hypothesis did not meet the minimum assumption of correlation (r = 0.09, p = 0.27). The influence of others is not predictive of the frequency of BSE performance in this sample. The null hypothesis was retained and a regression analysis was not done.

Analyses of Study Model

Using the study model as the conceptual framework (Figure 2), stepwise multiple regression analysis was used to explore the relationship between significant independent variables (p ≤ 0.05). A separate analysis was performed for the two outcome variables. In meeting the assumption of linearity, only confidence in doing BSE, embarrassment in doing BSE, and FTP were used in the regression analysis for frequency of BSE, while confidence in doing BSE, embarrassment in doing BSE, and age were entered into the BSE quality analysis. Embarrassment and age did not actually reach significance at the p = 0.05 level for quality of BSE, but because they both approached significance (p = 0.06), these two independent variables were also included.

On the demographic questionnaire, it is unclear how the students interpreted the option of “I never do BSE” for the questions concerning confidence and
embarrassment. For this reason, two regression analyses were done for each of the dependent variables – one including and one not including this response option for these two items.

Dependent Variable = Frequency of BSE

Response Option ("I never do BSE") Included in Analysis

The only variable found to significantly influence the dependent variable of BSE frequency for this sample of students was the confidence level in performing BSE (R = 0.5731; df = 1, 146; p = 0.00) (Table 8A). Amount of embarrassment approached significance with a p level of 0.07.

Response Option ("I never do BSE") Excluded From Analysis

In leaving the option, "I never do BSE," out of the regression analysis for the questions concerning confidence and embarrassment, again the only variable found to be significant was confidence level in doing BSE (R = 0.4062; df = 1,132; p = 0.00) (Table 8B). Amount of embarrassment was no longer near significance (p = 0.34), nor did any other variable approach significance when the response option was left out of the analysis.
Dependent Variable = Quality of BSE

Response Option ("I never do BSE") Included in Analysis

Two variables were found to significantly influence the quality of BSE performance in this sample (Table 9A). In step one, level of confidence in doing BSE was significant ($R = 0.4024; df = 1,139; p = 0.00$) and, in step two, amount of embarrassment in doing BSE was significant ($R = 0.4471; df = 2, 138; p = 0.00$). No other variables were near significance.

Response Option ("I never do BSE") Excluded From Analysis

When the option, "I never do BSE," for the items on confidence and embarrassment were left out of the analysis, level of confidence was the only variable found to significantly influence the quality of BSE ($R = 0.4532; df = 1,131; p = 0.00$) (Table 9B). Embarrassment, and the other variables, did not approach significance in this analysis.
CHAPTER 6

DISCUSSION

As shown by the review of literature, an ongoing debate exists between those that condone and those that criticize BSE as an efficacious method of screening for breast cancer. In taking the stance to accept the recommendations of the major national health organizations for women to perform BSE, the objective of this research study was to attempt to understand why the majority of women choose not to practice this relatively easy and inexpensive health behavior. Past research has shown level of confidence and degree of embarrassment in doing BSE, as well as the opinions of others about BSE, each has a small to moderate influence on whether or not a woman performs BSE. What variable or combination of variables determine, to a greater degree, a woman's decision to practice, or not to practice, BSE was the focus of this study.

Major Findings

The participant group of university students, although not a random sample, was demographically similar to the university as a whole (with regard to race and age). It is, therefore, likely that the results of this study would correlate closely with those found with other female university students.

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Performance of BSE

The frequency of performance of BSE reported was similar to that found in other studies. Thirty percent reported practicing BSE only once or twice a year, and another 14% stated they never perform BSE. Comparatively, these percentages are slightly higher than other studies of college women. Turnbull (1978) found that 22% of graduate students never practiced BSE, almost half (47%) of the nursing students in Budden's (1995) study examined themselves only one to four times a year, and Kenney et al. (1989) found that the majority (56%) of college women never performed BSE.

Quality of BSE

The quality of BSE performance in this study showed only slightly better results than frequency of BSE. The analysis revealed the mean for this group to be at about a 50% level of performance for quality. However, this result must be regarded tenuously because of weaknesses of reliability for Champion's tool.

The low rates for frequency and quality of performance imply that women must have a reason(s) for not practicing a recommended health habit correctly and in the recommended time frame. How did the women in this study feel while examining their breasts? The responses show most (72.5%) are not embarrassed and have at least some degree of confidence in doing BSE (72.6%). It is possible that those women who are embarrassed and who lack confidence in doing BSE are those who practice with less frequency and quality.
**Future Time Perspective**

Overall, the students in this study, as shown by Heimberg's FTP Inventory, think about their futures with a positive outlook. This is, perhaps, a biased sample, since these women attend college, and by that very fact, are exhibiting motivation and goal-setting behavior. The future-oriented, busy lifestyles of these individuals is further shown by the one item of the inventory that most responded, “I have too much to do.” Although this statement may seem, at first, to indicate having a better future outlook by having plans to do many things, Heimberg (1963) found that “having too much to do” actually represents not being articulated, or in conjunction with, the flow of time.

