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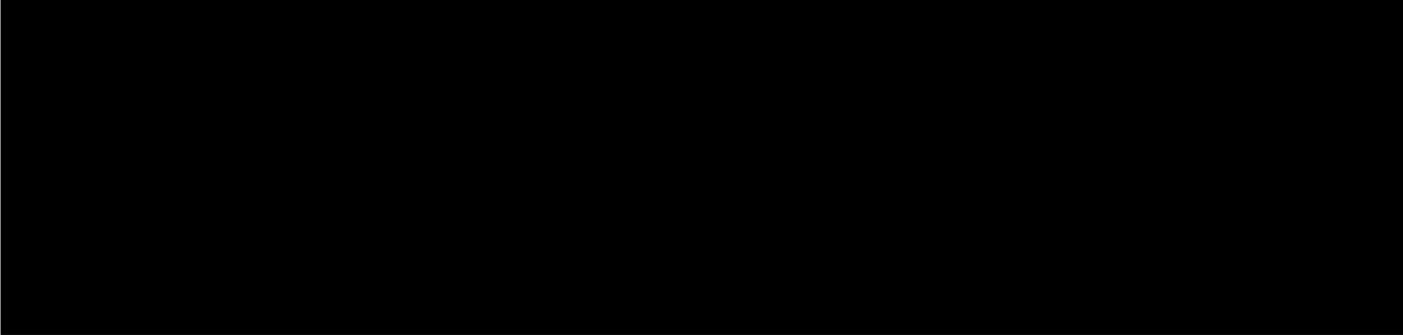
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CHANGES IN MOOD STATES OF WOMEN WITH BREAST CANCER
COMPARED TO WOMEN WITH OTHER TYPES OF CANCER
RECEIVING CHEMOTHERAPY

by
Patricia T. Gillespie

THESIS
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Patricia Gillespie

Abstract

CHANGES IN MOOD STATES OF WOMEN WITH BREAST CANCER COMPARED TO WOMEN WITH OTHER TYPES OF CANCER RECEIVING CHEMOTHERAPY

The purposes of this study were to determine; 1) if the affective mood states of women with breast cancer changed over 4 consecutive cycles of chemotherapy; 2) if the affective states of women with cancers other than breast changed over 4 consecutive cycles of chemotherapy ; 3) if the affective states of women with breast cancer differed from women with cancers other than breast.

Eight-seven women participated in this study, 54 had breast cancer and the remaining 33 had a variety of cancer diagnoses. All participants were outpatients receiving chemotherapy for the first time. Affective mood states were measured by the Profile of Mood States instrument (POMS).

Significant results were found in the POMS subsets of confusion, tension and vigor in the breast cancer group with confusion and tension being the greatest at Time I and levels of vigor the lowest at Time III. In contrast, confusion scores were the greatest at Time IV in the other cancers group. Comparisons of the affective mood states of both groups demonstrated different patterns of confusion and tension with scores being the highest at Time I in the breast cancer group and decreasing over time. These scores increased over time in the other cancers group and were significantly higher at Time IV. Fatigue levels at Time I were significantly different with higher levels reported in the other cancer group correlating with their lower Karnofsky Performance Status (KPS).

The results of this study indicate the need for nurses to plan interventions for women undergoing chemotherapy for breast cancer that will help decrease confusion and tension at the initiation of therapy and to help patients plan for the loss of vigor during chemotherapy. Nurses also need to anticipate increased confusion and tension over time in women with cancers other than breast. The results would also indicate that the non-breast cancer group may be a more fragile population (i.e. higher fatigue and lower KPS) and nurses would need to plan care accordingly.

Future studies are needed to examine affective states in larger populations of women with cancers other than breast and to test interventions to decrease confusion and tension in women undergoing chemotherapy.

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CHAPTER I

THE STUDY PROBLEM

Introduction to the problem and subproblems

Changes in patient's affective mood states have been studied in terms of their impact on emotional coping, quality of life, and the patient's ability to perform self-care (Dodd, 1984; Dodd, 1988). Affective mood states have been measured in patients with psychological disturbances, heart disease, and cancer (Cassileth, Lusk, & Brown et al. 1984). However, little data exists about the effect of specific cancers diagnoses (particularly breast cancer) on affect or the impact of chemotherapy treatment on the affective mood states of women with cancer.

Previous studies employed single data collection points rather than a repeated measures design. Therefore temporal changes in affective mood states, associated with an illness or treatment, are largely unknown.

Cancer statistics for 1992 predict that 565,000 women in the United States will be diagnosed with cancer and that breast cancer will comprise 32% of this total

(Boring, Squires & Tong, 1992). Chemotherapy, despite

its known toxicities and unpleasant side-effects, remains a valuable treatment option for many of these women. Knowledge of the temporal changes in affective mood states in women with cancer who are receiving chemotherapy may assist nurses in planning care for these patients.

Statement of the problem

Information on the impact of different cancer diagnoses on the affective mood states of women with cancer is not available. In addition, changes in affective mood states over time in women with cancer have not been studied in great detail.

Purposes of this study

The purposes of this study were: 1) to determine if the affective mood states of women with breast cancer change over 4 consecutive cycles of chemotherapy; 2) to determine if the affective mood states of women with cancers other than breast, change over 4 consecutive cycles of chemotherapy; and 3) to determine if the affective mood states of women with breast cancer differ from women with cancers other than breast.

