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Effects of BSE on depression/anxiety in women diagnosed with breast cancer

Cynthia Ann Schnetter O'Neal
University of Nevada, Las Vegas

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breast cancer**

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University of Nevada, Las Vegas, 1993

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**Effects of BSE On Depression/Anxiety
in Women Diagnosed with
Breast Cancer**

by

Cynthia A. Schnetter O'Neal R.N., B.S., B.S.N.

**A thesis submitted in partial fulfillment
of the requirements for the degree of**

Master of Science

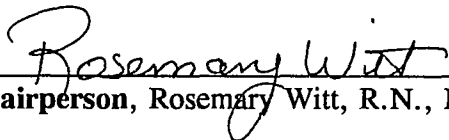
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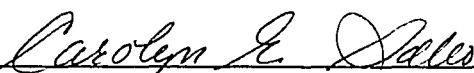
**Department of Nursing
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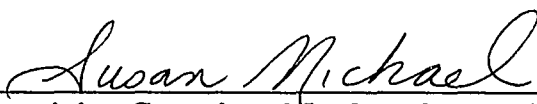
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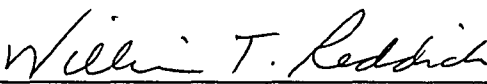
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ABSTRACT

This study employed three questionnaires to determine if depression, anxiety and mood levels in women recently diagnosed with breast cancer differed when the breast lump was discovered via breast self-exam versus discovery by physician examination, mammogram or accidental discovery by self or spouse. Depression was measured by the Beck Depression Inventory, anxiety was measured by the Spielberger State-Trait Anxiety Scale and mood was measured by the General Health Questionnaire. The Neuman Systems Model was the conceptual framework for this study. Sixty-two women between the ages of 26-80 years completed the three questionnaires while awaiting the physician during an office visit. All women completed the questionnaires within 12 weeks of diagnosis. Data was analyzed utilizing Analysis of Variance and Analysis of Covariance. Significant differences in depression, mood and anxiety were not found to exist between women who discovered the lump through BSE and women diagnosed as a result of physician examination, mammogram or accidental discovery. Depression and anxiety scores were statistically significant when groups were separated into BSE practice versus no BSE practice regardless of the method of discovery. Women who practiced BSE were less depressed and less anxious overall than women who did not practice BSE.

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CHAPTER ONE

INTRODUCTION

The breast cancer experience among women has reached epidemic proportions. In 1992, The American Cancer Society estimated that approximately one of every nine women would develop breast cancer. In Nevada, breast cancer ranks as the most common type of cancer diagnosed in women. The most recent figures, collected in 1992, predicted that 750 Nevada women would be diagnosed with breast cancer. Of the diagnosed cases, it was estimated that 200 were likely to die (American Cancer Society, 1992). Since there is no absolute cure for breast cancer, only treatment, health professionals advocate that the best defense against death from breast cancer is early detection and treatment; thus the emphasis on breast self-examination (BSE).

One of the most debilitating effects of breast cancer is the emotional trauma experienced by women with such a diagnosis. The diagnosis of breast cancer often results in feelings of anxiety, fear, depression and helplessness (Peck, 1972). Many health professionals believe that psychological coping can impact the physical wellness and outcome of disease (Weisman & Worden, 1977; Greer, Morris, &

Pettingale, 1979; Pettingale, Morris, Greer, Haybittle, 1985; Stravraky, Buck, Lott, & Worklin, 1986); thus it can be surmised that the severity of these feelings and the state of mind of the patient may impact recovery from breast cancer. Therefore, if individuals who may be at risk due to higher levels of depression and anxiety can be identified, emotional trauma during the breast cancer experience can be limited, positive coping abilities can be strengthened, and a contribution to a healthy physical outcome should result.

Research has investigated many aspects of women's psychological responses to the diagnosis of breast cancer and has documented the psychological impact of the type of treatment chosen. In addition, research is providing information about women's responses to perceived loss and the influence of the spouse's coping pattern. There is also a growing body of knowledge exploring compliance and psychological profiles of women who practice BSE. However, following a review of literature, it can be concluded that research has not examined women's psychological responses based on how the breast cancer is first detected (via BSE, mammogram, physical examination by a health profession or inadvertently by self or spouse). Therefore, an area of potential investigation is to determine if severity of responses to the breast cancer diagnosis differs among women who discovered the cancerous lump via

BSE versus women whose breast cancer was discovered via some other method.

Statement of Problem

Emotional trauma after the diagnosis of breast cancer can be severe. Since psychological responses can impact physical outcome, it is important for research to attempt to identify those individuals who may be at risk for higher levels of depression and anxiety. Research has not questioned if response patterns differ, subsequent to a confirmed diagnosis of breast cancer, between women who discovered the lump via BSE and women who were diagnosed as a result of physician examination, mammogram or accidental discovery by self or spouse, subsequent to a confirmed diagnosis of breast cancer.

Statement of Purpose

The purpose of this study is to determine if the practice of breast self-examination and the resultant self-discovery of a cancerous lesion lead to a more positive psychological outcome as measured by mood and social functioning than does the discovery of a cancerous lesion by some other method. This study compared psychological response patterns of mood and social functioning as measured by the General Health Questionnaire (Goldberg, 1972), depression as measured by the Beck Depression Inventory (Beck, Ward, Mendelson, Mock & Erbaugh, 1961)

and anxiety as measured by the Spielberger State-Trait Anxiety Inventory (STAI) (Spielberger, 1970).

Significance of the Study

If the results indicate that psychological responses are healthier (more positive) in women who self-discovered, women might be further encouraged to practice BSE. In addition, health professionals may be better able to target those individuals at higher risk for severe psychological responses, which may then impact physical outcome.

Definition of Terms

Breast self-examination: the act of examining one's breast manually so as to detect lumps and tissue changes.

Depression: the psychological condition of lowered activities of daily living.

Anxiety: a psychological state of uneasiness and worry about some uncertain matter.

Mood: a state of mind or feeling.

Social Functioning: ability to interrelate within family and community.

Research Questions

The research questions for this study included:

1. Do women who are diagnosed with breast cancer as a result of discovery of the lump through BSE experience less depression as measured by the Beck Depression Inventory than do women whose breast cancer was discovered by some other method?
2. Do women who discovered the cancerous lump via BSE experience less mood disturbance after diagnosis of breast cancer as measured by the General Health Questionnaire than those women who did not self-discover?
3. Do women who practiced BSE and subsequently found a lump experience less state anxiety after diagnosis of breast cancer as measured by the STAI than women who did not self-discover?
4. If significant differences are found on the above variables, would those differences remain after statistically controlling for trait anxiety scores as measured by the STAI?

Conceptual Framework

This study utilized the Neuman Systems Model (Neuman, 1989) to guide its investigation of the problem. The Neuman Systems Model describes the person as a biopsychosocial spiritual being. The person is viewed as a whole and is an open system which constantly interacts with

the environment. Man (or person) is the interrelationship of physiological, psychological, sociocultural, developmental and spiritual variables which determine how the person system reacts to stressors from the environment.

Neuman refers to concentric circles with varying levels of defenses which protect the core person. The core is composed of that which keeps the person system living such as genetic structure, normal temperature range, ego structure, organ strength, among others. Surrounding the core are the lines of resistance. The lines of resistance protect the core system integrity and include internal factors such as activation of the immune system as well as all other physiological and psychological responses, which are activated to protect the core from possible death due to stressors invading the system. In this study, depression and anxiety are categorized as part of the lines of resistance.

The normal lines of defense are described as "an adaptation level of health developed over time and considered normal for a particular individual or system" (Neuman, 1989, p. 23). Monthly breast self-examination would be categorized as part of the normal lines of defense.

The flexible lines of defense are the outer component of the system and acts as a buffer system for the person's normal state. Activities of daily living such as sleeping, eating and hygiene constitute

the flexible lines of defense. In this study, social functioning was considered a component of the flexible lines of defense.

Stressors may invade the system on a daily basis. Neuman defines stressors as stimuli or forces which may be internal or external and impact the person system. The degree of impact felt by the system is dependent upon the type of stressor, the strength of the system's defenses, and the degree to which the system recovers or "reconstitutes" from invasion of the stressor.