**Hypotheses Testing / Hypotheses Found to Be Significant**

Four of the eight predicted relationships were found to be statistically significant. Assumptions for regression analysis is that the criteria for linearity is met for each of these significance hypotheses.

**Hypothesis 1** – As the extent of FTP increases, the frequency of BSE increases. This relationship, albeit significant, showed a weak correlation \(r = 0.22\) between the variables, and regression showed that FTP did not contribute, to any great extent (variance accounted for = 4.8%), to how frequently BSE is done. In other research which looked at the relationship between FTP and health behaviors, the significance of FTP varied within the same population. Rothspan and Read (1996), for example, found that FTP was a greater determinant of safe sex behavior in
men more so than women. Likewise, results of another study investigating FTP and safe sex practices in college freshmen (DiIorio et al., 1993) showed FTP to be a greater predictor of safe sex for black males than for females.

**Hypothesis 5 – There is no relationship between age and the extent of FTP.**

This null hypothesis was derived from the preponderance of research which finds age not to be a determinant of FTP (Fingerman & Perlmutter, 1995; Lessing, 1972; Staats et al., 1993). Again, the possibility that, as a whole, females attending college may show an overall greater extent of FTP must be considered when looking at these results. Although the age range of this sample spanned over twenty years (18 to 44 years), it is more likely that the homogeneity of this sample with respect to age (women in their early to mid-20s) contributed more to the retention of this null hypothesis.

**Hypothesis 6 – As the amount of embarrassment increases, the frequency of BSE decreases.** Although relatively few students in this study reported feeling any amount of embarrassment in doing BSE, the fairly strong negative correlation ($r = -0.50$) and its ability to account for a high amount of variance (25.1%) indicates that most of the women who do feel embarrassed practice BSE infrequently or not at all. The reason for some women having a higher degree of embarrassment than others was not explored in this study, but may be the subject of future research.

**Hypothesis 7 – As the level of confidence increases, the frequency of BSE increases.** A strong relationship was found to exist between confidence level and
frequency of BSE (r = 0.57) and confidence as a predictor of BSE frequency was also statistically supported (variance accounted for = 32%). While causality cannot be determined from this analysis, it would follow that increasing one may also increase the other. That is, if an intervention were done to increase confidence level in doing BSE, frequency of performance should also increase. Alternatively, if women did perform BSE more often, their confidence level should also increase.

**Hypotheses Testing / Hypotheses Not Found to Be Significant**

The remaining four hypotheses were found to not show a significant relationship and, consequently, linearity between variables was not observed.

**Hypothesis 2 – As the extent of FTP increases, the quality of BSE performance decreases.** While an increased extent of FTP was found to increase frequency of BSE, at least to a low degree, (r = 0.22), extent of FTP does not seem to be related to the quality of performance.

**Hypothesis 3 – As age increases, the frequency of BSE performance decreases.** This hypothesis was supported in numerous other studies (Champion, 1992a, 1992b; Foster et al., 1992; McCool, 1994; Rudolph & McDermott, 1987). The fact that age and BSE frequency did relate to each other in this study may be attributable to the homogeneous ages of these students (early to mid-twenties), with relatively little representation of 30 to 40 year-olds in this sample.

**Hypothesis 4 – As age increases, the quality of BSE performance decreases.** Little research has been conducted looking at quality of BSE, and no research to date
was found which studied age and BSE quality. The direction of this proposed hypothesis was based on the strong research findings that show BSE to decline with age. Because this sample of women was homogenous with respect to age, age and quality of BSE was near significance ($r = -0.15$, $p = 0.06$). A more diverse age group may have produced stronger results.

**Hypothesis 8 – The influence of others is positively related to the frequency of BSE.** The lack of a significant relationship between these two variables may again be due to the homogeneity of the sample in answering this item on the survey. Over three-fourths of the respondents stated that most others they know were supportive of BSE, while the remainder of the sample felt others in their social network have no opinion about BSE. None of the students reported feeling that most people they know are not supportive of BSE. By and large, this group felt they had the support of others in their social network, and frequency of BSE, therefore, was not shown to vary with this variable. More than one question for this variable could allow for a greater variation of response, and could therefore show a relationship between these variables.