Significance

Cancer is the second leading cause of death in women in the United States. It is projected that 245,000 women in this country, will die from a cancer related condition in 1992. Breast cancer is the most frequently diagnosed cancer in women with an expected 180,000 newly diagnosed cases and an estimated 6,000 deaths attributed to this disease in 1992 (Boring, Squires & Tong, 1992).

Improved diagnostic tools such as mammography have led to earlier detection of breast lesions. Earlier diagnosis coupled with more aggressive treatment of breast cancer with surgery, radiation, and chemotherapy offer women an improved prognosis and a better chance for disease-free survival (Henderson, 1990). Cancer, particularly breast cancer is recognized as a chronic disease process. Women will have to live with their cancer diagnosis and its emotional impact for varying spans of times. Careful psychosocial assessment of patients is often impossible due to limited health care resources and the limited amount of time available to health care providers to spend with individual patients. Therefore, it becomes difficult to identify those individuals at greater risk for ineffectively managing or coping with their disease and treatment complications (Dodd, Lindsey, Larson, Musci, Dibble, Hudes, Hauck &

Kato, 1990).

Initial assessment and ongoing monitoring of affect or mood may be useful in identifying those individuals with prolonged heightened mood disturbance as pervasiveness of mood disturbance or heightened emotional distress is a requisite diagnostic feature of a major mood disorder (Little & Pennman, 1989).

It is estimated that approximately 25% of all cancer patients suffer from major mood disorders and would benefit from treatment to lessen emotional distress (i.e., psychotherapy and anti-depressants (Spiegel, 1986)). It is an ethical responsibility of health care professionals to attempt to recognize and treat patients with serious mood disturbances in an attempt to prevent or alleviate severe depressive syndromes and decrease the potential for suicide (Clayton, 1983).

Early recognition of affective state disturbances may facilitate identification of these "at risk" individuals. Prompt initiation of social service referrals, psychological counseling, or psychiatric treatment may help to decrease diagnosis and treatment related morbidities (Irving, Brown, Crooks, Roberts & Brown, 1990).

Cancer places significant psychological and

physical challenges and stress upon patients as well as their families. The disease and its treatment can have a major impact on the emotional and physical well-being of the patient (Dodd et al. 1990). Breast cancer and its subsequent treatment can be psychologically devastating for women. Society has so idealized the female breast that many women form their self-identity and feminine role from these cultural perceptions. Breasts of the "perfect woman" are seen as sexual, erotic, and alluring. The loss of a breast can threaten a woman's self-image and lead to a decline in her sense of feminine identity and body satisfaction (Valanis & Rumpler, 1985). Strong emotional responses are common among women with breast cancer. Valanis et al. (1985) reported that depression, anxiety, insomnia, and passive thoughts of suicide were commonly observed in the majority of women after mastectomy. The changes in body image, feminine identification roles, and heightened emotional states may make women with breast cancer particularly vulnerable to alterations in their affective states and predispose them to difficulties adjusting to a cancer diagnosis and treatment (Cella et al. 1987).

In a study of cancer patients, it was noted that high levels of affective mood disturbance may have been

associated with high levels of emotional distress. The higher the level of mood disturbance, the greater the level of emotional distress and the lower the level of coping effectiveness (Musci, & Dodd, 1990; Weisman & Worden, 1986).

Interventions that positively impact affect or lower emotional distress may improve the coping response. Dodd (1984) examined the relationship between mood states and the ability of the individual to perform self-care as a strategy for coping. Self-care is the behavior individuals initiate themselves or with assistance to maintain or correct a situation (Musci & Dodd, 1990). Vigor and depression, measured by the Profile of Mood States (POMS), were the mood states that most influenced an individual's management of treatment related side effects. Vigorous patients performed more self-care activities than those with higher fatigue and higher depression scores (Dodd, 1988). Early identification and treatment of emotional distress and mood alteration may act to positively alter treatment associated morbidity and increase patient comfort and compliance (Spiegel, 1990).

Assumptions

1. A diagnosis of cancer will affect an

individual's affective mood state.

2. Cancer treatment will affect an individual's affective mood state.

Definition of terms

Affective or Mood States Affective mood states are defined as psychological reactions persisting over days, months or years and were measured using the Profile of Mood States (POMS) (McNair, Lorr & Droppleman 1971; Gottschalk, 1984). The POMS measures 6 moods namely: 1. tension-anxiety, defined as "a state of heightened musculoskeletal tension;" 2. depression-dejection," a sense of personal inadequacy or worthiness;" 3. anger-hostility," a mood of anger and antipathy towards others;" 4. vigor-activity, "a mood of vigorousness, ebullience and high energy;" 5. fatigue-inertia "a mood of weariness, inertia and low energy;" and 6. confusion-anxiety "characterized by bewilderment and muddleheadedness." These mood states represent the 6 subscales of the POMS (McNair et al. 1971).

Breast Cancer. A pathological condition of the tissues and or structures of the breast, in which the normal mechanisms of cell division, proliferation, and function are disturbed.

Other types of Cancers. Pathological conditions of organs of the body, including cancers of the colon, lung, bladder, ovaries, stomach, kidneys, Hodgkin's and non-Hodgkin's lymphoma, and osteosarcoma, in which the normal mechanisms of cell division, proliferation and function are disturbed.