It is the goal of nursing to maintain system stability and optimal wellness through primary, secondary and tertiary intervention. Primary intervention is intervention prior to stressors occurring. Secondary intervention is intervention during the acute phase of stressors occurring. Tertiary intervention is intervention during the recovery period after a stressor occurs. Thus, monthly breast self-examination is primary prevention. Nurses who teach and advise monthly breast self-examination are strengthening the normal lines of defense of the person system through primary prevention. In this way, the Neuman model would suggest that should a stressor such as the diagnosis of breast cancer occur (secondary prevention), thus impacting the flexible lines of defense, the normal lines of defense and the lines of resistance, psychological preparedness or awareness should lead to less depression

and anxiety (through strengthening of the lines of resistance) with better physical responses and outcomes, since the core is better protected.

CHAPTER TWO

REVIEW OF LITERATURE

The literature pertinent to this study includes research examining breast self-examination, reaction to breast cancer diagnosis, reaction to various treatment options and characteristics of women with breast cancer. There is also literature which documents the use of the General Health Questionnaire with populations experiencing breast cancer.

Breast Self-examination

The literature explores breast self-examination (BSE) in relation to compliance and characteristics of those women who practice breast self-examination. Celentano & Holtzman (1983) explored breast self-examination competency and analyzed characteristics associated with women who practice BSE. The authors surveyed 308 Maryland women. The survey consisted of specific open-ended interview questions. Reliability and validity measures of the survey were not indicated. Of the sample, 76.3% reported having performed BSE during the last year while only 35% practiced monthly BSE. BSE competency was not found to be related to socioeconomic status and knowledge/attitude about BSE. Higher BSE competency scores were related to performing BSE at the

recommended interval, having been taught the procedure by a health professional, and having perceived confidence in BSE practice.

Wyper (1987) investigated psychosocial correlates of breast self-examination practice in 203 women using a self administered questionnaire. The findings suggest that perceived confidence in the ability to perform BSE correctly was one of the most significant predictors of BSE practice. Subjects who practiced BSE more frequently were more likely to:

1. perceive themselves as susceptible to breast cancer, and knew more about breast cancer,
2. be more confident in their ability to perform BSE,
3. have learned BSE by multiple methods with supervised practice and
4. have been encouraged by someone close to practice BSE.

Glenn & Moore (1990) explored relationships of self-concept, health locus of control and perceived cancer treatment options to the practice of breast self-examination. The Tennessee Self-Concept Scale, The Multidimensional Health Locus of Control Scale (MHLC) and a demographic questionnaire were completed by 235 subjects attending a mammogram screening center. The Tennessee Self-Concept Scale has a test-retest reliability of .80-.90 while the MHLC has a reliability of .83-

.86. Concurrent and discriminate validity had been established in previous samples. Those women who practiced BSE more frequently scored slightly higher on the self-concept measure and appeared more aware of breast cancer treatment options. Weak correlations were found between chance locus of control (the person believes that chance influences the outcome of their health) and BSE frequency of practice. Most subjects indicated irregular BSE practice as to time of month practiced and whether BSE was practiced on a monthly basis.

Breast self-examination compliance was examined by Rutledge & Davis (1988) using the Health Belief Model. A self-report questionnaire developed by Davis was given to 248 women. Validity and reliability values of this tool were not discussed. Seven variables examined by the Health Belief Model accounted for 58% of variance in BSE compliance. These variables were:

1. having a reminder method,
2. encouragement of family/friends,
3. confidence in ability to do BSE,
4. younger age,
5. physician interest in BSE compliance,
6. disagreement that BSE causes worry and
7. concern regarding breast cancer.

Thus, in summary, based on these studies, it can be predicted that women who regularly practice BSE; (1) have been taught BSE by a health professional, (2) perceive themselves as being susceptible to breast cancer, (3) appear more aware of breast cancer treatment options, and (4) score higher on self-concept measures.

Reaction to Breast Cancer Diagnosis and Treatment

Holland & Mastrovito (1980) discussed psychological adaptation to breast cancer. These authors suggested that adaptation to breast cancer depends on two types of factors: psychosocial factors which stem from the patient as well as her (1) psychosocial environment and (2) the medical factors determined by the disease, its course and treatment.

Hughes (1982) investigated reactions to the diagnosis and treatment of early breast cancer (small tumor with no metastasis). Forty-four patients were interviewed prior to mastectomy and at three, six and nine to twelve months later. Interviews consisted of the 60-item version of the General Health Questionnaire completed by the patients and a semi-structured interview. Reliability and validity of the 60 item GHQ were not presented. Sustained emotional distress related to the illness was reported by 35 patients (80%) within the first six months after mastectomy. In 8 cases (18%) the emotional distress was evaluated to be severe. Fifty percent of the subjects presenting a high score on the

General Health Questionnaire or a high level of expressed concern before the operation appeared to experience post-operative distress ($\bar{x}=92$, $df=2$, $p=.01$). The author does not discuss control for previous psychiatric depressive episodes other than to state that data regarding severity, duration and past episodes with depression were obtained during the interview process. The study does not present information on incidence of past depression or use of medication in any of the subjects; only current response to diagnosis was examined. However, the predictive value of the GHQ remained significant.

Krouse & Krouse (1982) followed the course and duration of crisis in women with cancer. Depression and body image were measured in women with breast cancer, gynecological cancer and breast biopsy patients. Nineteen women were assessed for depression using the Beck Depression Inventory and for body image using a short form of the Berscheid, Walster, & Bohrnstedt Body Image Questionnaire. The Beck Inventory has been found by the questionnaire's author to demonstrate validity based on significant positive correlations with clinician's ratings of depression. In addition, test-retest reliability and internal consistency are high. The Berscheid, Walster, & Bohrnstedt Body Image Questionnaire does not have reported validity but a content validity process was conducted by Krouse & Krouse. Patients completed

questionnaires prior to surgery, four weeks after hospital discharge (except breast biopsy patients) and at two months following surgery. Additional follow-up was done at 20 months post surgery. It was noted that subjects reported no previous psychiatric disorder requiring hospitalization. However, researchers did not address history of depression prior to diagnosis. Mastectomy and biopsy patients reached resolution of crisis (more positive body image and decreased depression) within 6-8 weeks. Gynecological patients appeared to grow increasingly depressed with a more negative body image even at 20 months post surgery. The authors suggest women are more concerned with functional loss of a body part rather than physical appearance alone.

Scott (1983) assessed state anxiety, critical thinking ability, and information processing prior to and after breast biopsy in 85 women. Women were tested using the State-Trait Anxiety Inventory (STAI), the Watson-Glaser Critical Thinking Appraisal (CTA) and judged duration technique. Judged duration is a verbal estimate of a period of time experienced previously as compared to actual time. Judged duration is represented as the percent error between a subjective judgment of time and the objective length of the interval. The time interval used in this study was the number of minutes taken to complete the Watson-Glaser Critical Thinking Appraisal. The CTA has a reliability value of 0.77 -

0.87 with construct validity at 0.34 - 0.75. The STAI has a reliability range of 0.16 - 0.54 with an alpha coefficient range of 0.83 - 0.92 for the A-State scale. Construct validity, point biserial is 0.60 - 0.73 with an alpha range of 0.83 - 0.94. The A-trait scale correlates with the IPAT Anxiety Scale (0.75 - 0.77), the Taylor Manifest Anxiety Scale (0.79 - 0.83) and the Affect Adjective Checklist (0.51 - 0.52). Construct validity has been established via testing subjects under stress and non-stress conditions. There is a high degree of internal consistency. Participants were tested after hospital admission but before diagnostic results were known. Only women experiencing benign results were tested again at 6-8 weeks because their acute crisis was considered concluded. In these women, extremely high state anxiety levels were found prior to biopsy. As well reasoning ability was compromised when demands on cognitive functioning were high (such as during hospitalization). Thus, this supports the idea that the anxiety produced by a possible breast cancer diagnosis can result in decreased capacity of the individual to process information.

Silberfarb (1984) discussed problems the author associated with breast cancer based on review of cancer literature. The author noted that breast cancer patients were referred for psychiatric consultation at twice the rate of hospitalized patients with other conditions. Silberfarb

divided problems resulting from breast cancer into three categories: (1) psychosocial, (2) somatic and (3) psychiatric. The psychosocial problems include alterations in body image, decreased sexuality, and lowered self esteem. Somatic problems include edema of the arm, phantom breast sensations, pain, nausea, fatigue and insomnia. The two major psychiatric illnesses associated with a diagnosis of breast cancer were depression and delirium.