**Relationship of Multiple Variables**

The study model (Figure 2), based on previous research, proposes a relationship of variables which affect FTP and thereby influence BSE behavior. In this particular study, only the variables of level of confidence and amount of
embarrassment in doing BSE were found to significantly contribute to either frequency or quality of BSE.

Retrospective evaluation of the analyses showed there to be some confusion with regard to the questions on the demographic questionnaires concerning confidence level and amount of embarrassment. Differences in stepwise multiple regression results were seen when the response option stating “I never do BSE” was left in, and when it was taken out, of the analysis.

Outcome Variable = Frequency of BSE

Of the three independent variables entered for analysis (Table 8A and 8B), only confidence in doing BSE was found to predict frequency of BSE, both when the respondents to “I never do BSE” were included and excluded from analysis. This lends support to the study done by McCool (1994) which proposed that a lack of confidence in performing BSE posed a significant barrier to frequency of BSE. Since confidence in doing BSE was found to be a significant predictor in both the simple and multiple regression analyses, this adds further support to the conjecture that greater knowledge and practice of BSE will enhance BSE frequency.

Outcome Variable = Quality of BSE

Confidence was found to also be a predictive variable of BSE quality, with and without the “I never do BSE” responders in the analysis (Table 9A and 9B). Embarrassment in doing BSE was also significant at the step two level when the
women who chose this response option were included in analysis. Confidence in doing BSE is significant when respondents to “I never do BSE” are included or excluded from analysis. This variable can therefore be said, with some surety, to positively influence women’s quality of BSE performance.

The significance of embarrassment as a predictor to BSE quality is not as clear, however. Since results differed when women who responded “I never do BSE” were left in and taken out of the analysis, this suggests that students interpreted the meaning of this response differently. Some may have thought it the choice if they, indeed, never perform BSE (as it was intended by the researcher). Others, however, may have thought it the highest gradient level response choice for level of confidence or amount of embarrassment. Whatever the interpretation, the inclusion of a higher number of women who “never do BSE” changes the results, and further research is needed to clarify these relationships.

Study Limitations

There are limitations of this research that are attributable to sampling method, participant characteristics, and weaknesses of the tools measuring variables.

Limitations of Sampling Method

1. The sample was derived from all students who took the Reproductive Health Seminar in 1995 or 1996, and was, therefore, not a random sample. As a
consequence, the study findings may not be as generalizable to the target population as they could be with a random sample.

2. The study was done retrospectively and therefore cannot account for causality of FTP with BSE frequency and quality, as it could were this a prospective study.

3. The retrospective design of the study also necessitated obtaining information by self-report, a method which may produce unreliable data and a significant amount of bias (Mayer, 1986; Stevens et al., 1994).

Limitations of Sample

1. This sample of young adult females was obtained from a university setting which, by its very nature, may imply a greater extent of FTP for this sample when compared to the general population. Generalizability of the findings is thereby limited to a college population.

2. Female students from the Student Health Center were used for this sample. The fact that these women seek health care and have attended an informational health class may mean that this sample is more motivated towards positive health behaviors. Frequency and quality of BSE performance may, therefore, be higher for this sample than for the general population, and this possibility must be considered.

3. This sample consisted primarily of Caucasians which did not allow for the
testing of race as a variable in the multiple regression. Another sample with a greater variation in race may show culture, as measured by race, to significantly relate to extent of FTP and thereby influence BSE performance.

Limitations of the Study Tools

1. As discussed, the meaning of the response option, "I never do BSE," for the items concerning confidence level and amount of embarrassment in doing BSE is not clear. Different interpretations by respondents may have affected the results of this study.

2. Champion's Quality of BSE survey was found to have a relatively low alpha reliability score (0.64). Evidence of item deficiency was shown by students adding answers to particular questions and the inconsistency in number of response options for different items.

Conclusions

Through consideration of the major findings and study limitations, the following conclusions are evident:

1. The results of the study can be generalized confidently to female students who use the college health care facility. To apply these findings to a more general population, however, may not be accurate.

2. Results of the frequency and quality of BSE performance were both low, with almost half of the students practicing BSE rarely or never, and the entire sample
performing at a 50% quality level. These findings, however, closely resemble that of
previous research and the national average for BSE frequency.

3. FTP was not strongly related to BSE frequency ($r = 0.21$) or quality
($r = 0.14$). The significant relationship of FTP with BSE frequency does show,
though, that FTP has some relationship to BSE.

4. When considering the relationship of the study's variables to the outcome
behaviors, frequency and quality of BSE, only the level of confidence in doing BSE
was shown to have a significant relationship with both of these behaviors. A cause-
and-effect relationship, however, cannot be determined from this study.