Four consecutive cycles of chemotherapy A time interval of not less than 21 days or greater than 42 days where the patient received chemotherapy. Time I in this study refers to the patient's initial treatment (cycle) with chemotherapy. Time II is the second chemotherapy treatment (cycle), Times III and IV are the occasions of the third and fourth chemotherapy treatments (cycles).

CHAPTER II

REVIEW OF THE LITERATURE

Conceptual Framework

This study was based on the theory of stress, appraisal and coping developed by Lazarus and Folkman (1984). Coping is described as a transaction between an individual and his or her environment. The actions or intrapsychic processes that occur in an individual under stress depend on the nature of the threat, frustration, challenge, or the potential for gratification. (Lazarus, Averill & Opton, 1974).

Successful coping, or effectively managing harmful stimuli is dependent on the process of appraisal. Lazarus and Folkman (1984) define three types of appraisal. Primary appraisal is the individual's initial evaluation of a situation as a perceived threat to his well-being. An individual through primary appraisal, determines that a situation is: irrelevant (i.e. not impacting the person's well); benign-positive (i.e. a positive outcome is expected); or stressful (the stressor or situation is perceived as harmful,

threatening, or challenging to the individual). In secondary appraisal the person judges the adequacy of his coping strategies. The primary and secondary appraisal processes merge and reappraisal occurs with a change in the original perception of the situation from benign to threatening or vice versa.

This study's theoretical model (Figure 1) is based on Lazarus and Folkman's model (Figure 2) of stress, coping, and adaptation. Both models initially depict affective mood states as "person factors or variables." Person factors also include commitments, beliefs, and previous experience with stressful events. Person factors together with environmental variables are causal antecedents to the mediating processes of appraisal and coping. Person factors, including affective mood states will influence the patient's appraisal of the chemotherapy/cancer experience as irrelevant, benign-positive, or stressful.

The appraisal process helps determine whether the coping style is either problem-focused or emotion-focused. Affective mood states marked by heightened levels of anxiety, depression, and hostility predispose the person to an emotion-focused coping style. The higher the level of emotional distress the greater the tendency to use emotion-focused coping rather than

problem-focused coping (Lazarus & Folkman, 1984).

Emotion-focused coping is more likely to occur when an appraisal that "nothing can be done" to modify harmful or challenging environmental conditions has been made. Emotion-focused coping is an emotion-regulating process that may be manifested through such strategies as avoidance, minimization, and distancing to lessen emotional distress. While emotion-focused coping may help maintain optimism and hope, it may also lead to an interpretation of "self-deception or reality distortion and impede an individual's ability to make rational judgments about his or her health care needs" (Lazarus & Folkman, 1984, p. 150-152).

Problem-focused coping is directed at "managing or altering the situation or event" that is causing the distress. Problem-focused coping utilizes problem oriented strategies to change or modify the stressful situation (Lazarus & Folkman, 1984). Problem-focused coping is more likely to occur when there is less affective state disturbance. Problem-focused coping is conducive to treatment adherence and management of treatment morbidities through self-care activities (Dodd, 1988).

In this study, affective mood states were measured at four different time points by the POMS instrument.

At Time 1, affect was identified as a "person variable" or "causal antecedent." At Times 2, 3, and 4 the patient's affective state was identified as an "immediate effect" of the mediating processes of appraisal, secondary appraisal, and reappraisal of the chemotherapy experience (as seen in Figure 1). A change in affect from "causal antecedent" to "immediate effect" illustrates the transactional quality of this conceptual model. " The person and the environment are in a dynamic, mutually reciprocal, and bidirectional relationship. The consequence at Time 1 can become an antecedent at Time 2 " (Lazarus & Folkman, 1984, p. 293).

In conclusion, affective mood states may initially influence an individual's primary appraisal of a stressful situation (i.e., chemotherapy) as either positive, or capable of imposing harm or threat on his/her well-being. The primary appraisal will influence decisions about what actions to take to manage the stress or the situation (i.e., secondary appraisal). The individual's subsequent positive or negative experiences with treatments; side-effects and toxicities of the treatment and/or the disease, as well as the health care system may further impact on his/her affective mood state. The positive or negative effect

of the treatment experience on mood states will influence their reappraisal of the stressful situation and impact future decisions about their health care. The entire appraisal process directs subsequent behavior in a problem-focused or emotion-focused style. Understanding the influence of affective mood states in appraising chemotherapy treatment as a potentially harmful or beneficial experience may help nurses recognize heightened levels of affective mood disturbance that may interfere with the patient's ability to manage his or her care and comply with recommended treatment. Appropriate interventions may help decrease mood disturbance, emotional distress, and treatment related morbidities.

Literature Review

The research on affective mood states and cancer focuses on the relationship between affective mood state and coping and self-care ability; the impact of a cancer diagnosis on affective mood; as well as, the impact of affective mood state on the length and quality of survival (Cassileth et al. 1984; Cassileth Lusk, Brow, & Cross, 1986; Derogatis, Abeloff, & Melisaratos, 1979; Dodd, 1984; Dodd, Lindsey, & Larson, et al. 1986-1990; McCorkle & Benoliel, 1983; McCorkle, Benoliel, Donaldson, & Goodell, 1986; Weisman & Worden,

1975) . Affective mood states have been examined at specific times in the illness trajectory (i.e., time of diagnosis, at the time of recurrence, and over specific time intervals). The effect of various interventions (i.e., home care programs or self-care techniques) on affective mood states and coping responses have also been studied (Cassileth, et al., 1984, 1986,; Dodd, et al.1990; McCorke, et al. 1986; Weisman & Worden, 1975, 1986). Observations have been made on the effect of treatment modalities on affective mood states (Dodd, 1984, 1990). The measurement of changes in affective mood states has also been identified as an important tool in screening for serious depression in cancer patients that may benefit from treatment (Bukberg, Penman & Holland, 1984; Cella, 1987; Derogatis, 1983; Endicott, 1983, Holland, 1976, Little & Penman, 1989; Spiegel, 1986).