Watson, Greer, Blake, & Shrapnell (1984) explored relationships between denial, delay and rates of psychological morbidity in reaction to a diagnosis of breast cancer. Twenty-four participants were interviewed within one week of mastectomy using the Spielberger State Trait Anxiety Inventory and the Profile of Mood States (POMS). These authors did not discuss reliability and validity of these tools, but other research cited previously, discusses reliability and validity of the STAI and POMS. The authors concluded that denial rather than confrontation-coping response may effectively decrease short term distress experienced during hospitalization. This conclusion was based on data that patients who denied the seriousness of a cancer diagnosis experienced significantly less mood disturbance than those accepting the diagnosis.

Romsaas, Malec, Javenkoski, Trump, & Wolberg (1986) examined psychological distress among women with breast problems. Three

hundred twenty-two women about to undergo examination for signs or symptoms of breast disease completed the Profile of Mood States (POMS) and Health Locus of Control Scale (HLCS). The POMS internal consistency reliability coefficients range from 0.87-0.95 with a test-retest reliability range of 0.65 - 0.74. The authors stated that the tool correlated with other measures of mood and was therefore valid. The HLCS has been estimated in the literature to have a test-retest reliability of 0.71. Romsaas et al found that the HLCS also correlated with health information seeking and was affected by counseling intervention with mastectomy patients. The control group consisted of normal college women and female psychiatric outpatients. A second group of 17 women who had a known cancer diagnosis was also examined. The authors found that emotional distress among women with breast problems was not significantly different, but that emotional distress heightens when the diagnosis of breast cancer is known.

Burgess, Morris, & Pettingale (1988) studied 178 newly diagnosed breast cancer patients. Anxiety, depression and health locus of control, as well as cognitive responses were analyzed. At 3 months and 12 months post diagnosis of breast cancer, patients completed the Wakefield Self Assessment Depression Inventory, the Trait measure of the Spielberger State-Trait Anxiety Inventory and the Multidimensional

Health Locus of Control Scale. Reliability and validity of the measurement tools were not discussed. Patients were also interviewed. Four coping styles emerged: (1) positive/confronting, (2) fatalistic, (3) hopeless/helpless and (4) denial/avoidance. Decreased psychological morbidity was associated with positive/confronting and a high internal locus of control. Increased anxiety and depression were associated with the hopeless/helpless style and low internal locus of control. Thus, based on Watson, Greer, Blake, & Shrapnell, (1984) & Burgess et al. (1988), an effective coping pattern may be a denial response early after diagnosis and a later positive/confronting style.

However, Grassi, & Molinari (1988) measured anxiety and depression in breast cancer patients preoperatively, one week postoperatively and six months postoperatively. The Courtauld Emotional Control Scale and the Symptom Questionnaire were utilized to measure depression and anxiety. The general pattern of emotional control showed less correlation with anxiety before surgery and more correlation with depressive symptoms after surgery. The authors concluded that repressive subjects reported fewer symptoms of anxiety in confronting the stressful situation, which was ultimately more harmful later.

Van Heeringen, Van Moffaert, & De Cuypere, (1989) explored depression after surgery for breast cancer in a Belgian population. The Hamilton Depression Rating Scale was completed by 84 patients who had undergone mastectomy and 18 patients who experienced lumpectomy. Information on the reliability or validity of this tool was not given. No significant difference in depression was obtained between the two groups. It was noted by the authors that the depression scale used was directed toward psychiatric pathology.

Deadman, Dewey, Owens, & Leinster (1989) studied women undergoing surgery for breast cancer. The authors suggested, based on their findings, that severe threat (diagnosis of breast cancer) may induce anxiety, whereas, severe loss (loss of a breast) may precipitate depression.

Dean & Surtees (1989) examined whether psychological factors predict survival in breast cancer. Subjects were studied prior to surgery, three months postoperatively and six to eight years later. Subjects who fulfilled criteria for a psychiatric illness preoperatively, were less likely to have a recurrence at follow-up. Subjects using denial three months postoperatively as a coping mechanism had a better chance of remaining free of recurrence of breast cancer than those women who used other types of coping mechanisms.

Gram, Lund, & Slenker (1990) looked at quality of life following a false positive mammogram. One hundred twenty-six women who had experienced a false positive mammogram were interviewed using open-ended questions. The control group consisted of 152 women randomly selected among screenees with a negative mammogram. Eighteen months after the screening, 29% of women with false positive mammogram reported anxiety about breast cancer. The prevalence of reported anxiety among women with a negative mammogram was 13%. Overall, there was no difference in quality of life between the two groups.

Thus, the above studies indicate that emotional distress, anxiety and mood disturbance is present in women diagnosed with breast cancer. Denial has been demonstrated to decrease short term distress and is seen as a positive coping strategy.

Spouse Reaction

Northouse & Swain (1987) examined 50 newly diagnosed breast cancer patients and their husbands three days postoperatively (time 1) and then 30 days later (time 2). Psychosocial adjustment was measured using the Affects Balance Scale (mood), the Brief Symptom Inventory (distress) and the Psychosocial Adjustment to Illness Scale (PAIS). The Affects Balance Scale reliability alpha coefficients range from 0.78 - 0.92 indicating adequate internal consistency with the subscales. Information

on the validity of the tool has not been reported. For the Brief Symptom Inventory internal consistency ranges from 0.71 - 0.85. Test-retest reliability was identified as .90. The authors state that construct validity has been established in previous research and do not present further explanation. The PAIS has an internal consistency of 0.63 - 0.81 with preliminary evidence of validity having been reported. Time 1 mood for patients and husbands differed significantly from the mean reported for the normal population. Time 1 for distress was significantly above normal population value but below psychiatric population. Control for previous history of depression was not presented. Patients' and husbands' scores differed only on the PAIS at time 2. Patients had more difficulty with vocational environment, domestic environment and social environment. Scores did not differ according to whether they were receiving adjuvant therapy. The authors cited a dramatic improvement in mood for the second measurement time in both the patients and their husbands, but no significant change in the level of distress being experienced was noted. Thirty days was perhaps too short a time frame to detect a change.

Morris & Royle (1988) explored anxiety and depression preoperatively and two months postoperatively in patients and their husbands. Anxiety and depression were measured using the Hospital

Anxiety and Depression Scale. Validity and reliability of this tool were not presented. Patients and their husbands who were offered a choice of surgery for early breast cancer experienced less depression and anxiety two months postoperatively than those couples not offered a choice. Results for preoperative anxiety and depression were similar for both groups.

Characteristics of Women with Breast Cancer

Morris, Greer, Pettingale, & Watson, (1981) examined patterns of anger and their psychological correlates in females with breast cancer. The Eysenck Personality Questionnaire, the Spielberger State-Trait Anxiety Inventory and structure interviews were completed by 71 patients prior to breast biopsy. Reliability and validity were not reported. This study supports other research that cancer patients are more stressed by impending biopsy and young cancer patients are more likely to use denial in the face of stress.

Wirsching, Stierlin, Hoffman, Weber, & Wirsching (1982) examined the possibility of psychological identification of breast cancer before biopsy. Fifty-six women were interviewed on the day prior to breast biopsy. Patients were rated based on the following eight characteristics assumed to be typical of women with cancer:

1. being inaccessible or overwhelmed when interviewed,

2. emotional suppression with sudden outbursts,
3. rationalization,
4. little or no anxiety before the operation,
5. demonstration of optimism,
6. super-autonomous self-sufficiency,
7. altruistic behavior and
8. harmonization and avoidance of conflicts.

The interviewer and a blind rater (inter-rater reliability averaged 85.1% for ratings) significantly predicted 71% and 68%, respectively, of all benign cases and the correct diagnosis in 83% and 94% of all cancer patients. The authors caution that the above characteristics are believed to be defense mechanisms utilized to cope with extreme emotional distress and that it is difficult to assess the importance of the pattern to the development of breast cancer.