Implications for Nursing

A paucity of research which examines the relationship of FTP and health
related behaviors exists. Therefore, part of the significance of this study is in adding
to this body of knowledge. Although the relationship between FTP and BSE
frequency was weak, nevertheless it was significant. It may, therefore, be worthwhile
for nurses to assess an individual's FTP before attempting to teach health behaviors.
This may be accomplished by ascertaining generally the individual's plans, goals, and
personal evaluation of progress towards reaching these goals. In this way teaching
can be geared and particular issues addressed with deference to an individual's view of
the future. In addition, assessment of FTP may alert health providers to individuals
with potential or existing psychological problems, such as depression and anxiety.
Level of confidence in performing BSE was found to be significantly related to both frequency and quality of performance. It would follow that interventions which increase confidence would enhance BSE performance. Research has shown that confidence in practicing BSE increases as the knowledge base and hands-on practice with this skill also increase (Hailey, 1986; Howe, 1981). BSE instruction, practice, and follow-up evaluation of performance are ways in which health providers can help to instill confidence, and therefore frequency, of BSE practice.

Degree of embarrassment also related to BSE performance, again with regard to both frequency and quality of performance, though relatively few women in this sample stated they felt embarrassed to any extent. Although reasons for the embarrassment are not identified in this study, professional practice would dictate privacy during clinical breast exams and observation of BSE. BSE instruction should include encouraging women to perform BSE at a time they are less likely to be interrupted and when privacy is assured, such as before arising in the morning or in the shower.

Recommendations for Further Research

The review of the findings with consideration towards the study limitations, opens a vast array of avenues for further study. Recommendations for further research relevant to this study include:

1. Repeating the study using either a more reliable tool for measuring quality of BSE or revising Champion's tool to increase reliability.
2. Repeating the study after adding questions to the demographic questionnaire to allow for greater variation in variable response and clarifying the meaning of the response options.

3. Doing a comparative study of FTP and BSE performance with young adult and older adult females.

4. Conducting a prospective, random study on the effect of BSE instruction and measured FTP on frequency and observed quality of BSE performance.

5. Comparing different cultures with respect to BSE performance and extent of FTP.

6. Investigating the relationship between FTP and other health behaviors, such as testicular self exam, use of birth control, diet, and smoking.

7. Exploring the relationships between other variables (self concept, affect, and anticipation) suggested by the literature to influence FTP (McKaig, 1989; Nurmi, 1991).
Figures
Figure 1. Relationship of magnitude of effect of a consequence with the time it is expected to occur.
Figure 2. Study model: The relationship of variables affecting future time perspective and thereby influences behavior.
Tables
Table 1

**Racial Distribution of Students Participating in Study Compared to Students Using the Student Health Center and Students Attending the University**

<table>
<thead>
<tr>
<th>Race</th>
<th>Study</th>
<th>Student Health</th>
<th>University</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N</td>
<td>%</td>
<td>N</td>
</tr>
<tr>
<td>Caucasian</td>
<td>109</td>
<td>71.2</td>
<td>5,098</td>
</tr>
<tr>
<td>Asian/Pacific Islander</td>
<td>21</td>
<td>13.7</td>
<td>1,006</td>
</tr>
<tr>
<td>Hispanic</td>
<td>15</td>
<td>9.8</td>
<td>432</td>
</tr>
<tr>
<td>Afro-American</td>
<td>3</td>
<td>2.0</td>
<td>568</td>
</tr>
<tr>
<td>American Indian</td>
<td>3</td>
<td>2.0</td>
<td>52</td>
</tr>
<tr>
<td>No response</td>
<td>2</td>
<td>1.3</td>
<td>978</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>138</td>
<td>100.0</td>
<td>8,134</td>
</tr>
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</table>
Table 2

Mean Age of Students in Sample (N=153) Compared With All Students Who Attend the University

<table>
<thead>
<tr>
<th>Population</th>
<th>M (in years)</th>
<th>SD (in years)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Study</td>
<td>24.5</td>
<td>5.5</td>
</tr>
<tr>
<td>University</td>
<td>27.4</td>
<td>---</td>
</tr>
</tbody>
</table>
Table 3

**Frequency of Performance of Breast Self Exam**

<table>
<thead>
<tr>
<th>Frequency</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never</td>
<td>21</td>
<td>13.7</td>
</tr>
<tr>
<td>Every 6 to 12 months</td>
<td>46</td>
<td>30.1</td>
</tr>
<tr>
<td>Every 3 to 4 months</td>
<td>35</td>
<td>22.9</td>
</tr>
<tr>
<td>Every 2 months</td>
<td>25</td>
<td>16.3</td>
</tr>
<tr>
<td>Every month</td>
<td>22</td>
<td>14.4</td>
</tr>
<tr>
<td>More than once a month</td>
<td>04</td>
<td>2.6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>153</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 4

