The Relationship between Tamoxifen and Depressive Symptoms in Women with Breast Cancer

Terry Marie Lynn

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THE RELATIONSHIP BETWEEN TAMOXIFEN AND DEPRESSIVE SYMPTOMS IN WOMEN WITH BREAST CANCER

by

Terry Marie Lynn

A Thesis in Partial Fulfillment
of the Requirements for the Degree of
Master of Social Work

June 1998
Each person whose signature appears below certifies that this thesis in his/her opinion is adequate, in scope and quality, as a thesis for the degree of Master of Social Work.

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ABSTRACT

“The Relationship Between Tamoxifen and Depressive Symptoms in Women with Breast Cancer”

by

Terry Marie Lynn

The purpose of this study was to determine whether women with breast cancer and the presence of the drug tamoxifen, are more severely depressed than women with breast cancer and the absence of tamoxifen. Average Beck Depression Inventory (BDI) scores did not differ between the two sub-groups; however, two significant group differences were found. First, 10 women in the tamoxifen group had scores of zero (versus 4 in the absence of prescribed tamoxifen group). Research has shown that scores of zero do not always reflect an absence of depression. Second, the most severely depressed women (BDI scores in the 25 to 31 range) were also members of the tamoxifen group. These results suggest that for the women taking tamoxifen at the time of the study, a history of depression was associated with more severe depressive symptoms. Finally, among women without tamoxifen, several had discontinued tamoxifen therapy because of depressive side effects.
Introduction

Breast cancer is the most common cancer among women, accounting for one out of every three cancer diagnoses. In 1997, for example, approximately 181,600 new cases of invasive breast cancer are expected to be diagnosed, and 43,900 women are expected to die from this disease (American Cancer Society, 1997).

The incidence of breast cancer mortality increases with age, and about three quarters of all women with new diagnoses of breast cancer are over the age of 50. Breast cancer is relatively uncommon in younger women, with an incidence rate of one case per 100,000 for women ages 20-24. However, the rate climbs to 25.2 cases for women ages 30-34, 125.4 for women 40-44, and 232.7 for women 50-54 (Kosary, Ries, & Miller, 1995). Although heart disease is the leading cause of death in women in the United States, breast cancer is the leading cause of death in women between the ages of 40 and 55 (Henderson, 1995).

Treatment decisions are made by the patient and the physician after considering the optimal treatment for the stage and type of cancer, the patient’s age and preferences, and risks and benefits ascribed to each treatment protocol. Most patients are successfully treated for breast cancer with local procedures, such as surgery in the form of a modified mastectomy or lumpectomy, followed by radiation therapy, chemotherapy, peripheral stem cell transplantation, and hormonal therapy (McClay, Albright, & Jones, 1994; Murphy, Lawrence, & Lenhard, 1995; Williams, O’Sullivan, Snodgrass, & Love, 1995).

Hormonal therapy in the form of tamoxifen (trade name: Nolvadex) is the most widely used adjuvant treatment worldwide for early stage breast cancer.
Multiple studies have demonstrated that tamoxifen can significantly reduce the possibility of breast cancer recurrence and death (Ganz et al., 1995; Hayes et al., 1995). Tamoxifen is a nonsteroidal antiestrogen that competitively blocks estrogen receptors in breast cancer cells. In primary breast cancer, adjuvant tamoxifen therapy following surgery produces a 20 percent reduction in disease recurrence at ten years, as well as a 40 to 50 percent reduction in new breast cancer in the opposite breast. Tamoxifen has also been shown to produce clinical benefits in at least 33 percent of women with metastatic breast cancer, independent of hormone receptor status, and in 50 percent of women with estrogen receptor-positive breast tumors (Zeneca Pharmaceuticals, 1995).

A brief review of the evolution of tamoxifen in its present and sometimes controversial status began in 1954. Originally, tamoxifen was limited to the treatment of postmenopausal women with breast cancer. When compared with other antiestrogens, tamoxifen was reported to be equally effective and better tolerated. The adverse effects related to tamoxifen were reported to be less severe than those seen with other hormonal treatments. Today, hopes for improved survival and well-being have increased because of advances in early detection, changes in surgical techniques, and progress in systemic therapy. Because of its favorable adverse-effect tamoxifen has become the endocrine therapy of choice (Higa, 1994).
Tamoxifen causes few known debilitating side effects (Costa & Jordan, 1991; Love, Leventhal, Easteling, & Nerenz, 1989); however, the documented side-effect reports point to a decrease in quality of life (Love et al., 1989). For example, the most frequently reported side effects are menopausal symptoms and nausea (Fisher, Constantino, & Redmond, 1989). The next most frequent side effects include fatigue/tiredness, gynecological symptoms (e.g., vaginal discharge, irritation, and bleeding), depression and anxiety. There may also be a rare incidence of visual disturbances (Doig, 1988; Kaiser-Kupfer & Lippman, 1978; Nayfield, Karp, Ford, Dorr, & Kramer, 1991; Nolvadex Adjuvant Trial Organization, 1985). Despite the clinical reports that depression can accompany the use of tamoxifen, the relationship has not been well studied. According to Cathcart et al. (1993):

Depression is commonly diagnosed in patients with cancer including breast cancer and therefore it is relatively easy to overlook as a potential side effect of one of the common drugs used to treat breast cancer. Depression has long been recognized as a possible side effect of tamoxifen, but only in recent years has it been given noteworthy status. (p. 280)

Theoretical Framework for the Study

Systems theory is a large domain that has had a major effect on the theory and practice for those who work with cancer patients. It involves those concepts that emphasize reciprocal relationships between the elements that constitute a
whole. These concepts also emphasize the relationships among individuals, groups, organizations, or communities and mutually influencing factors in the environment (Barker, 1996; Newby, 1996).