This review of literature will summarize the studies describing the relationship between affective mood states and depression; the impact of affective mood states on survival, and the relationship between affective mood states and coping and self-care behaviors. The impact of the diagnosis on affective mood states and changes in affective mood states during the illness trajectory will also be reviewed.

Affective Mood States and Depression

The need to separate "normal" grief reactions of patients experiencing a cancer diagnosis from symptoms of serious depression led researchers to evaluate affective mood state changes as reliable indicators of depression (Holland, 1976; Spiegel, 1986). An affective mood state disturbance that persists for over a period of one to two weeks is noted in the Diagnostic and Statistical Manual for Mental Disorders (DSM III) as criteria for diagnosing a major depressive episode. (Endicott, 1983). The pervasiveness of a depressed affective mood is also predictive of eventual response to an antidepressant (Little & Penman 1989). Accordingly, the prompt recognition of changes in affective mood states has been helpful in diagnosing depression in cancer patients and may help facilitate treatment (Cella, 1987; Little, & Penman, 1989; Speigal, 1986). The reported incidence of depression in the cancer population varies from 20% to 58% (Derogatis, 1983). This wide range may be attributed to health professionals difficulty in recognizing clinical depression in cancer patients (Derogatis, 1983; Holland, 1976; Spiegel, 1986).

The lack of recognition of depression in the cancer patient population prompted a study to determine

the prevalence of depression in 62 hospitalized cancer patients (Bukberg, Penman & Holland, 1984). Affect was evaluated using Beck's Depression Inventory, and the Hamilton Rating Scale, as well as by psychiatric interview for the presence of a sustained lowered mood for two weeks or longer. Mood state descriptions included feelings of helplessness, hopelessness, and worthlessness. Forty-two percent of the sample met the criteria for non-bipolar major depression, and 24% of the sample were diagnosed with severe depression. Limitations of the study (Bukberg, 1984), that make interpretation of the generalizability of the findings difficult included lack of data on the sample's specific cancer diagnoses, stage of the disease, or position in the illness trajectory, such as newly diagnosed, recurrent, palliative or dying.

Affective Mood States and Survival

The relationship between affective states and length of survival has also been investigated (Derogatis, et al. 1979). A study of 35 women, receiving outpatient chemotherapy for metastatic breast cancer was conducted to determine the relationship between psychological factors and length of survival (Derogatis, et al. 1979). Affect was evaluated by a self-report instrument that included an evaluation of anxiety, depression,

guilt, and hostility. Long-term survivors (n=22; defined as living longer than 1 year after diagnosis of metastasis) demonstrated significantly higher levels of anxiety, hostility, depression, and guilt than did short-term survivors (n=13; those who died in less than 1 year from discovery of metastasis). The authors hypothesized that the long-term survivors were more capable of communicating distress. However, they acknowledged that more research was needed on the impact of affective mood and psychological characteristics on an individual's length of survival. The small sample size and the focus on only women with metastatic breast cancer limits the generalizability of these findings.

Weisman and Worden (1975) studied the influence of affective state and other psychosocial traits on the survival of 46 preterminal and terminal cancer patients with six different types of cancer. In contrast to the results found by Deragotis et al. (1979), they found greater levels of depression, despondency, and alienation in short term survivors (<1 year) and longer survival in patients who were not "deeply depressed" (Weisman & Worden, 1975, p.73). Both studies (Weisman & Worden, 1975; Drogatis et al. 1979), found that the more assertive or communicative patients had longer survival.

Coping and Self-Care

As a part of a larger study examining the effect of several educational interventions on patient's knowledge and self-care abilities, Dodd (1984) evaluated the effect of these interventions on affective state. In this quasi-experimental study, 48 adult patients receiving chemotherapy, were recruited from either an outpatient clinic or through the Visiting Nurse Association (VNA) and were randomly assigned to 1 of 4 groups (including a control group). Patients were interviewed twice, once before the initiation of chemotherapy and then once following subsequent cycles of chemotherapy. The period between interviews ranged from 4 to 9 weeks.

Affective mood was identified as a dependent variable that could be influence the independent variables of chemotherapy knowledge and self-care behaviors. Affective mood was measured by the original version of the POMS (McNair, et al. 1971).

Although the groups that were given educational information demonstrated more chemotherapy knowledge and self-care behaviors, the educational intervention was not associated with a statistically significant improvement in the POMS scores. The author suggested that failure to demonstrate an association might be explained by low baseline scores for all patients at the

first interview (total mood disturbance score mean= 37.5 pre-intervention, mean= 32.7 post intervention).