Watson, Pettingale, & Greer, (1984) researched emotional control and autonomic arousal in breast cancer patients. Thirty breast cancer patients, treated by mastectomy, were compared with 27 "healthy" control individuals for differences in personality, reported emotional state and autonomic responses. Personality was measured via three personality questionnaires: (1) The Courtauld Emotional Control Scale, (2) The trait version of the Spielberger State-Trait Personality Inventory and (3) The

Marlowe-Crowne Scale. Reliability and validity of these tools were not discussed. Heart rate and skin resistance responses were taken as measures of autonomic arousal. Emotional state was measured using linear analogue scales in which patients indicated how angry, sad or anxious they felt. Breast cancer patients were found to be more likely than the control group to report control of emotional reactions, especially anger, and to utilize repressive coping styles. There were no differences between groups on autonomic measures. The breast cancer group also appeared to experience greater anxiety but were inclined to inhibit their reactions.

Hahn & Petitti (1988) published a study utilizing the largest ever reported subject group (8,932 women) examining the association between depression and breast cancer development. Data was obtained from the Walnut Creek Contraceptive Drug Study which is a prospective study begun in 1969 and continues presently. The Minnesota Multiphasic Personality Inventory (MMPI) was completed by the 8,932 women in the study and measured depression in relation to incidence of breast cancer. The authors state that the validity of the MMPI is well established but do not report reliability values. The MMPI scales of depression, repression/sensitization, and lying were examined in women who later developed breast cancer and in a control group of women who did not

develop breast cancer later. The differences in means between the two groups were very small and statistically not significant. The authors also discovered no relationship between women with high depression scores and the development of breast cancer. No statistically significant results were obtained.

Research using the General Health Questionnaire

Hughson, Cooper, McArdle, & Smith (1988) evaluated the validity of the General Health Questionnaire (GHQ) and its subscales in patients receiving chemotherapy for early breast cancer. The validity of the four subscales (somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression) was examined with a sample of 75 patients with Stage II breast cancer who were completing a year's adjuvant chemotherapy following mastectomy. It was found that the GHQ provides useful measures of mood and social functioning in patients undergoing chemotherapy for early breast cancer.

Ellman, Angela, Christians, Moss, Chamberlain, & Maguire (1989) utilized the 28 item GHQ to assess psychiatric morbidity in 302 females attending a clinic in the United Kingdom for routine breast cancer screening. The authors state that the 28 item GHQ provided a valid measure of comparison between groups when the object is to detect

anxiety or depression of fairly recent onset. Reliability values were not presented. Subjects were separated into five groups:

1. routinely screened females,
2. females with a false positive result,
3. females newly diagnosed with breast cancer,
4. symptomatic females with benign diagnoses, and
5. previously treated cancer patients.

Significantly greater anxiety scores were found among those women in the false positive and symptomatic benign groups when compared to women attending for routine screening. Other differences between groups were not significant. Probable cases of psychiatric morbidity among newly diagnosed cancer patients rose from 34% to 42% over a three month period.

These studies indicate that research has found the GHQ to be a useful assessment tool in women diagnosed with breast cancer. The four subscales of the GHQ represent valid measures of somatic symptoms, anxiety and insomnia, social dysfunction, and severe depression. The 28-item version has also been shown to be a valid measure of anxiety and depression of recent onset when investigating women with breast cancer.

CHAPTER THREE

METHODOLOGY

Research Design

This study utilized an ex post facto comparative research design with research questions rather than hypotheses. The subject pool was a stratified convenience sample, gathered from the clients of four oncology physicians in a metropolitan area in the southwest. Clients diagnosed with breast cancer were given a manila envelope containing an information letter (Appendix A), consent form (Appendix B) and questionnaires (Appendix C, D and E) by the office nurse. Names were not released and only the researcher had access to the data. Completed questionnaires were locked in a file cabinet and the data were collected by the researcher on a monthly basis.

Human Subject Rights

Informed consent guidelines were met since participation was completely voluntary and was determined by individuals choosing to complete the questionnaires. Subjects were provided with a letter of closure (Appendix I) to be read after filling out the questionnaire. Support services were listed, as well as phone numbers (Appendix J), in

the event subjects felt depressed. Prior to implementing this research, the appropriate human subject rights forms were completed and the study was approved by the Humans Subjects Right Committee of the Department of Nursing at the University of Nevada, Las Vegas (Appendix G).

Subjects

This convenience sample consisted of women diagnosed with breast cancer no more than twelve weeks prior to the sampling. Subjects had to meet the following inclusion criteria:

1. women between 18-60 years of age,
2. no previous history of malignant disease,
3. no other current major systemic illness likely to influence life expectancy,
4. was not currently on psychotropic or antidepressant medication,
5. able to read English.

Instruments

The General Health Questionnaire (GHQ) (Appendix C) developed by Goldberg (1972), has been used in numerous studies involving breast cancer. Hughson, Cooper, McArdle, & Smith (1988) concluded that the GHQ provided useful measures of mood and social

functioning in patients receiving chemotherapy for early breast cancer. Salvador, Lobo, and Cabeza (1984) reported the efficacy of GHQ in assessment of breast cancer patients and the authors suggested that the GHQ specificity and sensibility are high, particularly for detection of affect disorders. This study utilized the 28-item version of the questionnaire. The 28-item GHQ is correlated with clinical status at .77, has 85% sensitivity, 19.5% specificity and an overall misclassification of 19.1%.

The Beck Depression Inventory (Beck et al., 1961) was also used to measure the degree of depression of individuals in the sample (Appendix D). The Beck Inventory is correlated with clinical status at .66 with an overall misclassification of 23.%.

The Spielberger State-Trait Anxiety Inventory (Spielberger, 1970) was utilized to differentiate between women experiencing situational anxiety and women who are anxious by nature (Appendix E). Chronbach's alpha reliability coefficients of .83 to .92 for state anxiety scores and .86 to .92 for trait scores for normative samples have been reported (Spielberger, 1970). As presented in the review of literature, numerous studies have utilized this tool with anxiety related to women with breast cancer.

Assumptions and Limitations

This research study assumed that:

1. all participants would complete the questionnaires fully and to the best of their ability,
2. the only controlled difference between the groups was the practice of BSE and,
3. any other variables present would be randomly distributed between the groups.

There are several limitations inherent in this study. The small sample size influenced the degree to which differences and significant findings between the groups could be evaluated. A possible self reporting bias associated with the questionnaires threatens validity. Since the sampling was a stratified convenience sample from four physicians' offices, results can only be generalized to those persons who believe in seeking medical diagnosis and treatment. The selection of physicians' offices was also a convenience sample.

CHAPTER FOUR

DATA ANALYSIS AND RESULTS

This chapter describes the analysis of the data and presents findings gathered from the study. The subjects in this study were assigned to one of two groups. Group I consisted of subjects whose breast cancer was diagnosed as a result of practicing BSE. Group II was comprised of women whose breast cancer was discovered via some other method such as physician exam, mammogram or accidental discovery by patient or spouse. The demographic data will be presented first, followed by the statistical analyses.

Demographic Data

The total sample consisted of 62 women given questionnaires within twelve weeks of a breast cancer diagnosis. Data were collected in four physicians' offices in a southwestern city from September, 1992 to March, 1993. Of the 76 questionnaires distributed, 64 were returned to the researcher. Of the returned questionnaires, 2 questionnaires could not be used as the subjects did not meet the inclusion criteria.

As Table 1 indicates, Group I (BSE discovered) consisted of 21 (33.9%) subjects. Group II (non-BSE discovered) was comprised of 5

(8.1%) subjects diagnosed from physician exam, 17 (27.4%) subjects diagnosed from routine mammogram and 19 (30.6%) subjects discovered the lump accidentally by self or spouse for a total of 41 (66%) subjects in Group II.

Of the 62, 3 (4.8%) subjects were between 26-35 years of age. The age group 36-45 years consisted of 29 (46.8%) subjects. The majority of subjects (30 or 48.4%) were of the 46-80 year age range (see Table 2).

Group I (BSE diagnosed) consisted of 1 (4.7%) individual between the age of 26-35 years, 10 (47.6%) subjects between 36-45 years and 10 (47.6%) women between 46-80 years of age (see Table 2).

Group II (non-BSE diagnosed) was comprised of 2 (4.8%) persons between 26-35 years, 19 (46.3%) women between 36-45 years and 20 individuals between 46-80 years of age (see Table 2).