Students' Confidence Levels in Performing Breast Self Exam

<table>
<thead>
<tr>
<th>Confidence level</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never do breast self exam</td>
<td>11</td>
<td>7.2</td>
</tr>
<tr>
<td>Very unsure</td>
<td>9</td>
<td>5.9</td>
</tr>
<tr>
<td>More unsure than sure</td>
<td>21</td>
<td>13.7</td>
</tr>
<tr>
<td>Somewhat</td>
<td>70</td>
<td>45.8</td>
</tr>
<tr>
<td>Very sure</td>
<td>41</td>
<td>26.8</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>153</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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Table 5

Students' Amount of Embarrassment in Performing Breast Self Exam

<table>
<thead>
<tr>
<th>Amount of embarrassment</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Never do breast self exam</td>
<td>14</td>
<td>9.2</td>
</tr>
<tr>
<td>Very</td>
<td>2</td>
<td>1.3</td>
</tr>
<tr>
<td>More embarrassed than not</td>
<td>5</td>
<td>3.3</td>
</tr>
<tr>
<td>Somewhat</td>
<td>21</td>
<td>13.7</td>
</tr>
<tr>
<td>Not at all</td>
<td>111</td>
<td>72.5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>153</td>
<td>100.0</td>
</tr>
</tbody>
</table>
Table 6

Students' Social Network Opinions About Breast

Self Exam

<table>
<thead>
<tr>
<th>Opinion</th>
<th>N</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Beneficial</td>
<td>118</td>
<td>77.1</td>
</tr>
<tr>
<td>Not beneficial</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>No opinion</td>
<td>34</td>
<td>22.2</td>
</tr>
<tr>
<td>No response</td>
<td>1</td>
<td>0.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>153</td>
<td>100.0</td>
</tr>
</tbody>
</table>

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### Table 7

**Summary of Simple Regression Analysis for Variables of Each Hypothesis**

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Variables</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>FTP to freq</td>
<td>0.0239</td>
<td>0.0088</td>
<td>0.2168**</td>
</tr>
<tr>
<td>2</td>
<td>FTP to quality</td>
<td>0.0249</td>
<td>0.0144</td>
<td>0.1425</td>
</tr>
<tr>
<td>3</td>
<td>Age to freq</td>
<td>0.0223</td>
<td>0.0201</td>
<td>0.0900</td>
</tr>
<tr>
<td>4</td>
<td>Age to qual</td>
<td>0.0627</td>
<td>0.0328</td>
<td>0.1587</td>
</tr>
<tr>
<td>5</td>
<td>Age to FTP</td>
<td>0.0433</td>
<td>0.1828</td>
<td>0.0193</td>
</tr>
<tr>
<td>6</td>
<td>Embar to freq</td>
<td>0.5508</td>
<td>0.0784</td>
<td>0.4966***</td>
</tr>
<tr>
<td>7</td>
<td>Confid to freq</td>
<td>0.6806</td>
<td>0.0814</td>
<td>0.5639***</td>
</tr>
<tr>
<td>8</td>
<td>Influ to freq</td>
<td>0.3195</td>
<td>0.2640</td>
<td>0.0983</td>
</tr>
</tbody>
</table>

* * p < 0.05
** ** p < 0.01
*** *** p < 0.001

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Table 8

Stepwise Analysis of Independent Variables (Confidence, Embarrassment, FTP)

Predicting Outcome of Frequency of Breast Self Exam

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig t</th>
<th>R</th>
</tr>
</thead>
</table>

Analysis A: “I never do BSE” included (N = 146)

Step 1

| Confidence | 0.6777 | 0.0802 | 0.5731 | 8.45 | 0.00 | 0.5731 |

Analysis B: “I never do BSE” excluded (N = 134)

Step 1

| Confidence | 0.6121 | 0.1199 | 0.4062 | 5.11 | 0.00 | 0.4062 |

Note. Variables entered into analysis significant at p = 0.05 or below.
Table 9

Stepwise Analysis of Independent Variables (Confidence, Embarrassment, Age)

Predicting Outcome of Quality of Breast Self Exam

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>Sig t</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Analysis A: “I never do BSE” included (N = 141)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>0.8362</td>
<td>0.1614</td>
<td>0.4024</td>
<td>5.18</td>
<td>0.00</td>
<td>0.4024</td>
</tr>
<tr>
<td>Step 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>1.2495</td>
<td>0.2260</td>
<td>0.6012</td>
<td>5.53</td>
<td>0.00</td>
<td></td>
</tr>
<tr>
<td>Embarrassment</td>
<td>-0.5881</td>
<td>0.2296</td>
<td>-0.2785</td>
<td>-2.56</td>
<td>0.01</td>
<td>0.4471</td>
</tr>
<tr>
<td>Analysis B: “I never do BSE” excluded (N = 133)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Confidence</td>
<td>1.2269</td>
<td>0.02109</td>
<td>0.4532</td>
<td>5.82</td>
<td>0.00</td>
<td>0.4532</td>
</tr>
</tbody>
</table>