One limitation of this study was the heterogeneity of the sample. In addition, where people were in the illness trajectory (i.e. newly diagnosed, recurrent or chronic) or if they had had previous chemotherapy treatment or other treatments for their cancer were not described. . Specific cancer diagnoses were not reported. Also, a constant time interval between interviews was not required. Interviews occurred at variable times between 4 to 9 weeks, which could confound the interpretation of changes in affect over time. However, this was one of the first studies that recognized the importance of the role of the nurse as an educator in providing information on chemotherapy agents and side-effect management to positively influence patients coping.

A large prospective study (Dodd, et al., 1986-1990) examined coping in 96 cancer patients and their families. Affective mood states were identified as independent variables useful in predicting the patients and/or families coping strategies (dependent variable). This descriptive study utilized a longitudinal survey technique that followed patients over a 6 month period and examined affective mood states

in both the patient and an identified family member. The influence of affective states on the patient's coping strategies and self-care behavior over time was evaluated. In addition, differences in affective state between women with breast cancer and patients with cancers other than breast were evaluated. Affective state was assessed by the POMS (McNair et al.1971).

Patients (n=100) with selected types of cancer diagnoses, recruited from seven outpatient settings, participated in the study. The mean age of the participants was 48.5 years. Seventy-three percent had no prior therapy but 34% of the population had recurrent disease. Seventy-five percent (n=73) were Caucasian and most of the participants were female (n=69).

Qualitative and quantitative data were gathered at five data points, the first interview was within three weeks of initiation of the current course of chemotherapy and the remaining four interviews were at monthly intervals. The POMS was utilized at each interview. Total Mood Disturbance was greatest at Time 3 (37.536, n=78) and diminished at Time 5 (27.9, n=68) to levels lower than baseline scores collected at Time 1 (33.657, n=93). The number of patients completing the study dropped from 100 to 70. Those individuals with marked morbidity or mortality did not complete the

study. The authors suggested that the loss of the more debilitated subjects could have significantly changed the study results as Total Mood Disturbance scores may have been higher in a more debilitated population (Dodd, et al. 1990; Cella, Orofiamma, Holland et al. 1987)

The POMS scores of the breast cancer group were compared to the POMS scores of participants of all other diagnostic categories grouped together. The POMS scores for the two groups were not statistically significantly different (Dodd, et al.1990).

In the same study, significant differences in affective state were seen in the recurrent cancer group compared to the initial diagnosis group. Statistically significant differences in TMD, anger, tension, and vigor, were noted at Time 1. The initial diagnosis group had higher TMD scores as well as higher scores in the subsets of anger and tension. The recurrent cancer group had statistically significantly higher scores in the subset "vigor/activity" (vigor scores were negatively weighed, i.e. higher scores indicated less vigor).

	TMD	ANGER	TENSION	VIGOR
New diag. (n=57)	40.17*	10.45*	13.14*	14.79
Recur.Dx (n=31)	22.28	6.03	10.02	17.84*

*p.<0.05

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Although significant differences in mood scores of patients with breast cancer compared to other cancers was not demonstrated, the data suggest that the "newly diagnosed" period rather than the "time of recurrence" may be the time of greater mood disturbance (Dodd, et al. 1990).

One study limitation is that the loss of the more debilitated participants over the six month period may have affected the overall scores on affective mood states since sicker people may have higher levels of mood disturbance (Dodd et al. 1990). In addition, there were varying amounts of time between the initial patient contact and the first interview and mood disturbance may decrease over time as the patient has the opportunity to assimilate the threat of the illness or crisis (McCorkle & Benoliel, 1983). The comparison of the breast cancer group with the other cancers may have revealed significant differences if comparisons had been made against groups with a common diagnosis (breast cancer vs. lung or colon). A "blunting" of differences may have occurred when all the other cancers were grouped together for comparisons.

In a study examining the effect of home care services on the psychosocial responses of lung cancer patients (McCorkle, Benoliel, Donaldson, & Goodell,

1986), affective mood state was evaluated as an indicator of coping response. A study assumption was that a specialized oncology home care program would positively impact affect and coping.

Patients (n=166), recruited from radiation therapy facilities, were randomly assigned to either an oncology home care group, a standard home care group, or an office group with no home care services. Mood states were evaluated on five occasions over a 6 month period of time using a modified version of the POMS. The highest TMD scores (mean 37.59 n=84) for all the participants were reported at Interview 4, approximately 4 months into the study. The lowest overall TMD scores (mean 35.43, n=70) were measured at Interview 5. Other investigators (Dodd et al. 1990) identified the "three month period" after the initiation of treatment, as the point of greatest mood disturbance. An awareness of this "three month period" as a potentially emotionally turbulent time for patients may help nurses plan interventions to prepare their patients for this difficult period.

No statistically significant differences in affect were found between the 3 treatment groups at any time (McCorkle et al. 1986).

One limitation of the study was a loss of subjects

over time. From the initial 166 recruited patients, only 144 (87%) were interviewed at Time 1 and only 70 (i.e., 42% of the original number of subjects) were interviewed at Time 5. Attrition was explained by deterioration in physical condition, fatigue, or client reluctance to participate in further interviews, as well as the death of some subjects.

The Relationship between Diagnosis and Affective Mood States

McCorkle and Benoliel (1983) examined the effect of a chronic disease on affect by contrasting newly diagnosed lung cancer patients with patients newly diagnosed with myocardial infarctions. The study explored the impact of these two life-threatening diseases on affect and measured changes in affective mood states over time. The original version of the POMS (McNair, 1971) was used for the two interviews at one and two months after diagnosis.