To be included in the study, subjects were required to fill out the questionnaires within twelve weeks of diagnosis. For the total sample, 1 (1.6%) individual had been diagnosed 1-2 weeks prior to completing the survey, and 1 (1.6%) woman had been diagnosed 3-4 weeks prior to completing the questionnaires. Seven women (11.3%) had been diagnosed 5-6 weeks before filling out the questionnaires, 2 (3.2%) were diagnosed 7-8 weeks prior and 8 (12.9%) were within 9-10 weeks of

Table 1
 Comparison of Frequency Distribution by Method of Discovery of the
 Cancerous Lesion in the Total Sample, Group I and Group II
 (N = 62)

Method of Discovery	Total Sample	Group I	Group II
	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>
BSE	21 (33.9%)	21 (100.0%)	0 (0.0%)
Physician Exam	5 (8.1%)	0 (0.0%)	5 (12.2%)
Mammogram	17 (27.4%)	0 (0.0%)	17 (41.5%)
Accidental	19 (30.6%)	0 (0.0%)	19 (46.3%)
Total	62 (100.0%)	21 (100.0%)	41 (100.0%)

Table 2
 Comparison of Frequency Distribution by Age Range for the Total
 Sample, Group I and Group II (N = 62)

Age Range	Total Sample	Group I	Group II
	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>
26-35 years	3 (4.8%)	1 (4.7%)	2 (4.8%)
36-45 years	29 (46.8%)	10 (47.6%)	19 (46.3%)
46-80 years	30 (48.4%)	10 (47.6%)	20 (48.8%)

diagnosis. The majority (43 or 69.4%) of participants had been diagnosed for 11-12 weeks prior to completing the questionnaires (see Table 3).

For Group I, 1 (4.8%) subject completed the questionnaires 1-2 weeks after diagnosis, and 1 (4.8%) person was within 3-4 weeks of diagnosis. Three (14.2%) individuals were at 5-6 weeks since diagnosis, 1 (4.8%) was within 7-8 weeks and 2 (9.5%) participants were diagnosed 9-10 weeks prior. The majority (13 or 62%) of subjects completed the questionnaires at 11-12 weeks after diagnosis (see Table 3).

For Group II, no subjects were within 1-2 weeks or 3-4 weeks of diagnosis. Four (9.8%) individuals had been diagnosed 5-6 weeks prior, 1 (2.4%) 7-8 weeks prior and 6 (14.6%) were 9-10 weeks since diagnosis. The majority for this group also had been 11-12 weeks after diagnosis (30 or 73%) (see Table 3).

Subjects were also asked to identify the type of cancer treatments experienced thus far for the diagnosis of breast cancer. Within the total sample, 43 (69.4%) subjects had been through chemotherapy, 7 (11.3%) participants experienced radiation treatment, 48 (77.4%) women had mastectomies, 9 (14.5%) individuals had lumpectomies and 1 (1.6%) subject had not yet had any treatment (see Table 4).

Table 3
 Comparison of Frequency Distribution by Time Elapsed Since Diagnosis
 for the Total Sample, Group I and Group II (N = 62)

Time	Total Sample	Group I	Group II
	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>
1-2 weeks	1 (1.6%)	1 (4.8%)	0 (0.0%)
3-4 weeks	1 (1.6%)	1 (4.8%)	0 (0.0%)
5-6 weeks	7 (11.3%)	3 (14.2%)	4 (9.8%)
7-8 weeks	2 (3.2%)	1 (4.8%)	1 (2.4%)
9-10 weeks	8 (12.9%)	2 (9.5%)	6 (14.6%)
11-12 weeks	43 (69.4%)	13 (62.0%)	30 (73.0%)

Table 4
 Comparison of Frequency Distribution by Type of Cancer Treatment
 Experienced Among the Total Sample,
 Group I and Group II (N = 62)

Type of Cancer Treatment	Total Sample	Group I	Group II
	<u>Frequency</u> (percent)	<u>Frequency</u> (percent)	<u>Frequency</u> (percent)
Chemotherapy	43 (69.4%)	14 (66.0%)	29 (71.0%)
Radiation	7 (11.3%)	2 (9.5%)	5 (12.2%)
Mastectomy	48 (77.4%)	16 (76.0%)	32 (78.0%)
Lumpectomy	9 (14.5%)	3 (14.2%)	6 (14.6%)
No Treatment	1 (1.6%)	1 (4.7%)	0 (0.0%)

Group I was comprised of 14 (66%) subjects who had undergone chemotherapy and 2 (9.5%) individuals who had experienced radiation; 16 (76%) persons had mastectomies, 3 (14.2%) participants had lumpectomies and 1 (4.7%) subject had not yet been treated (see Table 4).

Group II had 29 (71%) subjects who had received chemotherapy and 5 (12.2%) individuals who had radiation treatment; 32 (78%) participants had a mastectomy, and 6 (14.6%) women experienced lumpectomy surgery (see Table 4).

Subjects were asked to identify whether they had a previous history of depression and subsequent treatment. Fifty-six (90.3%) women in the total sample cited no depression history. Six (9.7%) subjects stated they had been treated for depression through outpatient counseling with a psychologist or psychiatrist. Only 1 (4.7%) person in Group I acknowledged a history of depression while 5 (12.2%) subjects in Group II indicated a history of depression (see Table 5).

There were 30 (73%) subjects in Group II who practiced BSE irregularly but did not discover the cancerous lesion via BSE. A total of 51 subjects from the study practiced BSE. By definition, all the subjects in Group I practiced BSE.

Table 5

Comparison of Frequency Distribution by Depression History for the
Total Sample, Group I and Group II (N = 62)*

Depression History	Total Sample	Group I	Group II
	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>
Treatment through Outpatient Counseling	6 (9.7%)	1 (4.7%)	5 (12.2%)

* of the 62 subjects only 6 indicated a history of depression

The demographic questionnaire also asked the subjects how often they practiced BSE. Of the total sample 8 (12.9%) women practiced BSE weekly, 22 (35.5%) subjects practiced BSE monthly, 4 (6.5%) individuals practiced BSE every other month, 8 (12.9%) women practiced BSE every 2-3 months and 8 (12.9%) subjects practiced BSE every 4-6 months. One (1.6%) subject did not indicate frequency of BSE practice (see Table 6).

For Group I, 5 (23.8%) women practiced BSE weekly, 10 (47.6%) subjects practiced BSE monthly, 2 (9.5%) participants practiced BSE every other month, 2 (9.5%) women practiced BSE every 2-3 months and 1 (4.8%) individual practiced BSE every 4-6 months. One (4.8%) subject did not indicate frequency of BSE practice (see Table 6).

For Group II, 3 (7.3%) women practiced BSE weekly, 12 (29.2%) subjects practiced BSE monthly, 2 (4.9%) individuals practiced BSE every other month, 6 (14.6%) subjects practiced BSE every 2-3 months, and 7 (17%) participants practiced BSE every 4-6 months (see Table 6).

Table 6
 Comparison of Frequency Distribution by BSE Practice for the
 Total Sample, Group I and Group II (N = 62)*

BSE Practice	Total Sample of BSE Subjects	Group I	Group II
	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>	<u>Frequency</u> <u>(percent)</u>
Weekly	8 (12.9%)	5 (23.8%)	3 (7.3%)
Monthly	22 (35.5%)	10 (47.6%)	12 (29.2%)
Every Other Month	4 (6.5%)	2 (9.5%)	2 (4.9%)
Every 2-3 Months	8 (12.9%)	2 (9.5%)	6 (14.6%)
Every 4-6 Months	8 (12.9%)	1 (4.8%)	7 (17.0%)
Missing Data	1 (1.6%)	1 (1.6%)	0 (0.0%)

*Total sample = 62
 51/62 subjects indicated some BSE practice

Instrumentation

Subjects completed three questionnaires while waiting for an appointment with their physician. Of interest were three variables: depression, anxiety and mood. The Beck Depression Inventory measured depression, the Spielberger State-Trait Anxiety Scale measured anxiety, and the General Health Questionnaire addressed mood and social functioning. A total depression score, total anxiety score and total mood score were generated from the numerical score attached to each question on each tool.