A system is composed of subsystems, each with its own function. The systems-oriented biopsychosocial model is an example of a set of three subsystems. The biopsychosocial approach to therapy builds an understanding of: biological perspectives, psychological development, and the social components (e.g., influence of significant others, significant environments and systems), as essential characteristics in the development and maintenance of healthy and fulfilling human living. The knowledge base of practice is drawn from the biological, psychological, and social components of human growth and development and their interaction. To this knowledge base is joined an understanding of the interrelatedness of the spectrum of systems in which persons function. These functions include their strengths and weaknesses, their potentials and limitations, which combine to form a more complete system. On this knowledge base are developed skills in engaging responsibly and effectively in therapeutic and helping relationships with individuals, families, groups, and significant environments to bring about planned change in human functioning. Specifically, it seeks to understand persons in the context of their current reality and to use this understanding in a therapeutic way in the treatment of biological, psychological, personal, interpersonal, and social problems and their relationships (Turner, 1986). The theory’s emphasis on interdependence and
interaction among systems components and its interest in what makes social systems adaptive or maladaptive are two important reasons for its usefulness in medical social work practice.

Medicine has appropriated the biopsychosocial model as a conceptualization of the systemic interrelationships among the biological, the psychological, and the social in health and illness (Engel, 1980). Utilizing the framework of biopsychosocial assessment model, this study begins to meet the needs for empirical inquiry into the interrelatedness of these subsystems, in the identification of the relationship between tamoxifen and symptoms of depression in women with breast cancer (see Figure 1).

Biological Perspective

The most widely used antiestrogen agent to prevent or delay the growth of breast tumors is tamoxifen, an antiestrogen with complex pharmacology encompassing variable species-, tissue-, cell-, gene-, age- and duration of administration-specific effects, from oestrogen-like agonist actions to complete blockade of oestrogen action (Bruzzi, 1998). In vitro, tamoxifen inhibits the uptake and metabolism of estrone sulfate to estradiol (Lonning, Johannessen, & Lien, 1995). In addition to the direct antiestrogenic effect, use of tamoxifen in combination with chemotherapy may delay the development of resistance to selected agents (McClay, Albright, & Jones, 1994).

Two studies indicate that depression may be a side effect of tamoxifen treatment. Cathcart et al. (1993), assessed 257 patients with node-negative breast cancer who were
on tamoxifen therapy and found that 15 percent of those on tamoxifen had major depression versus only 3 percent of the control group. Shariff, Cumming, Lees, Handman, and Cumming (1995), noted an increase in depression over an 8-month period in women with early stage (I or II) breast cancer receiving adjuvant tamoxifen, despite no significant increase in state anxiety or anger levels. The source of this depression is unclear because other neuroendocrine alterations have been reported following tamoxifen therapy.

Mamby, Love, and Lee (1995), noted that tamoxifen therapy in postmenopausal women may result in altered thyroid function.

**Psychological Perspective**

Kaplan and Sadock (1998), reported that “When people learn that they have cancer, their psychological reactions include fear of death, disfigurement, and disability; fear of abandonment and loss of independence; fear of disruption in relationships, and role functioning; and denial, anxiety, anger, and guilt” (p. 813). It has also been noted that patient responses to a diagnosis of cancer are modulated by medical, psychological, and interpersonal factors. The medical factors include the location of the cancer in the breast, the symptoms, and the prognosis. The psychological factors include the patient’s personality traits, coping ability, ego strength, and developmental stage of life and the consequences of the cancer at that stage (Kaplan & Sadock, 1995).

In a study by Packard, Haberman, & Woods (1991), the demands of illness reported by women with breast cancer included three types: the direct effects of the
disease, the personal disruption that occurs as a consequence of the illness, and the environmental transactions necessitated by the illness. The direct effects of the illness included physiological experiences such as fatigue, pain, and nausea. Personal disruptions included challenges to the woman’s sense of integrity, continuity, and normalcy. Disruptions in integrity included changes in self-perception, such as altered body image, whereas disruptions in the sense of continuity in daily life included preoccupation with both the personal meaning of the illness and attributions about the illness. Disruptions in normalcy included the necessity of monitoring changes in bodily sensations and functions.

Social Perspective

It has been noted that sources of help outside the immediate family tend to consider the crisis over once the ill person is home and resuming normal activities. Friends may offer less help due to the fact that they may not be aware of the continuing treatment that may be necessary after the initial diagnosis. This in turn, contributes to the women’s perception of reduced support (Dhooper, 1984; Primomo, Yates, & Woods, 1990).

An important determinant of cancer patients’ ability to live with their illness is their social environment. Environmental transactions resulting from the illness include difficulties in relationships with members of social networks (e.g., husband, family, religious and work groups) or with health care providers. Therefore, women often
seek other sources of social support such as breast cancer support groups, which provide positive affirmation, and valuable assistance, to reduce the demands women associate with their illness. These social supports can influence how a family experiences the impact of this illness (Dunkel-Schetter, 1984; Lindsey, Norbeck, Carrieri, & Perry, 1981; Wortman, 1984).

The demands of a chronic illness often precipitate changes in psychosocial functioning and marital adjustment. The psychosocial results of the illness extend in a ripple effect from patient to the entire family system. Each family member’s reaction to illness and coping responses reverberates throughout the whole family and back again. Stress associated with a disease process affects adaptation for those responding to cancer (Gotay, 1984; Moos & Tsu, 1977; Strauss & Glaser, 1975).