Results indicated that TMD was greater in the lung cancer population ($n=56$; $\text{score}=32.20$) than in the myocardial infarction patients ($n=65$; $\text{score}=17.80$). TMD decreased over time in both groups with the cancer patients reporting a TMD score of 22.18 and the heart patients, a TMD of 14.05, at the second interview. The data suggest that with time, patients may perceive that

their disease is not as life-threatening as first feared. The authors suggest that lung cancer patients fear that their plight or future is much more dismal than do patients who have suffered heart attacks. A limitation of the study was that it examined only a two month period of time from diagnosis. Although both disease states are recognized as chronic illnesses, the short period of observation may not capture ongoing changes in affective mood states of those living with a chronic disease.

The impact of chronic illness on affect was studied in a sample of 758 patients with six different chronic illnesses including arthritis, depression, diabetes, cancer, renal disease, and dermatologic disorders (Cassileth, Lusk, Strouse, Miller, Brown, Cross, & Tenaglia, 1984). The authors hypothesized that the psychological status of chronically ill patients would not differ based on a specific diagnosis. Patients were recruited from outpatient clinics and had been under treatment for a minimum of 2 months. The time from diagnosis ranged from less than 3 months to more than 24 months.

Psychological status was evaluated by the Mental Health Index which includes the subsets of anxiety and depression as well as a "general positive affect"

subset. No statistically significant differences were found among the patients with the six different chronic illnesses with the exception of patients under treatment for depression. Depressed patients had greater anxiety, depression, and lower positive affect than the patients suffering from any of the other physical illnesses.

Newly diagnosed patients had poorer mental health scores than those living with their illness for more than 3 months, a finding similar to Dodd et al.(1990).

Limitations of the study included the single data collection point and that all the cancer patients were placed in one category, and not separated by type of cancer. Differences in affect by cancer diagnosis and changes in affect over time or throughout the illness trajectory were not examined.

A 1986 study (Cassileth, Lusk, Brow, & Cross, 1986) was conducted to develop a normal baseline data set of POMS scores of cancer patients. A sample of 374 cancer outpatients with similar demographic and clinical characteristics, who had been diagnosed for at least two months, and had not been hospitalized within the last two weeks were contacted by the researchers.

Demographic data were gathered from each patient and the POMS was administered on a one time basis. Sixty-nine percent of the subjects were women and 118 of the

subjects had breast cancer (32%); while 52 women (14%) had gynecologic cancer accounting for a combined total of 45% of the study's participants. The diagnostic categories of the remaining women (24%) were not reported. The highest TMD scores were found in the palliative cancer group (33.9, $p=.001$) and the bedridden group (61.9, $p=.0001$). The breast cancer group had a mean TMD score of 20.0 ($n=118$) which was 4.7 points higher than the group with gynecologic cancers ($n= 52$).

One limitation of this study is the "one time only" measurement of mood states. A benefit of affective mood state measurement is the ability to compare a patient POMS scores with his previous scores to determine changes in mood states over time. Another limitation is that although results were reported by diagnosis (e.g. lung cancer, breast cancer) and by performance status (e.g. ambulatory, bedridden) the POMS scores for specific diagnostic groups were not correlated with performance status (i.e. the POMS score for a bedridden patient with lung cancer was not reported). This type of correlation could provide valuable information for predicting mood disturbances with specific cancers throughout the illness trajectory. However, POMS scores for many different cancer diagnoses

were reported and provided useful information for practitioners seeking normative data on mood states in cancer patients.

Affective Changes During the Illness Trajectory

Various time points in the illness trajectory of cancer patients have been studied to identify the period of greatest crisis and affective change. Weisman and Worden (1976) studied 120 adults with cancers of the breast, colon, lung, Hodgkins disease, or malignant melanoma. Affective states were measured by the POMS. The first interview was conducted within 10 days after receiving the initial cancer diagnosis, with followup interviews every 4 to 6 weeks for an unspecified amount of time.

Thirty-seven women with breast cancer participated in the study and were reported to "peak" in mood disturbance and vulnerability two months into treatment (i.e. the time when most women were starting chemotherapy or radiation after mastectomy). Mood disturbance had decreased by the third interview to levels lower than those recorded at Interview 1. This finding contrasted with lung cancer patients (n=23) who, from the time of diagnosis had the highest mood disturbance of all the subjects and affective disturbance continued to rise throughout the study

period (Weisman & Worden, 1976).

The first 100 days from diagnosis were identified as the period of greatest crisis for the cancer patient, with fear of death being the chief concern.

Unfortunately, POMS scores were not reported making comparisons of findings with other studies of cancer patients difficult. However, this work (Weisman & Worden, 1976) was significant for its contribution in measuring mood changes in relationship to psychological distress in patients with specific diagnoses, and in evaluating changes in affect and distress over time.

Affect was measured in a study of 102 patients with their first recurrence of cancer (Weisman & Worden, 1986). The authors hypothesized that mood states disturbance scores of patients with recurrent cancer, would be higher when compared to patients at the time of initial cancer diagnosis. Affective mood states were measured by the POMS (McNair et al. 1971). The data refuted the hypothesis because levels of mood disturbance were found to be similar in both populations.