Results and Data Analysis Related to Research Questions

In order to determine if significant differences in the means existed between the two groups (BSE discovered versus non-BSE discovered), a one-way Analysis of Variance was conducted for each variable with each group using the SPSSX statistical package. Prior to the analysis an alpha score of .05 level of significance was established. Following are the results of each analysis as they pertain to each research question.

1. Do women who are diagnosed with breast cancer as a result of discovery of the lump through BSE experience less depression, as measured by the Beck Depression Inventory, than do women whose breast cancer was discovered by some other method?

There existed no significant differences in depression scores among these two groups ($F = .0657$, $\alpha = .05$) (see Table 7). However, a significant difference of $p < .05$ did exist between those women who discovered the lump via BSE and those women whose lump was discovered through physician exam. For the Beck Depression Inventory, the higher the total score, the greater the number of depressed symptoms. Total depression scores varied from 0-43 with a mean score of 9.9 on the Beck Depression Inventory. A score of 11.0 or greater indicates clinical depression.

2. Do women who discovered the cancerous lump via BSE experience less mood disturbance after diagnosis of breast cancer, as measured by the General Health Questionnaire, than those women who did not self-discover?

No significant differences in mean mood and social functioning scores were found among the two groups ($F = .2622$, $\alpha = .05$) (see Table 8). Total mood scores ranged from 0-82 with a mean of 45.92 among the sample. A higher score for the questionnaire indicates increased disturbance of mood and social functioning.

3. Do women who practiced BSE and subsequently found a lump experience less state anxiety after diagnosis of breast cancer as measured by the STAI than women who did not self-discover?

Table 7
 Analysis of Variance by Total Depression Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	568.388	284.194	2.917	.0657*
Within Groups	40	3897.379	97.435		
Total	42	4465.767			

*p < .05

Table 8
 Analysis of Variance by Total Mood and
 Social Functioning Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	943.067	471.534	1.385	.2622*
Within Groups	40	13622.98	340.575		
Total	42	14566.05			

*p < .05

No significant differences among the mean scores of the two groups related to anxiety ($F = .0588$, $\alpha = .05$) (see Table 9). However, there was a significant difference in scores for those women who self-discovered versus those women whose breast cancer was diagnosed as a result of mammogram. Total anxiety scores ranged from 62-159 with a mean score of 115.36 for the total sample. Using the STAI, the lower the quantified score, the greater the number of anxiety behaviors indicated on the questionnaire.

4. If significant differences are found on the above variables, would those differences remain after statistically controlling for total anxiety scores as measured by the STAI?

Even though statistically significant differences did not exist on the actual research variables between the two groups of interest (BSE versus non-BSE discovered), some significant differences did exist between women who practiced BSE and women who did not practice BSE. An Analysis of Covariance demonstrated that the contribution of total anxiety was statistically more significant in explaining differences in depression scores than the contribution of method of discovery alone ($t = .002$, $\alpha = .05$) (see Table 10). For mood, the contribution of trait anxiety as a covariate was not statistically significant in explaining differences in mood scores ($t = .288$, $\alpha = .05$) (see Table 11).

Table 9
Analysis of Variance by Total Anxiety Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	2875.897	1437.948	3.044	.0588*
Within Groups	40	18895.87	472.396		
Total	42	21771.76			

*p < .05

Table 10
 Analysis of Covariance by Trait Depression Scores and Controlling for
 Total Anxiety Scores (N = 62)

Covariate	B	Beta	Std. Err.	t-Value	Sig. of t
Total Anxiety	-.28306	-.58928	.079	-3.588	.002**
Covariate	lower-95%	CL-upper			
Total Anxiety	-.466	-.120			

**p < .01

Table 11
 Analysis of Covariance by Total Mood Scores and Controlling for
 Total Anxiety Score (N = 62)

Covariate	B	Beta	Std. Err.	t-Value	Sig. of t
Total Anxiety	-.17580	-.22392	.162	-1.087	.288*
Covariate	lower-95%	CL-upper			
Total Anxiety	-.510	.159			

*p < .05

This was expected since no significant difference in mood scores existed among any of the groups.

For further investigation, the influence of age and cancer treatment on depression, anxiety and mood scores was analyzed. Analysis of Variance provided statistically significant results for differences in anxiety scores among the various age groups ($F = .0465$, $\alpha = .05$) (see Table 12). As age increased, total level of anxiety increased. Significant differences were also found for mood versus age range ($F = .0317$, $\alpha = .05$) (see Table 13). The greatest disturbance of mood was found in the 36-45 year age range. No significant differences in depression scores existed across the age categories ($F = .8052$, $\alpha = .05$) (see Table 14).

Cancer treatment may have affected depression, anxiety and mood, so an Analysis of Variance was conducted to identify possible influences. Chemotherapy, lumpectomy and radiation did not result in significant differences among the mean total anxiety, total depression or total mood scores. Mastectomy surgery did not result in significant differences for depression or anxiety. However, results indicated significant differences in total mood and social functioning scores for subjects experiencing

Table 12

Analysis of Variance by Age Groups and Total Anxiety Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	3231.089	1615.545	3.233	.047*
Within Groups	59	29485.10	499.748		
Total	61	32716.19			

*p < .05

Table 13

Analysis of Variance by Age and Total Mood Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	2361.874	1180.937	3.661	.032*
Within Groups	59	19030.72	322.555		
Total	61	21392.60			

*p < .05

Table 14

Analysis of Variance by Age and Total Depression Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	2	47.40	23.701	.2174	.086*
Within Groups	59	6432.02	109.017		
Total	61	6479.42			

*p < .05

mastectomy surgery ($F = .0167$, $\alpha = .05$) (see Table 15). Scores for subjects experiencing mastectomy surgery were indicative of increased mood disturbance and impaired social functioning.

The research questions addressed method of diagnosis. As a further step of inquiry, groups were separated into women who practiced BSE versus women who did not practice BSE. Significant results were obtained for total depression ($F = .003$, $\alpha = .05$) (see Table 16). A total mean depression score of 8.02 was obtained for the 50 women of the sample who practiced BSE. A score of 9.0 or greater indicates clinical depression. Of the 12 women who did not practice BSE, a total depression score of 17.75 was generated on the questionnaire. Therefore, women who practice BSE were significantly less depressed after diagnosis than women who did not practice BSE.

Total anxiety scores also provided significant differences between the groups ($F = .005$, $\alpha = .05$) (see Table 17). Women who practiced BSE averaged a total anxiety score of 119.36 whereas women who did not practice BSE averaged 98.67 which is indicative of increased anxiety.

Total mood remained statistically insignificant. Analysis of covariance identified that mood and depression were more influenced by the presence of anxiety than by the phenomena of BSE practice or no

Table 15
 Analysis of Variance by Mastectomy Treatment and
 Total Mood Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	1963.18	1963.180	6.063	.0167*
Within Groups	60	19429.42	323.824		
Total	61	21392.60			

*p < .05

Table 16

Analysis of Variance by BSE and Total Depression Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	916.19	916.189	9.881	.0026**
Within Groups	60	5563.23	92.721		
Total	61	6479.42			

**p < .01

Table 17

Analysis of Variance by BSE and Total Anxiety Scores (N = 62)

Source	df	Sum of Squares	Mean Squares	F Ratio	F Prob.
Between Groups	1	4144.01	4144.007	8.702	.0045**
Within Groups	60	28572.19	476.20		
Total	61	32716.19			

**p < .01

BSE practice ($t = .011$, $\alpha = .05$ and $t = .000$, $\alpha = .05$ respectively) (see Table 18 and 19).

Results

The sample obtained in this study was representative of samples utilized in other studies. However, this study had a smaller total sample than many of the studies cited in the literature review which influences the conclusions which can be drawn or generalized to the total population. The results of this study indicated that most women were between 36-80 years of age when diagnosed with breast cancer. There was a fairly even distribution of age range for women who were diagnosed as a result of BSE and women diagnosed via some other method. Most women completed the questionnaires 11-12 weeks after diagnosis. The majority of women experienced mastectomy surgery and chemotherapy treatment. A third of the sample practiced BSE monthly as recommended by health professionals.