An important element in systems theory is the concept of homeostasis. Essentially, systems are said to operate in a range of stability. When something threatens this stability, feedback signals the systems to activate error-correcting responses to reestablish homeostasis (Wachtel & Wachtel, 1986). Changes affecting one part of the system (e.g., physical and emotional well-being of the woman who may be both wife and mother dealing with breast cancer) may precipitate changes in another part of the system (e.g., physical and emotional well-being of the husband and children), thus altering the nature of the relationships and creating disequilibrium. How the family seeks to reestablish
homeostasis will have an effect on the woman with breast cancer (Gotay, 1984; Moos & Tsu, 1977; Strauss & Glaser, 1975). Support groups are established to provide relief from depression, reassurance, practical information, guidance, and enhanced coping skills that enable members to regain stability as they share their experiences. It has also been reported that there appears to be a near doubling of survival rates in women who were treated with the specific group psychosocial intervention of supportive-expressive group therapy (Fawzy & Fawzy, 1994; Spiegel, Bloom, Kraemer, & Gottheil, 1989; Spiegel & Glafkides, 1983). This intervention emphasizes intrapersonal aspects (e.g., emotional expressiveness, relaxation training, expression of grief and depression, and confrontation with the existential concerns of living life fully in the face of death), interpersonal aspects (e.g., group cohesion, and enhancing communication skills with family and health care workers), and community support from numerous area organizations.

As previously stated, Cathcart et al. (1993), and Shariff et al. (1995) noted an increase in depression that may be a side effect of tamoxifen treatment. The source of this depression was unclear, and would seem to indicate continued research. The primary purpose of the present study is to evaluate the relationship between tamoxifen and depressive symptoms in women with breast cancer.

Three research questions were developed: (1) Are women with breast cancer where tamoxifen is present more depressed than women where tamoxifen is absent,
(2) Among patients where tamoxifen is present, are depressive symptoms more severe in those who have a history of depression prior to having breast cancer, and (3) Among women where tamoxifen is absent, how many discontinued this therapy because of depression?

Method

Sample

Women who have had a diagnosis of breast cancer were eligible to participate. A convenience sample of women was drawn from breast cancer support groups sponsored by the American Cancer Society and facilitated by licensed psychologists, social workers, and physicians. A total of 240 packets were sent to various support groups in California, Arizona, and Wisconsin. A total of 153 women participated in the study, with 13 instruments being unusable due to incompletion of questions (response rate = 64%, valid response rate = 58.3%). The average age of the women was 60 years (SD = 12); age range = 37 to 90.

Instruments and Procedure

Participants were asked to complete a short questionnaire about themselves and their breast cancer treatment. Questions asked included, age and when first diagnosed with breast cancer, whether they had a lumpectomy or mastectomy and reconstruction. Questions about treatment included whether they had chemotherapy, radiation therapy, or stem cell/bone marrow transplantation. Other questions asked about
estrogen and tamoxifen (whether they were taking estrogen and tamoxifen, and whether they discontinued either). For those who had discontinued tamoxifen, questions were asked about reasons and side effects. The final set of questions pertained to a history of depression.

Participants also were asked to complete two standard psychological scales: the Beck Depression Inventory (BDI) (Beck & Steer, 1987) and the state portion of the State-Trait Anxiety Inventory (STAI) (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983). This author’s primary interest was in depressive symptoms, it is common practice when assessing mood to also assess anxiety symptoms. These two instruments are among the most widely used self-report depression and anxiety scales, and each has demonstrated adequate reliability and validity (Beck & Steer, 1987; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983).

Questionnaires were distributed in batches to support group facilitators who disbursed and collected them at support group meetings.

Statistical Analyses

To evaluate group differences in mean depression and anxiety scores, t-tests for independent samples were used. For all tests of statistical significance, alpha was set at .05.
Results

A total of 105 (75%) of the women reported having a mastectomy, 51 (36.4%) had a lumpectomy, and 32 (22.9%) had reconstruction. There were 69 (49.3%) women who had chemotherapy, 54 (38.6%) who had radiation, 6 (4.3%) stem cell, and 81 (57.9%) who at one time or another took tamoxifen. Of those who took tamoxifen, 54 (66.7%) were still on the drug while 27 (33.3%) of the women had discontinued therapy. Of those who had discontinued tamoxifen, 19 (70.4%) reported side effects such as hot flashes, interrupted sleep, rashes, dizziness, severe headaches, feeling ill, blood clots, and problems with their eyes and liver. Eight women (29.7%) reported severe depression (see Table 1).

The subjects were asked if they had been taking estrogen prior to the diagnosis of breast cancer. Sixty (42.9%) reported they had been taking estrogen with 56 (40%) discontinuing to take the medication once diagnosed with breast cancer.

Of the 140 participants, 25 (17.9%) reported having a history of depression prior to their diagnosis, and 14 (10%) stated they had been in treatment prior to the breast cancer. There were 13 (9.3%) taking medication for depression, and 8 (5.7%) reported being in therapy.

The women’s (n = 140) BDI scores ranged from 0 to 31, and the mean score was 7.2 (SD = 6.2). The mean BDI score for women where tamoxifen was present (n = 68) was 7.5 (SD = 7.3), and the mean score for women where tamoxifen was absent (n = 50)
was 6.8 (SD = 4.4). The mean difference was not statistically significant. (Depression and anxiety scores by tamoxifen group are displayed in Table 2).

A breakdown of the BDI scores by the presence or absence of tamoxifen is shown in Table 3. Although the mean difference was not statistically significant, the groups differed in two important ways. First, 10 women in the group where tamoxifen was present had scores of zero (versus 4 in the not taking tamoxifen group). This is noteworthy because BDI scores of zero do not always reflect absence of depression (Field et al., 1991). Second, the most severely depressed women (BDI scores in the 25 to 31 range) all were in the group where tamoxifen was present.