*Note.* Confidence significant at p < 0.001, age and embarrassment significant at p = 0.06.
APPENDIX A

Written Permission for Use of Champion's Quality of BSE Survey
December 20, 1996

Nancy M. Ronan, RN, BSN
6231 North Camino Arturooo
Tuscon, AZ 85718-2803

Dear Ms. Ronan,

Enclosed please find a copy of my tool measuring proficiency of breast self exam. You have my permission to use these materials as long as you cite my work and send me a copy of completed results.

Sincerely,

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

Enclosure(s)
APPENDIX B

Information on Copyright of Heimberg's

Future Time Perspective Inventory
Hi Ms. Ronan,

It is not necessary to get permission to use Heimberg’s FTP Inventory. The Inventory is published as part of her doctoral dissertation. Thus, the Inventory is in the public domain.

My colleague (A. Yarcheski) contacted L. Heimberg years ago and Heimberg said her permission was not necessary for the use of her Inventory since the instrument was in the 'public domain'. The instrument is terrific. We have used it several times in research and it always performs well - reliabilities are always good (in the .80s).

Good luck with your research.

Noreen Mahon
APPENDIX C

Demographic Questionnaire
DEMOGRAPHIC QUESTIONNAIRE

Please indicate only one answer for each question.

1. My age (in years) is: _______ years

2. My ethnic origin (race) is ____________________.

3. Frequency of breast self exam: (Please choose the one answer that best applies to you.)
   I perform breast self exam:
   ___ Never
   ___ Once every 6 to 12 months
   ___ Once every 3 to 4 months
   ___ Once every 2 months
   ___ Once every month
   ___ More than once a month

4. Confidence in doing breast self exam: (Please choose the one answer that best applies to you.)
   When I am doing breast self exam:
   ___ I feel very sure about how to do it.
   ___ I feel somewhat sure about how to do it.
   ___ I feel more unsure than sure about how to do it.
   ___ I feel very unsure about how to do it.
   ___ I never do breast self exam.

5. Embarrassment in doing breast self exam: (Please choose the one answer that best applies to you.)
   ___ I am not at all embarrassed.
   ___ I am somewhat embarrassed.
   ___ I am more embarrassed than not.
   ___ I am very embarrassed.
   ___ I never do breast self exam.

6. Influence of others: (Please choose the one answer that best applies to you.)
   I think most people I know:
   ___ think breast self exam is a good idea.
   ___ think breast self exam is not a good idea.
   ___ don’t have an opinion about breast self exam.
APPENDIX D

Champion's Quality of BSE Survey
Please think about the last time you examined your breasts and answer the following questions. Please indicate only one answer per question. If two or more answers apply, choose the one answer that applies most of the time.

1. How long does it usually take you to examine each breast?
   - 1 to 2 minutes
   - 3 to 4 minutes
   - 5 to 6 minutes
   - 7 to 8 minutes
   - 8 minutes or more

2. When doing breast self-examination, how do you feel your breasts? Do you use...
   - the palm of your hand
   - the tips of your fingers
   - the flat part of your fingertips
     (pads)

3. When doing breast self-examination, how many fingers do you use?
   - 1 finger
   - 2 fingers
   - 3 fingers

4. When examining your breasts, how often do you use different types of pressure in each spot?
   - Never use different pressures
   - Sometimes use different pressures
   - Frequently use different pressures
   - Always use different pressures
   - Not sure

5. When examining your breasts, what type of pattern do you use?
   - No pattern
   - Circles (see A)
   - Spokes (see B)
   - Vertical strip (see C)
7. When examining your breasts, how often do you examine the entire area that extends from under the arm, across the bra line, and up the breast bone and across the collar bone?

- Never examine the entire area
- Sometimes examine the entire area
- Frequently examine the entire area
- Always examine the entire area

8. When examining your breasts, how often do you look in the mirror?

- Never look in the mirror
- Sometimes look in the mirror
- Frequently look in the mirror
- Always look in the mirror

9. When looking in the mirror, how often do you look with three positions, hands at your sides, hands on your hips, and hands above your head?