Significant differences in depression, mood and anxiety were not found to exist between women who discovered the lump through BSE and women diagnosed as a result of physician exam, mammogram or accidental discovery. Some differences were found in depression scores among women who self-discovered and women who were diagnosed as a result of physician exam. Due to the small sample, it can be

Table 18
 Analysis of Covariance by Total Mood Scores and Controlling for
 Total Anxiety Scores (N = 62)

Sources of Variation	Sum of Squares	df	Mean Square	F	Sig of F
Covariates Total Anx	2209.54	1	2209.54	6.847	.011*
Main Effects Treat	144.322	1	144.322	.447	.506

*p < .05

Table 19
 Analysis of Covariance by Total Depression Scores and Controlling for
 Total Anxiety Scores (N = 62)

Sources of Variation	Sum of Squares	df	Mean Square	F	Sig of F
Covariates Total Anx	2116.29	1	2116.29	30.15	.000***
Main Effects Treat	221.107	1	221.107	3.15	.081

***p<.001

speculated that this difference may be a result of extreme answers by a particular subject. Some differences were also found in anxiety scores for women who self-discovered and women who were diagnosed as a result of mammogram. Again, this may be indicative of extreme scores by one or several participants. When total anxiety was controlled, it was found that anxiety influenced depression scores more than the existence of self-discovery.

Mood and anxiety scores appeared influenced by age group. As age increased, level of anxiety increased. However, mood and social functioning were most disturbed for the women in the 36-45 year age range.

Cancer treatment did not affect scores except for total mood and social functioning scores in those subjects experiencing mastectomy surgery. Mood and social functioning scores were significantly more disturbed in subjects experiencing mastectomy.

It is of interest to note that depression and anxiety scores were statistically significant when groups were separated into BSE practice versus no BSE practice, regardless of the method of discovery.

Limitations

Of the total number of questionnaires distributed, 84% were returned resulting in a 16% attrition rate. Detection of differences

between the groups was limited by the small sample size. Group II represented two-thirds of the total sample in the study. Therefore, any significant differences found may be due to the uneven distribution of the two groups. Results therefore cannot be generalized to other populations.

Responses to the questionnaires are limited to what the subject responds with no other objective measurements and thus may not indicate true depression, anxiety, or mood for some participants. Subjects may have been hesitant to answer questions truthfully while waiting in a physician's office and may have experienced increased anxiety while waiting to see the physician. The Hawthorne effect may have inflated values due to subjects knowing that responses to the questionnaires were to be used in a research study.

CHAPTER FIVE

DISCUSSION

Conclusions

Based on this study, it can be concluded that for this sample, the type of cancer treatment did not affect scores. However, it is important for health care providers to note that mood and social functioning scores were significantly different for subjects experiencing mastectomy. This population should be further examined to determine where the differences occur and why the differences occur so professionals can assist these individuals to function socially and with less disturbance of mood.

Mood and anxiety scores were influenced by age group. This is a significant finding since women are living longer in today's society. Health professionals must be aware that increased age and a diagnosis such as breast cancer may result in more disturbance of mood and increased anxiety. It would be of interest to determine the source of anxiety (powerlessness, fear of unknown, helplessness, among others).

Literature Review

Research has examined BSE, reaction to breast cancer diagnosis, reaction to various treatment options and characteristics of women with

breast cancer. This section discusses findings in this study which support or conflict with the research cited in the literature review.

Celentano & Holtzman (1983) explored BSE competency and analyzed characteristics associated with women who practiced BSE. Thirty-five percent of women were found to practice BSE monthly. This study also supported that conclusion with 35.5% of the total sample indicating that monthly BSE was practiced.

Hughes (1982) found that 50% of subjects experiencing mastectomy presented a high score on the 60-item GHQ postoperatively ($\bar{x} = 92$). Whereas, in this study the 28-item GHQ was utilized and a total mean score of 45.92 was obtained.

Van Heeringen, Van Moffaert, & De Cuypere (1989) explored depression after surgery for breast cancer. No significant difference in depression scores were obtained between women undergoing lumpectomy and women experiencing mastectomy. This study also found no difference in depression scores according to lumpectomy versus mastectomy treatment.

Deadman, Dewey, Owens & Leinster (1989) suggested that the diagnosis of breast cancer may induce anxiety while loss of a breast may precipitate depression. This study did not indicate more depression in

women undergoing surgery but rather a disturbance of mood and social functioning.

In general, the results of this study support previous research cited. The literature review did not indicate that the questions addressed in this study had been examined. The findings in this study are meaningful to health care professionals and should stimulate hypotheses for future research inquiry.

Conceptual Framework

The conceptual model used as a basis for this study suggests that women who practice BSE are more knowledgeable about breast cancer, thus strengthening the lines of resistance in the person system. Therefore, when a woman who practices BSE is diagnosed with breast cancer, which is a stressor to the person system, she should experience less depression, anxiety and disturbance of mood.

According to the results of the study, it did not appear that the finding of a lump via BSE strengthens the lines of resistance; however, the knowledge associated with the practice of BSE did appear to strengthen the lines of resistance resulting in less depression, anxiety and disturbance of mood. Therefore, the conceptual model was supported in this study.

Recommendations

Based on the findings from this study, it can be recommended that the influence of BSE practice on depression, anxiety and mood be further investigated since significant results were obtained in this study. A larger sample size would result in a more representative sample of the population and the ability to detect differences within the sample would be increased.

It can also be recommended that the impact of age on anxiety and mood be further examined based on the results of this study. Due to aging populations, this is an important area of inquiry so that the health care system can be aware of special needs of certain age groups.

The impact of mastectomy surgery on mood and social functioning should also be investigated in future research endeavors. It is important to know that this population may experience disturbance of mood and social functioning so that the health care system can appropriately intervene with these individuals.

Implications for Nursing Practice

This study confirms that BSE is being practiced by many women. Nurses need to continue to encourage the practice of BSE and teach BSE so that public awareness increases regarding breast cancer. The finding that the practice of BSE results in less depression and anxiety (hence

better coping and possible better physical outcome) is significant for both health professionals and for the public. Women need to be informed by nurses that knowledge and proactive strategies (such as the practice of BSE) can lead to better coping when a stressor such as breast cancer impacts one's life and that a better physical outcome may result from the positive coping mechanisms. Nurses need to be knowledgeable about current research in breast cancer so they can readily assess and target individuals who may be at increased risk for a poor physical and psychological outcome.

Appendix A
Information Letter

Information Letter

April 1992

Dear Participant:

I am a registered nurse currently conducting a research study on psychological responses to breast cancer diagnosis. This study is being conducted through the graduate nursing department at the University of Nevada, Las Vegas.

Your participation would be greatly appreciated and would consist of completing several questionnaires. The questionnaires will require only approximately 15 minutes to complete. Your participation in this study is completely voluntary. You have the right to refuse to participate at this time without jeopardy to your medical care. At no time will your name be released or used in the study. After completing the questionnaires, please return all forms to the manila envelope, seal and give to the office nurse.

Thank you for your time.

Sincerely,

Cynthia A. Schnetter, R.N., B.S.N.

Graduate Student, Department of Nursing

University of Nevada, Las Vegas

Appendix B
Consent Form

Consent Form

I agree to participate in a research study involving psychological responses to breast cancer diagnosis currently being conducted by Cynthia A. Schnetter, R.N., B.S.N., Graduate Student, Department of Nursing, University of Nevada, Las Vegas.

I understand that by completing and returning the enclosed questionnaires, I am giving consent to participate in the study. I understand that my consent and participation in this study is voluntary and that I may choose to withdraw from the study at any time.

I understand that all information given will remain confidential and will only be reported as group statistics. I understand that the code numbers indicated on the questionnaires will only be utilized for organizational purposes and will not be reported in the actual study results. I realize that there will be no charge for me to participate in this study.

I understand that I may contact Cynthia A. Schnetter or Dr. Rosemary Witt at (702) 739-3360 at any time with questions or concerns regarding this study.

I understand the information provided me regarding this study. I realize that by sparing 15 minutes of time to cooperate with this study, I may help research efforts to further understand breast cancer and its impact on women.