Anxiety scores (n = 140) ranged from 20 to 73 (M = 35.8, SD = 12.4). The mean scores for women where tamoxifen was present (n = 71) versus where tamoxifen was absent (n = 52) were 37.7 (SD = 13.5) and 33.2 (SD = 10.1), respectively. The difference was statistically significant, $t = 2.05$, df = 121, $p = .04$). The crosstabulation of anxiety scores by tamoxifen status is shown in Table 4; as expected, severe anxiety is more common among women where tamoxifen was present.

A total of 48 women in the group where tamoxifen was present answered the question about having a history of depression; six had such a history, and 42 did not. The mean BDI score for women with a history of depression was 8.8 (SD = 6.7) whereas the mean for women with no such history was 6.4 (SD = 4.1). There were too few women in
the history of depression group (n = 6), however, to conduct a valid test of statistical significance.

Discussion

The main purpose of the present study was to evaluate depressive symptoms in women with breast cancer where tamoxifen was present, and to determine whether those women are more depressed than those where tamoxifen was absent; to determine whether depressive symptoms are more severe for women where tamoxifen was present who have experienced depression prior to diagnosis of their breast cancer; and among women where tamoxifen was absent, how many discontinued therapy because of feelings of depression.

Women in several breast cancer support groups were eligible participants of this study. Two standard depression and anxiety instruments were used, the Beck Depression Inventory and the state portion of the State-Trait Anxiety Inventory. Although the mean BDI scores for women where tamoxifen was present and women where tamoxifen was absent were not statistically significant, the groups differed in two important ways. First, 10 women in the tamoxifen group had scores of zero, versus 4 in the group where tamoxifen was absent. This is noteworthy because BDI scores of zero do not always reflect absence of depression. Second, the most severely depressed women (BDI scores in the 25 to 31 range) all were in group where tamoxifen was present.

Mean anxiety scores were comparable among the group where tamoxifen was present and the group where tamoxifen was absent. Similar to the depressive symptoms
analysis, the study also indicated that the women where tamoxifen was present were more anxious than the women where tamoxifen was absent. The mean scores for women where tamoxifen was present versus the group where tamoxifen was absent were statistically different. The crosstabulation of anxiety scores by tamoxifen status also showed that severe anxiety is more common among women where tamoxifen was present.

Of the 140 participants, 17% reported having a history of depression prior to their diagnosis, 10% stated they had been in treatment prior to the breast cancer, 9% were taking medication for the depression, and 5% reported being in therapy. Of those women who discontinued tamoxifen, 8 reported severe depression. Side effects such as hot flashes, interrupted sleep, rashes, dizziness, severe headaches, feeling ill, blood clots, and problems with their eyes and liver were described by those who had discontinued tamoxifen.

The Pinder et al. (1993) study shows that almost 50% of all cancer patients suffer from clinically relevant depressions and severe anxiety. Of women with advanced breast cancer, 25% showed anxiety and depression. The scores obtained from my research indicate that 10 women in the group where tamoxifen was present had scores of zero on the BDI, and the most severely depressed women were in the group where tamoxifen was present. There is a possibility that the women who scored zero on the BDI may not be aware that they are experiencing depression, due to the fact BDI scores of zero do not always reflect absence of depression (Field et al., 1991).
There are a couple of interpretations for a zero BDI score. In some cases it may reflect a denial of depression. Another process such as avoidance or "faking good" may result in a zero score. The women may also not report depression due to the fact that they may see themselves as angry and irritable and not realize that these are also signs of depression (Field et al., 1991). Their anger and irritability, as well as "faking good," may contribute to the high level of anxiety that has been reported in this study. The "faking good" may be a result of women believing that their depression is caused by the circumstance of having a diagnosis of breast cancer, when in fact, it may be caused by a reaction to the tamoxifen. There is a general social attitude that once the surgery is completed, the woman needs to put the experience behind her and get on with life.

For most women, a diagnosis of breast cancer marks the beginning of a life-long struggle. The disease and treatments become biopsychosocial stressors whose effects linger long after the individual is tumor-free. The effects are often widespread. Breast cancer is associated with anxiety and depression, not only in those who are affected but in their families and loved ones as well (Holland, 1989).

A review of the literature revealed a general agreement that there is a continuing disparity of the terms anxiety and depression, each of which refers to different types, levels, or combinations of the disorder. For this paper anxiety is defined as a feeling of apprehension, worry, uneasiness, or dread, especially of the future. It is the normal reaction to that which is threatening to the body, lifestyle, values or loved ones (Thomas,
Anxiety is best predicted by panic symptoms, thoughts of pain or physical discomfort, worry and tension. Clients find it difficult to describe anxiety and may use such words as tense, panicky, terrified, jittery, and nervous in trying to delineate the sensation (Clark, Beck, & Beck, 1994; Kaplan & Sadock, 1995).

Approximately 20-50 percent of cancer patients have coexisting psychiatric diagnoses, most often depression and anxiety (Bukberg, Penmen, & Holland, 1984; Derogatis, Morrow, & Fetting, 1983; Massie & Holland, 1990). The presence of symptoms of depression, and anxiety in cancer patients falls well within the range of normal human response to catastrophic life events, making it difficult to distinguish between a normal reaction to a diagnosis of cancer and one that manifests psychiatric illness. In addition, many of the symptoms of cancer and the effects of cancer therapy mimic depression, such as hopelessness, low energy, or anorexia (Kathol, Mutgi, & Williams, 1990; Kathol, Noyes, & Williams, 1990).