Thirty percent of the study participants commented that the recurrence was less stressful than the initial diagnosis. The highest levels of distress in the recurrence population were measured in patients that had

experienced disease-free intervals of greater than 1 year and in those patients who had considered themselves cured from the disease. The data did not reveal any significant relationship between the type of cancer and the level of mood disturbance.

Weisman and Wordens' study (1986) utilized a single-data collection point design. The patients' affective mood states were not measured at the time of initial diagnosis but were evaluated by retrospective self-report even though as many as 15 years may have elapsed since the time of diagnosis. The authors acknowledged that the retrospective analysis was a limitation of the study (Weisman & Worden, 1986).

Summary

Studies examining the relationship between affective mood states and different aspects of the cancer experience have been described in this literature review. A comparison of POMS scores reported in these studies is provided in Table I. With the exception of research on psychological coping in women with metastatic breast cancer (Derogatis, et al. 1979), there is a limited amount of data examining changes in affective mood states in women with cancer and no information comparing affective mood states of women

with breast cancer to women with cancers other than breast. This study will seek to determine if the affective states of women with breast cancer differ from women with cancers other than breast and if the affective states of women with cancer change over 4 consecutive cycles of chemotherapy. Findings from this research will increase the body of literature on affective mood states in women with cancer and may help direct the practice of nurses caring for women with cancer.

CHAPTER III

METHODOLOGY

Research Design

The data to answer the study questions were obtained from a larger study entitled "Self-Care Intervention to Decrease Chemotherapy Morbidity," (Dodd, Lovejoy, Larson, et al. 1992). The larger experimental, longitudinal study was designed to determine if the nursing intervention "Pro-Self" would impact the self-care behaviors of cancer patients receiving chemotherapy.

This study on the affective states of women with cancer is a Level II descriptive comparative study.

Research Setting

A total of 18 different outpatient chemotherapy clinics and private medical oncologist offices throughout California participated in the study. Interviews were conducted by Oncology Clinical Nurse Specialists (CNS) or Research Assistants (RA).

Sample

The study was approved by the Human Subjects Committee of the University of California, San Francisco. Written informed consent was obtained from each participant.

The participants were referred by physicians and nurses from the participating study centers. The participants were women over the age of 18, who could read and speak English. Women were receiving outpatient chemotherapy and had no previous history of chemotherapy treatment for their malignancy. The chemotherapeutic agents administered were methotrexate, cis-platinum, doxorubicin, 5 fluorouracil, and cyclophosphamide, as single agents or in combination.

Exclusion criteria included: patients with a diagnosis of AIDS or leukemia; and those with Karnofsky scores of less than 60%, defined as "requires partial assistance but is able to care for most of own needs"; or an expected survival of less than 4 months (Grieco & Long, 1984 p.130; Dodd, 1988). Patients could not be receiving concurrent radiation therapy.

Eighty-seven women participated in the study, 54 of these women had breast cancer and the remaining 33 had a variety of cancer diagnoses including colon, lung, ovarian, and lymphoma. (Tables 2 & 3 provide specific information on diagnoses and other demographic

information).

Methods of Data Collection

Eligible participants met with a CNS at each of the referral settings. The study was explained to the participants and they were given the opportunity to ask questions. Written informed consent was obtained from eligible participants.

The Demographics Questionnaire (Appendix A) was completed by each participant at the first interview. The Profile of Mood States instrument (POMS, Appendix B) was administered to the participant by the CNS, on entrance into the study and before the initiation of the first course of chemotherapy. The POMS was again administered to each participant on subsequent chemotherapy cycles every every three to four weeks for a total of four consecutive cycles of treatment. Participants were asked to answer the POMS questions with the response that best described their mood over the previous week. The rationale being that a one week period was a sufficient length of time to demonstrate a typical and persistent mood reaction to current life stressors and a short enough period of time to determine the influence of specific events (i.e. a chemotherapy experience) (Dodd, 1988).

Instruments

The Demographics Questionnaire (Appendix A) is a 12 item self-report questionnaire for gathering demographic information on the variables of age, educational level, financial status, and marital status.

The Profile of Mood States (Appendix B)

a. Description

The shortened version of the POMS is an adjective checklist consisting of 37 items rated on a 5-point Likert scale ranging from 0-"no feeling" to 4-"extreme feelings" related to each state. The POMS is a self-report instrument and takes approximately 5 minutes to complete (Schacham, 1983).

The original POMS, developed by McNair, Lorr, & Droppleman (1971), consists of 65 items rated on a Likert scale and takes approximately 20 minutes to complete. The questionnaire measures six mood states including: 1) tension-anxiety, 2) depression-dejection, 3) anger-hostility, 4) vigor-activity, 5) fatigue-inertia, and 6) confusion-bewilderment. A total mood disturbance score (TMD) can be calculated by adding the scores of all six factors, with vigor being negatively weighed.

Schacham (1983) developed the shortened version

of the POMS to decrease the time required to complete the questionnaire. The shortened version of the POMS was constructed from the original version using a reliability program to insure internal consistency and construct validity of each subscale to the original POMS (Schacham, 1983).

Although originally developed for use with psychiatric populations, the POMS has been used in many cancer research studies (Cella et al. 1987; Dodd, 1984; McCorkle & Benoliel, 1983; Musci & Dodd, 1990).

b. Validity and Reliability

Reliability of the original instrument (POMS) was established by McNair and Droppleman (1971) and ranged from .65 for vigor, .66 for fatigue, .68 for confusion, to .70 for tension, .71 for anger to .74 for depression.