Appendix C

General Health Questionnaire (GHQ)

PLEASE NOTE

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Appendix D

Beck Depression Inventory



THE PSYCHOLOGICAL CORPORATION

555 ACADEMIC COURT, SAN ANTONIO, TEXAS 78204-2498
TELEPHONE: (512) 299-1061 TELEX: 5106015629 TPCSAT FAX: (512) 270-0327

June 26, 1992

Cynthia A. Schnetter
P.O. Box 26532
Las Vegas, Nevada 89126

Dear Ms. Schnetter:

Thank you for your June 22 letter requesting permission to use the Beck Depression Inventory for testing purposes for use in your thesis research.

In order to protect the combined usefulness of the test, and as a responsible test publisher, we believe it is our responsibility to maintain the security and integrity of our tests. Consequently, we cannot allow items or portions of the test to be bound in, stapled with or microfilmed with your thesis.

In addition, all testing should be conducted in your presence or that of your faculty advisor so that all test materials remain in your hands.

We will gladly grant permission for use of the test if the above restrictions will be adhered to. Please indicate agreement to these terms by signing and returning a copy of this letter to me for my files. I will then release your order. Also, please forward a copy of your thesis when it is completed so that I may retain a copy in our library. If you have any questions regarding the above please contact me directly.

Sincerely,

Christine Doebbler
Supervisor
Rights and Permissions

UNDERSTOOD AND AGREED

Cynthia A. Schnetter 7-31-92
Name Date

HARCOURT BRACE JOVANOVICH, INC.

Appendix E

The Spielberger State-Trait Anxiety Inventory (STAI)

PLEASE NOTE

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Appendix F
Demographic Form

Demographic Form

Directions: Please complete the following form. Check the category which applies to you on all questions. Some questions are fill-in-the-blank. Please answer these types of questions as completely as possible in the brief amount of space provided. If more space is needed in order to answer a question, you may use the back of this form. Please number the question on the back of the form, if you utilize the additional space. Thank you for your time and cooperation.

1. Age:
 - 18-25
 - 25-30
 - 35-45
 - 45-60

2. The breast cancer was diagnosed:
 - 1-2 weeks ago 7-8 weeks ago
 - 3-4 weeks ago 9-10 weeks ago
 - 5-6 weeks ago 11-12 weeks ago

3. How was the breast cancer discovered?
 - Breast self-exam
 - Physician Exam
 - Mammogram
 - Accidental discovery by self-exam or another person

4. Do you practice breast self exam? yes no
 If yes, how often do you practice breast self exam?
 - weekly every 4-6 months
 - monthly 2 times per year
 - every other month yearly
 - every 2-3 months

5. Type of cancer treatment currently being experienced (check all which apply).

chemotherapy

radiation

mastectomy

lumpectomy

other, please describe _____

6. List any previous history of diagnoses:

7. List all medical conditions:

8. List all medications currently being taken:

9. Have you ever sought medical treatment for depression or anxiety?

yes

no

If yes, what type of treatment did you seek?

inpatient psychiatric hospitalization

outpatient treatment with a psychiatrist

outpatient treatment with a psychologist,

marriage family therapist, social worker, or

other type of therapist

family physician

pharmacologist (prescribed drug) treatment

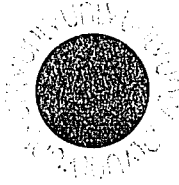
other, describe _____

Appendix G

Human Subjects Rights Committee

University of Nevada, Las Vegas

Department of Nursing



ASSOCIATE VICE PRESIDENT FOR RESEARCH

UNIVERSITY OF NEVADA, LAS VEGAS
4505 MARYLAND PARKWAY • LAS VEGAS, NEVADA 89154-1002 • (702) 597-4240 • FAX (702) 597-4242

TO: Cynthia A. Schnetter

FROM: Dr. William E. Schulze, Director, Research Administration *Wm. Schulze*

DATE: 2 September 1992

RE: **Status of human subject protocol entitled:**
EFFECTS OF BSE ON DEPRESSION?ANXIETY IN WOMEN DIAGNOSED W/ BREAST Ca.

The protocol for the project referenced above has been reviewed by the Office of Research Administration, and it has been determined that it meets the criteria for exemption from full review by the UNLV human subjects committee. Except for any required conditions or modifications noted below, 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 one year from the date of this notification, it will be necessary to request an extension.

If you have any questions or require any assistance, please give us a call.

Required conditions/modifications:

Appendix H
Physician Consent



MEMORANDUM

TO: Dr. Arnold Wax
FROM: *Cynthia A. Schnetter*
DATE: April 14, 1992
RE: Consent for Data Collection

Cynthia A. Schnetter has received permission to collect data from this office for her thesis.

Confidentiality will be maintained at all times. The patients name and address will not be known to the researcher or appear on the data collection forms.

Patients will be given the opportunity to voluntarily participate while in the office.

Dr. Arnold Wax
3920 S. Eastern #202
Las Vegas, NV 89119

Signed

4-16-92

DATE



MEMORANDUM

TO: Dr. Nafees Nagy
FROM: *Cynthia A. Schnetter*
DATE: April 14, 1992
RE: Consent for Data Collection

Cynthia A. Schnetter has received permission to collect data from this office for her thesis.

Confidentiality will be maintained at all times. The patients name and address will not be known to the researcher or appear on the data collection forms.

Patients will be given the opportunity to voluntarily participate while in the office.

A handwritten signature in black ink that reads "M. Nafees Nagy MD". The signature is written in a cursive style and is positioned above a horizontal line.

5-11-92

Signed

DATE

HEATHER J. ALLEN, M.D., LTD.
Oncology and Hematology
3006 S. Maryland Parkway, Suite 205, Las Vegas, Nevada 89109
(702) 735-4002

June 23, 1992

TO: TO WHOM IT MAY CONCERN

RE: SCHNETTER, Cynthia

To Whom It May Concern:

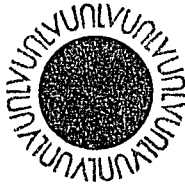
Cynthia Schnetter has been given permission to take forms from my office to distribute to our patients to collect data regarding her education project.

Sincerely,

HEATHER J. ALLEN, M.D.

A handwritten signature in cursive script that reads "Heather J. Allen M.D." with a circular stamp or mark to the left of the name.

HJA/lvts



DEPARTMENT OF NURSING
UNIVERSITY OF NEVADA, LAS VEGAS
4505 MARYLAND PARKWAY • LAS VEGAS, NEVADA 89154-3018 • (702) 739-3360

MEMORANDUM

TO: Human Subject Rights Committee
University of Nevada, Las Vegas

FROM: Dr. Paul Michael

DATE: August 3, 1992

RE: Consent for Data Collection

Cynthia A. Schnetter has received permission to collect data from this office for her thesis.

Confidentiality will be maintained at all times. The patients name and address will not be known to the researcher or appear on the data collection forms.

Patients will be given the opportunity to voluntarily participate while in the office.

A handwritten signature in cursive script that reads "Paul Michael".

8/3/92

Signed

DATE

Appendix I
Letter of Closure

Letter of Closure

Dear Participant:

Thank you for your participation in this study. Your participation has been greatly appreciated. If you wish to have a copy of the study abstract at the completion of this research project, please, self address enclosed mailing labels.

The diagnosis of breast cancer can be a source of emotional distress. If you feel depressed or that it would be of benefit to talk with someone, please, contact either your physician or any of the enclosed list of resources available in Nevada.

Once again, thank you for your time.

Sincerely,

Cynthia A. Schnetter, R.N., B.S.N.

Graduate Student, Department of Nursing

University of Nevada, Las Vegas

Appendix J

Resources

Resources

American Cancer Society
702-798-6877
800-227-2345

This agency will provide free pamphlets and a resource person to answer any questions. Also they are able to provide information concerning support groups.

Mastectomy Association
Fran Kittay, President
702-458-5045

This group meets on the second Monday of every month at 2065 Burnham Street at 7:00pm. Activities include social interaction and an organized program of interest. Anyone who is interested may attend without prior contact. No charge.

Reach to Recovery
Julia Withers, Coordinator
702-458-7385

You may contact the above person if you would like someone who had a mastectomy to visit you in your home. No charge.

Charter Hospital
7000 W. Spring Mountain Road
702-876-4357

Monte Vista Hospital
5900 W. Rochelle Ave
702-364-111

Both of the above agencies will provide a free counseling session by phoning and arranging a date and time. An intake counselor will respond to your call if you have immediate concerns that you need to discuss by phone.

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