This study shows that for women who may have a propensity to be depressed are more likely to be at risk for severe depression when taking inhibiting drugs. This risk factor appears to be significant enough that the researchers involved in the National Surgical Adjuvant Breast and Bowel Project Breast Cancer Prevention Trial conducted extensive screening of all the participants. In this study the health related quality of life was evaluated extensively. An assessment was taken to identify medical background, family and social relations, and a psychological evaluation that would reveal any
propensity for depression. Of particular concern was clinical depression, sexual functioning, and menopausal symptoms. It was noted that additional instruments were administered to eliminate those participants with active symptoms of depression (Ganz, Day, Ware, Redmond, & Fisher, 1995).

The loss of interest in pleasurable activities such as food, sex, work, friends, hobbies and entertainment are also characteristics of depression. Cassem (1990) has attributed four additional symptom criteria to a serious, life-threatening illness: insomnia, diminished ability to think or concentrate, recurrent thoughts of death, and possibly markedly diminished interest or pleasure in almost all activities.

This clinical observation is further supported by the fairly rapid onset of depression in the first two months of therapy for most patients, and the prompt reduction or cessation of therapy should be considered. Cathcart et al. (1993) stated that: “Occasionally the symptoms were subtle, with patients complaining of ‘feeling bad’ or ‘fatigue’ since starting tamoxifen, and only careful questioning elucidated classic symptoms of depression” (p. 279).

It is an accepted fact that women who receive the ultimate diagnosis of having breast cancer exhibit depression and anxiety. The many presenting biological symptoms tend to veil the secondary depression caused by the tamoxifen therapy. Although this secondary effect has been recognized, until recently it has received only minimal attention, as there are other side affects that are more obvious. These side effects include
gynecological bleeding, discharge, and irritation, hot flashes, nausea, inability to concentrate, sleep disturbance, headaches, and agoraphobia (Cassem, 1990; Cathcart et al, 1993; Mc Daniel, Mussehnan, Porter, Reed, & Nemeroff, 1995; McDaniel, Rhodes, Velson, & Hanson, 1995).

Recognition of severe and persistent depression and anxiety is important. Apart from the acute stress response, reactive depression is the most frequent psychological problem encountered among patients with cancer (Hayes et al., 1995). The acute stress response, which occurs at pivotal points during the course of illness, is normal. However, severe or protracted depressive symptoms should be evaluated and treated. Thus, diagnosis must rely heavily on psychological symptoms, including the presence of dysphoric mood (sadness, anxiety) and feelings of hopelessness, helplessness, and worthlessness. Cancer patients who are at highest risk for developing depression are those with a history of prior depression or psychiatric illness. In an analysis of newly diagnosed breast cancer patients assessed for levels of psychological distress, a high correlation was found with prior history of depression. The treatment of depression can result in improved compliance with therapy, a greater tolerance for the disease and its outcome, and an improved quality of life (Sachs et al., 1995; Spiegel, Bloom, Kraemer, & Gottheil, 1989).

Women who have been diagnosed with breast cancer may experience a variety of different feelings. To some women, the breast may represent femininity, sexuality, love,
nurturance, and maternal feelings, it is therefore often an important part of her self-image. Feelings of anxiety, anger, and depression are not uncommon. She may also view the loss of her breast as an assault, while at the same time, she is also dealing with the fact that she has cancer and the threat that the diagnosis has to life itself.

Baird (1991) presented the belief that women undergoing a mastectomy may have feelings of mutilation, a decrease in self-image, feelings of despair, helplessness, shock, guilt, personal vulnerability, and problems in sexual and family relationships. She further indicated that these feelings also have an impact on the spouse or significant other and the family.

As the woman struggles with the biological, social, and psychological components and their interactions, she may experience emotion-focused coping as a form of reality distortion in which the person changes the meaning of a stressful situation. Such maneuvers are used to maintain hope, deny facts and implications, refuse to acknowledge the worst, or to act as if what happened did not matter (Lazarus & Folkman, 1984).

Any surgical procedure as severe as a mastectomy might be expected to have depressive consequences. The female breast with its feeding and sexual functions has such a symbolic meaning that its amputation has serious consequences for the woman's self-image, her feelings of femininity and her social functioning (Renneker & Cutler, 1952). However, Van Heeringen, Van Moffaert, & de Cuypere (1989), found no differences in the depressive reaction between mastectomy and lumpectomy (breast conservation).
patients. Van Heeringen et al., (1989) stated that: “the diagnosis of malignancy is a more powerful factor in causing depressive symptoms than the mutilation itself,” (p. 178)

The grief women feel after a mastectomy precipitates a two-fold response, the first is reactive which concerns the loss of the breast, the second, preparatory occurs when women realize the life threatening potential of the disease. The diagnosis then becomes the most dynamic factor in causing depression. It is even more debilitating than the mutilation itself. Therefore, the preparatory element, which is common to both groups of women, is the decisive factor in the development of depression.

Psychotherapy concentrates on the reactive response to depression by affording an opportunity for women to discuss the future. In these small groups, empathic listening may be the most important means for women to communicate their fear for this progressive illness and subsequent health (Van Herringen et al. (1989).

There must be an opportunity for the women to communicate their fear for progressive illness and possible death, and a time to acknowledge their grief reaction. Taber’s Cyclopedic Medical Dictionary (Thomas, 1985) defines grief reaction as:

The emotional reaction that follows the loss of a love-object. Somatic symptoms include easy fatigability, hollow or empty feelings in the chest and abdomen, sighing hyperventilation, anorexia, insomnia, and the feeling of having a lump in the throat. Psychological symptoms begin with an initial stage of shock and
disbelief accompanied by an inner awareness of mental discomfort, sorrow, and regret. (p. 708)

When women are not allowed to grieve properly, unresolved reactions and feelings may lead to a higher level of discomfort, and these unresolved issues may continue to prevent them from living life to the fullest. It is therefore important to discover the secondary losses of breast cancer. For the young woman secondary losses may include the loss of invincibility, femininity, and control over their lives and relationships. For older women, the secondary loss is the sense of being cheated out of the “golden” years of retirement (LaTour, 1993). She goes on to discuss that in the past women spoke in hushed tones, letting her know that they had had ‘the operation’ too. They were expected to have the stoic attitude of ‘I’m going to beat this thing’, and get on with life (p. 250).