- Never look with three positions
- Sometimes look with three positions
- Frequently look with three positions
- Always look with three positions

10. When examining your breasts, how often do you lie on your side when examining the outside area of breasts?

- Never lie on side
- Sometimes lie on side
- Frequently lie on side
- Always lie on side

11. When examining your breasts, how often do you lie on your back to examine your breasts?

- Never lie on back
- Sometimes lie on back
- Frequently lie on back
- Always lie on back

12. When examining your breasts, how often do you move your fingers in small dime shape circles?

- Never use small circles
- Sometimes use small circles
- Frequently use small circles
- Always use small circles
APPENDIX E

Heimberg's Future Time Perspective Inventory
HEIMBERG FUTURE TIME PERSPECTIVE INVENTORY

Please circle the one answer that best applies to you, according to the following guide:

1 = almost always  2 = sometimes  3 = seldom  4 = almost never

1. I find it hard to get things done without a deadline.  
2. Often I am upset because I feel that I am not making the best use of my time.  
3. I always seem to be doing things at the last moment.  
4. I have too much to do.  
5. I am afraid of getting older.  
6. Sometimes I feel that everything is moving on ahead and leaving me behind.  
7. I need to feel rushed before I can really get going.  
8. My future seems dark to me.  
9. I expect to become the kind of person I most want to be.  
10. I look forward to the future with hope and enthusiasm.  
11. I have great faith in the future.  
12. A woman with ability and willingness to work hard will be successful.  
13. It is hard for me to visualize the kind of person I will be ten years from now.  
14. I expect that my plans for my future will change many times.  
15. I don’t know what kind of work I will do in the future.
16. I can't even imagine what my life will be like in twenty years.

17. The future seems very vague and uncertain to me.

18. It's really no use worrying about the future, because what will be, will be.

19. It often seems like the day will never end.

20. I know the kind of job I want in the future.

21. Sometimes I feel that the future is a mere repetition of the past.

22. I generally act on the spur of the moment.

23. Sometimes I feel there is nothing new to look forward to in the future.

24. When I am depressed, I often fear I may never be really happy again.

25. I often find myself looking for ways to kill time.
APPENDIX F

Permission to Access University of Nevada,

Las Vegas Student Health Center
Dear Ms. Winchell,

I am a graduate student in the Family Nurse Practitioner program of the Department of Nursing at UNLV. For my thesis research study, I am investigating the relationship between future time perspective and the performance of breast self exam in young adult women. Future time perspective is a concept which addresses how individuals view their own personal futures.

I would very much like to conduct this study at the UNLV Student Health Center utilizing female students who have been instructed about breast self exam by attending the Reproductive Health Seminar. The participants would be requested to complete three questionnaires mailed to their home address: a demographic questionnaire which will include questions regarding their frequency of performing breast self exam; a questionnaire developed by Champion concerning the quality of their breast self exam; and a questionnaire measuring their future time perspective developed by Heimberg. The total time necessary to complete these three questionnaires is 15 to 20 minutes. The students would be informed, with a cover letter, of the purpose and procedure of this study, assured of their confidentiality in the study, and asked to return the completed questionnaires in the enclosed stamped addressed envelope to myself. Return of the questionnaires would indicate their consent to participate. Anonymity would be maintained by the participants not including their return address. I will statistically analyze the completed questionnaires to determine the relationship between future time perspective and performance of breast self exam.

Should you consent to my using the students from the Student Health Center as subjects of this research, data collection would need to take place in February of 1997. Please feel free to contact me regarding questions about this study at my home (502)531-1763 or via e-mail. Ronannan@aol.com Thank you very much for your time and consideration of my research endeavors.

Sincerely,

Nancy M. Ronan, R.N.
Family Nurse Practitioner Graduate Student
APPENDIX G

Cover Letter for Questionnaire Packet
Dear Student:

Our records indicate that you have attended the Reproductive Health Seminar (known as Body Talk) during the years of 1995 and 1996. Having done such, you are being asked to participate in a research study conducted by Nancy Ronan, a graduate student of the department of Nursing at UNLV.

The purpose of the study is twofold. First, you are being given two questionnaires asking about the frequency and quality of the breast self exam you have performed both before and after taking the Reproductive Health Seminar in which breast self instruction was given. In knowing this information we are better able to evaluate the effectiveness of our teaching.

Secondly, a future time perspective inventory is included for the purpose of evaluating your breast self exam behavior, including frequency and quality, with your future time perspective. Future time perspective is the way in which you view your own personal future. A relationship between future time perspective and breast self exam performance may benefit students by allowing us to consider students’ future time perspective in choosing more effective teaching techniques and the times students are most receptive to learning about breast self exam.

Your participation in this study is completely voluntary. Your name will not be associated with the study in any way. Your returning of the completed questionnaires in the self addressed envelope provided, will indicate your consent to participate, and you need not include a return address.