According to Michael Fitzpatrick, M.D., chief of Consultation-Liaison Psychiatry and associate professor at the University of Texas Southwestern Medical School (in LaTour, 1993):

A woman can often be her own worst enemy in the resolution process as she tries to protect herself and those around her. Women often need to deny that having cancer has affected them. They want to make sure that their role-functioning is not diminished in any way. They want to reassure everybody that they are the same person. They want to protect their husbands or mates, children, and friends
from fear associated with change and uncertainty by demonstrating that nothing is
different, at least externally. That’s an unhealthy process.

To deny loss has occurred only postpones the time when grief will reemerge in one
form or another. When delayed, it may later be experienced as physical exhaustion
or perhaps as subtle changes in behavior or personality—for example, shutting
people out, avoiding intimacy, indecisiveness, or general irritability. Sometimes
complicated grief emerges as clinical depression. There are times when grief
associated with earlier loss is experienced years later. (p. 253)

Additional secondary losses can be physical or symbolic. Depending on the type of
treatment, there can be the loss of a familiar home environment because of the stay in a
hospital room, or the loss of independence because of the illness and having to rely upon
others for care.

Breast cancer can have a devastating and often numbing effect. The women may
experience a loss of autonomy, predictability, pleasure, identity, hope, self-esteem, and
loss of control. Loss may result in a grief reaction, and may need to be mourned. The
meaning and extent of each loss varies for each person, depending upon the investment
that was made, thus the amount of grieving required varies from woman to woman.

Limitations of the Study

It is important to recognize the limits of this research study. This study used a
self-report instrument with a convenience sample drawn from individuals currently
participating in breast cancer support groups. Because a convenience sample was used, it may not be representative of all women in the breast cancer, particularly those who are not involved with a support group. Moreover, the women in this convenience sample were older (average = 60). Although the sample size was large enough to determine group differences, some of the subgroup analyses for depression were not possible due to the limited number of women in that targeted group (e.g., there were too few women with a history of depression to assess for statistical significance).

Other possible intervening variables not examined in this study included ethnicity, socioeconomic status, length of time on medication, and length of time post surgery. In future studies with larger samples, it possibly would be more illuminating if these variables were measured and used in a more sophisticated multivariate analysis.

Finally, studies of this sort are thought to be stronger if both self-and-observer-scales are used. Such reports from clinicians and family members are valuable in determining the effect of life stressors such as divorce, recurrence of the cancer, the families’ inability to come to terms with the disease, the lack of time allowed for the women to grieve the loss of a body part, and the loss of life style.

Implications for Social Work Practice and Future Research

The role of the support group is extremely important in the life of a breast cancer survivor. Van Heeringen, Van Moffaert, & de Cuypere (1989), states that “psychotherapy aimed at the reactive element of the depression contains an optimistic support with
cheering up, talking about the future, giving prosthetic advice...and dealing with the diagnosis of cancer” (p. 178). This would appear to be the philosophy of the majority of the support groups as espoused in the literature (Baird, 1991; LaTour, 1993; Love, 1990). However, as social workers facilitating these support groups, it is our responsibility to also acknowledge the grieving process that women need to experience, and to encourage the women to recognize their needs and allow them to be expressed.

Furthermore, the causes of depression need to include the possible effects of tamoxifen on some of the women. For those who are experiencing severe depression, it is imperative that the social worker provide a list of resources that will enable the woman to seek out the support needed such as clinical inpatient or outpatient treatment for depression. It is also the social worker’s responsibility to discuss with treating physicians the role that depression plays in patient care.

This research study has raised many questions about the relationship between tamoxifen and depressive symptoms in women with breast cancer. There are three issues that need to be addressed in future research: the severe depression experienced by some women where tamoxifen was present, the anxiety reported by a substantial number of women, and the reasons why these women might not have recognized their underlying depression. Is this severe depression that is experienced by some women where tamoxifen was present caused by a biological reaction, past or present psychological factors, or sociological life-stressors? Although anxiety was reported by a large number of women in
this study, there are many unanswered questions about its origin. Is it simply a response to the primary disease, the side effects of the tamoxifen, unresolved grief, or the fear of the ramifications of the disease? To establish the reason why these women did not recognize the underlying depression, it will be necessary to study the structure and attitudes of support groups. Could they be over emphasizing the positive and not allowing time for grief work? Research needs to be conducted to evaluate the treatment team’s belief that the depression is due to menopausal symptoms. Furthermore, are the women suppressing their feelings of depression because of social expectations and therefore do not recognize the symptoms? These are but a few of the questions raised by this study.

Conclusion

The initial diagnosis of breast cancer begins a struggle of the biopsychosocial subsystem that encompasses the life of many women. They are faced with the seemingly insurmountable task of making medical choices, hormonal therapy choices, and the decision of becoming a part of a support group. All of these decisions impinge on their feelings of well being. Their whole lives must now change, as their focus is now on the fact that they have breast cancer.

The primary purpose of this study was to evaluate the depressive symptoms of women who were where tamoxifen was present as an adjuvant therapy. The Beck Depression Inventory and the state portion of the State-Trait Anxiety Inventory were administered. The results indicated that the women where tamoxifen was present scored
highest in depression on the Beck Depression Inventory. The scores obtained from this research indicate that women who scored zero on the BDI may not be aware that they are experiencing depression, due to the fact BDI scores of zero do not always reflect absence of depression. Furthermore, the results indicated that the absence of anxiety was equal between those where tamoxifen was present versus those where tamoxifen was absent. Similar to the depressive symptoms identified on the BDI, the study also indicated that the women where tamoxifen was present were more anxious than the women where tamoxifen was absent.

With the advent of the disclosure that tamoxifen may prevent breast cancer in women who are at high risk (National Surgical Adjuvant Breast and Bowel Project Breast Cancer Prevention Trial), it is particularly important to continue to study the drug’s adverse side effects.
The relationship between women with breast cancer and the biopsychosocial system.
### Table 1

**Answers to the Question, “Why Did You Quit Taking Tamoxifen?”**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Three months of hot flashes - raging, very hormonal</td>
</tr>
<tr>
<td>2</td>
<td>Could not tolerate - extreme hot flashes/rash</td>
</tr>
<tr>
<td>3</td>
<td>Only took for 7 years</td>
</tr>
<tr>
<td>4</td>
<td>Side effects - eyes, liver, extreme hot flashes</td>
</tr>
<tr>
<td>5</td>
<td>Developed a blood clot</td>
</tr>
<tr>
<td>6</td>
<td>After two weeks of taking tamoxifen I became very dizzy. The kind of dizziness that</td>
</tr>
<tr>
<td></td>
<td>comes on real fast, I stopped taking it.</td>
</tr>
<tr>
<td>7</td>
<td>Hot flashes, slight depression</td>
</tr>
<tr>
<td>8</td>
<td>Hot flashes and interrupted sleep</td>
</tr>
<tr>
<td>9</td>
<td>It’s been over 5 years</td>
</tr>
<tr>
<td>10</td>
<td>Doctor prescribed new medicine Fareston</td>
</tr>
<tr>
<td>11</td>
<td>Doctor changed to Fareston</td>
</tr>
<tr>
<td>12</td>
<td>Super hot flashes</td>
</tr>
<tr>
<td>13</td>
<td>Stopped taking it after 5 years, no side effects</td>
</tr>
</tbody>
</table>

*(table continues)*
14) Side effects
15) Recurrence
16) Severe headache as awakening-feeling ill
17) Because it made me very depressed and I was in cold sweat
18) Hair loss, hot flashes, severe depression
19) Menopausal symptoms, depression, and panic
20) Five years and quit
21) Took it for 5 years
22) Canada is a 3 year term
23) Took it for 5 years
24) I was on it for a year in 1982-at that time they only kept you on it for a year
25) Took for approximately 7 years and had hot, hot flashes
26) Took 2 years- had weight gain, leg cramps, and depression
27) Took 6 months- had menopause reactions
28) I was depressed and got a rash
29) Took for 7 years and had a recurrence
30) I was more depressed while taking tamoxifen
Table 2

Mean Depression and Anxiety Scores by Presence and Absence of Tamoxifen

<table>
<thead>
<tr>
<th>Scale</th>
<th>Presence</th>
<th>Absence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depression</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>7.5</td>
<td>6.8</td>
</tr>
<tr>
<td>SD</td>
<td>7.3</td>
<td>4.4</td>
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<tr>
<td>n</td>
<td>68</td>
<td>50</td>
</tr>
<tr>
<td>Anxiety*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>M</td>
<td>37.7</td>
<td>33.1</td>
</tr>
<tr>
<td>SD</td>
<td>13.5</td>
<td>10.1</td>
</tr>
<tr>
<td>n</td>
<td>71</td>
<td>52</td>
</tr>
</tbody>
</table>

*p < .05
Table 3

Beck Depression Inventory Scores by Presence and Absence of Tamoxifen

<table>
<thead>
<tr>
<th>Beck Score</th>
<th>Presence (n)</th>
<th>Absence (n)</th>
</tr>
</thead>
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<tr>
<td>2</td>
<td>6</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td>4</td>
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<tr>
<td>4</td>
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<td>3</td>
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<td>6</td>
<td>6</td>
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<tr>
<td>7</td>
<td>3</td>
<td>3</td>
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<th>Absence (n)</th>
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<td>5</td>
<td>6</td>
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</tr>
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<td>15</td>
<td>2</td>
<td>0</td>
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<td>1</td>
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<td>2</td>
</tr>
<tr>
<td>25</td>
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<td>26</td>
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<tr>
<td>28</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>31</td>
<td>1</td>
<td>0</td>
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Table 4

State-Trait Anxiety Inventory (State Portion) by Presence of Tamoxifen and Absence of Tamoxifen

<table>
<thead>
<tr>
<th>Anxiety Scores</th>
<th>Presence (n)</th>
<th>Absence (n)</th>
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<td>20</td>
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<td>5</td>
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<td>2</td>
<td>1</td>
</tr>
<tr>
<td>22</td>
<td>2</td>
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<td>3</td>
<td>1</td>
</tr>
<tr>
<td>29</td>
<td>3</td>
<td>3</td>
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<th>Absence (n)</th>
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<tr>
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<tr>
<td>39</td>
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<td>4</td>
</tr>
<tr>
<td>44</td>
<td>2</td>
<td>0</td>
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</tbody>
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<tr>
<th>Anxiety Scores</th>
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<th>Absence (n)</th>
</tr>
</thead>
<tbody>
<tr>
<td>45</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td>46</td>
<td>1</td>
<td>0</td>
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<tr>
<td>47</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>48</td>
<td>2</td>
<td>0</td>
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<tr>
<td>49</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>50</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>51</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>52</td>
<td>3</td>
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<tr>
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<td>54</td>
<td>1</td>
<td>0</td>
</tr>
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<td>56</td>
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<tr>
<td>60</td>
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<td>64</td>
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<tr>
<td>68</td>
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</tr>
<tr>
<td>73</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
APPENDIX

IRB Approval Letter ............................................. 38
Informed Consent Letters ....................................... 39
Cover Letter ....................................................... 41
Study Instrument .................................................. 42
To: Mark G. Haviland, PhD  
Department: Psychiatry  
Protocol: The relationship between tamoxifen and depressive symptoms in women with breast cancer  
Date: October 30, 1997

Your application for the research protocol indicated above was reviewed administratively on behalf of the IRB. This protocol is determined to be exempt from IRB approval as outlined in federal regulations for protection of human subjects, 45 CFR Part 46.101(b)(2).