The Student Health Center and Nancy Ronan would very much appreciate your taking the time to fill out these three questionnaires. The estimated time to complete these questionnaires is a total of 15 to 20 minutes. Please return them by March 14, 1997.

Should you have any questions about the questionnaires or this project, please feel free to contact me at 1-800-758-9143 or Lori Winchell at 895-3370.

For questions concerning the Rights of Research Subjects, contact the UNLV Office of Sponsored Programs at 895-1357. You may opt not to give your name when you call.

Sincerely,

Nancy Ronan, RN Consultant
Lori Winchell, MN, FNP-C
Director of Student Health Center

February 27, 1997
APPENDIX H

Human Subjects Rights Approvals
Title of Project: Relationship between future time perspective and breast self examination in young adult women.

Investigator: Nancy Ronan, RN, MSN and Margaret Louis, RN, PhD

After reviewing this proposal, the members of the Department of Nursing, Human Subjects Rights Review Committee have indicated below their approval/disapproval of this proposal.

Signature of Committee Members

Approve  Disapprove

The above named project is hereby approved/disapproved (circle one).

Date: ______________________

Committee Chairperson's Signature

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3360 • FAX (702) 895-4807
12 February 1997

Nancy Ronan, RN, BSN
6231 N. Camino Arturo
Tucson, AZ 85718

Dear Ms. Ronan:

The Department of Nursing Human Subjects Rights Committee met and approved your proposal "Relationship between future time perspective and breast self examination in young adult women".

You may take your proposal to the University Office of Sponsored Programs for their consideration. We suggest you request an exempt status for your project.

You have a study that should result in useful information for nursing. The Committee wishes you well in completing it. If any of the above is not clear or you wish to discuss any of the points please do not hesitate to call myself or any of the other committee members.

We wish you well in completing your study and are looking forward to hearing about your findings.

If you make any major change in your project please notify the Committee.

Sincerely,

[Signature]
Margaret Louis, RN PhD
Chairperson
Human Subjects Rights Committee
Department of Nursing

Department of Nursing
4505 Maryland Parkway • Box 453018 • Las Vegas, Nevada 89154-3018
(702) 895-3360 • FAX (702) 895-4807

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DATE: February 19, 1997

TO: Nancy Ronan (NUR)  
M/S 3018

FROM: Dr. William E. Schulze, Director  
Office of Sponsored Programs (X1357)

RE: Status of Human Subject Protocol Entitled:  
"The Relationship Between Future Time Perspective and Breast Self-Examination in Young Adult Women"

OSP #501s0297-189e

The protocol for the project referenced above has been reviewed by the Office of Sponsored Programs and it has been determined that it meets the criteria for exemption from full review by the UNLV human subjects Institutional Review Board. This protocol is approved for a period of one year from the date of this notification and work on the project may proceed.

Should the use of human subjects described in this protocol continue beyond a year from the date of this notification, it will be necessary to request an extension.

cc: Dr. M. Louis (NUR-3018)  
OSP File
February 5, 1997

Human Rights Committee

TO WHOM IT MAY CONCERN:

The proposed project will determine behavior changes on female students who have completed a Student Health Center program called Body Talk.

The information obtained from this study will provide us with valuable information about outcome assessment.

The patient information to be used in this study is released to Nancy Ronan with the understanding that this information will be protected and kept confidential as defined in NRS 49.225 and in accordance with the Student Health Center policies of Confidentiality, federal and accrediting regulations.

Nancy Ronan will be acting as part of the Student Health Center staff as a consultant on this project. The information obtained will not be disclosed to anyone else except in the form of statistical data.

Nancy Ronan has agreed to these terms and signed a Oath of Confidentiality (See attachment.) Should you have any further questions, please contact me at 895-3370.

Sincerely,

Lori Winchell, FNP-C
Director Student Health Center

Student Health Services
4505 Maryland Parkway • Box 453020 • Las Vegas, Nevada 89154-3020
(702) 895-3370 • FAX (702) 895-4316

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OATH OF CONFIDENTIALITY

I, Nancy Rouan, understand and agree that all information concerning patients at the Student Health Center will be held in strict confidence and will not be shared with any person or agency outside the Student Health Center without the patient's written permission.

Furthermore, I understand and agree that any dissemination or copying of this information is strictly prohibited by Federal and State laws. I understand that any disclosure of information may result in disciplinary action, and possible legal action by the University of Nevada Las Vegas, the Student Health Center, and by the student involved or his/her legal representative.

I agree with the above statement.

Nancy Rouan  
Signature  
6 Feb 97  
Date

Michele P. Marie  
Witness  
2-6-97  
Date

Position/Status Held at SHC:  

Rev. 01/95
References


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