Please note the PI's name and the OSR number assigned to this IRB protocol (as indicated above) on any future communications with the IRB. Direct all communications to the IRB c/o the Office of Sponsored Research.

Although this protocol is exempt from further IRB review as submitted, it is understood that all research conducted under the auspices of Loma Linda University will be guided by the highest standards of ethical conduct.

Signature of IRB Chair/Vice Chair: [Signature]  
Date: 11/5/97

The Institutional Review Board holds MPA No. M-1295 with the U.S. Office for Protection from Research Risks for these affiliated institutions: Loma Linda University, Loma Linda University Medical Center, Loma Linda University Children's Hospital, Loma Linda University Faculty Medical Group, Loma Linda University Community Medical Center, Loma Linda University Behavioral Medicine Center.

Administrative Contact: Ian M. Fraser, PhD, Vice President Academic and Research Affairs (909) 824-4542

IRB Chair: G. William Saukel, M.D. Department of Pathology (909) 824-4794

Executive Secretary: Linda G. Halstead, M.A., Assoc. Director Office of Sponsored Research (909) 824-4531, email lhalstead@ccmail.llu.edu
State-Trait Anxiety Inventory
for Adults

Self-Evaluation Questionnaire
STAI Form Y-1 and Form Y-2

Permission for:
Terry Marie Lynn
to print 600 copies
from date of purchase:
December 11, 1997

Developed by Charles D. Spielberger
in collaboration with R.L. Gorsuch, R. Lushene, P.R. Vagg, and G.A. Jacobs

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November 21, 1997

Via Fax 909-478-4450
(Original to be mailed)

Ms. Terry M. Lynn
Department of Social Work
Greggs Hall, Room 138
Loma Linda University
Loma Linda, CA 92350

Dear Ms. Lynn:

Thank you for your letter regarding your use of the Beck Depression Inventory in your thesis research concerning breast cancer and tamoxifen.

As a responsible test publisher, we believe it is our duty to protect the security and integrity of our test instruments. Therefore, we cannot allow copies of the test to be included with or stapled in your dissertation. However, two actual test items from the BDI may be included. If you use two items, please be sure the full copyright notice appears with the items along with the words “Reproduced by permission of the publisher, The Psychological Corporation.”

Also, all testing must be conducted in your presence or that of another qualified individual so that all test materials remain secure.

We will gladly grant permission for the use of this test instrument if the above restrictions will be followed. Please indicate your agreement to these terms by signing and returning this letter for our files. When you have returned the signed letter, we will mail you 600 copies of the test instrument at no cost. You may fax the signed letter to Legal Affairs at 210-299-2755, but ask that you follow up with the signed original through the mail.

Also, please forward a copy of your final thesis for our library.

Thank you for your interest in our test materials. If you have further questions or needs, please contact us. Good luck with your research.

Sincerely,

Linda Murphy
Rights & Permissions Specialist
Legal Affairs

AGREED:

Terry Marie Lynn

A Subsidiary of Harcourt Brace & Company
Dear Facilitator:

Thank you for helping me with my research. Please tell the participants to not fill in their name and other demographic information on the second and third questionnaires. I only need to know the background information, and have all questions answered. Please include women who have never been on Tamoxifen.

The purpose of this study is to research three questions: (1) Are women with breast cancer who are taking tamoxifen more depressed than women who are not taking tamoxifen, (2) Among patients taking tamoxifen, are depressive symptoms more severe in those who have a history of depression prior to having breast cancer, and (3) Among women who are not taking tamoxifen, how many discontinued this therapy because of depression?

I would like to thank each participant for taking the time to answer these instruments. I am a breast cancer survivor. I had bilateral surgery six years ago, and have had reconstruction. I also facilitate a Breast Cancer Support Group.

If you have any questions please feel free to call me at home at 909-760-6593 or work at 909-824-4315.

Thank you for your time and cooperation.

Sincerely,

Terry M. Lynn, MSW Candidate
Department of Social Work
Graduate School
Loma Linda University
### Background Information

1. Your age is _____ years?

2. When were you first diagnosed with breast cancer? ____________

3. Did you have a mastectomy?  
   - Yes  
   - No

4. Did you have a lumpectomy?  
   - Yes  
   - No

5. Did you have reconstruction?  
   - Yes  
   - No

6. Did you have chemotherapy?  
   - Yes  
   - No

7. Did you have radiation therapy?  
   - Yes  
   - No

8. Did you have stem cell/bone marrow transplantation?  
   - Yes  
   - No

9. a. Were you taking estrogen?  
   - Yes  
   - No

   b. Did you go off the estrogen?  
   - Yes  
   - No

10. a. Did you take tamoxifen?  
    - Yes  
    - No

   b. Are you still taking tamoxifen?  
    - Yes  
    - No

   c. If no, please explain why not. Please be specific if side effects were involved. ________________________________

11. a. Have you had a history of depression prior to a diagnoses of breast cancer?  
    - Yes  
    - No

   b. Are you presently being treated for depression?  
    - Yes  
    - No

   c. If yes, are you on medication for depression?  
    - Yes  
    - No

   d. If yes, are you in therapy?  
    - Yes  
    - No
References