Concurrent validity was established by comparing the POMS with other instruments such as the Hopkins Symptoms Distress Scale. Internal consistency reliabilities range from .87 to .95 (McNair, Lorr, & Droppleman 1971). The POMS was tested on college students with internal consistency factors yielding a Cronbach's alpha of .9 or above (McNair et al. 1971)

Validity and reliability of the shortened version of the POMS was established by Schacham (1983) with a correlation coefficient of 0.95 between the original

POMS and the shortened version (comparisons and correlations for each subset of these two versions of the POMS are reported in Table IV).

The POMS alpha reliability for this study, was obtained by utilizing CRUNCH Statistical Program Software. Alpha reliabilities ranged from .85 for confusion, .89 for vigor, .91 for depression, .92 for anger, .93 for tension, and .93 for fatigue.

c. Scoring_

Summed scores were obtained for each of the six mood states (i.e. subscales) previously described as well as a TMD score with vigor being weighed negatively.

Statistical Analysis

Data were analyzed utilizing an IBM PC and the statistical analysis program CRUNCH.

A one-way repeated measures analysis of variance (ANOVA) was done to determine if there were differences over the 4 consecutive cycles of chemotherapy, in TMD scores and each POMS subscale scores for the breast cancer group as well as for the group with other types of cancer.

Post-hoc contrasts, using the Scheffe's test were done to compare the differences in TMD scores and subscales scores over the four data collection points.

A two-way repeated measures ANOVA was done to

determine if the affective states of women with breast cancer differed from women with other types of cancer over 4 consecutive cycles of chemotherapy.

Because of the loss of subjects over time and the difference in sample size between the breast cancer group and the other cancers group, independent t-tests were performed at each time point to compare the TMD scores and each of the POMS subscale scores between the breast cancer group and the other cancers group.

CHAPTER IV

RESULTS

Sample Demographics

Demographic variables describing and contrasting the breast cancer group and the group with cancers other than breast, plus performance status scores and information on time from diagnosis are provided in Table 3. The ages for the entire sample ($n=87$) ranged from 22 years to 82 years with of mean of 49.9 years. Sixty-nine percent of the population were over 40 and 79% of the study population was Caucasian.

A statistically significant difference ($t=4.20$, $p<0.05$) in Karnofsky Performance Scores (obtained at Time 1) was observed with the breast cancer group having higher performance scores (mean 87, $n=53$) than the women with cancers other than breast (mean 75, $n=32$). KPS scores were again significantly different at Time 4 ($t=3.04$, $p<0.05$) with the breast cancer group having higher performance scores (mean 84, $n=39$) than the other cancers group (mean 75, $n=13$).

Findings

Study Purpose #1: Do the affective states of women with breast cancer change over 4 consecutive cycles of

chemotherapy?

Total Mood Disturbance and POMS subscale scores, for breast cancer patients for the four time periods are listed in Table 5.

No statistically significant differences in TMD scores over the four time periods were demonstrated ($F(3,87)=2.14$, $p=0.10$), using one-way ANOVA (Figure 3).

Tension, confusion, and vigor scores (Figures 4, 5 and 6 respectively) were statistically significantly different over the 4 time periods using one-way ANOVA ($F(3,90)=10.73$, $F(3,93)=5.90$, and $F(3,90)=3.83$, respectively; all $p<0.05$). Post-hoc contrasts demonstrated that the tension levels at Time 1 were significantly higher than at Times 2, 3, and 4. Post-hoc contrasts again demonstrated that confusion levels at Time 1 were significantly higher than at Times 2 and 3. Post-hoc contrasts identified Time 3 as the time point where participants had the greatest loss of vigor.

No significant differences over time in subscale scores for anger, fatigue, or depression were demonstrated (Figures 7,8 and 9 respectively).

Study Purpose #2

Do the affective states of women with cancers other than breast change over 4 consecutive cycles of

chemotherapy?

Total Mood Disturbance and POMS subscale scores for women with cancers other than breast, for the four time periods are listed in Table 6.

No statistically significant differences in TMD scores over the four time periods were demonstrated ($F(3,27)=0.98$, $p>0.05$), using one-way ANOVA (Figure 3). Confusion scores were statistically significantly different ($F(3,27)=3.570$, $p=0.047$) over the 4 time periods. Post-hoc contrasts demonstrated that the confusion scores at Time 4 were significantly higher than those at Time 3 (Figure 5).

No significant differences over time in subscale scores for anger, tension, fatigue, vigor or depression were demonstrated, using one-way ANOVA (Figures 4, 6, 7, and 9).

Study Purpose #3. Do the affective states of women with breast cancer differ from women with cancers other than breast?

a. Two-Way, repeated measures ANOVA results

Comparisons of the TMD scores and POMS subscale scores for women with breast cancer and women with other cancers are listed in Table 7.

When the TMD scores for the breast cancer group were compared with the other cancers group, using a

two-way, repeated measures ANOVA, no significant group effect ($F(3,114)=1.80$, time effect ($F(3,114)=1.97$, or group x time interaction ($F(3,114)=1.24$, all $p>0.05$) were demonstrated. The results indicate that there were no significant differences in TMD scores over time between the women with breast cancer and the women with other types of cancer.

When the confusion scores for the breast cancer group were compared with the other cancer group, using a two-way, repeated measures ANOVA, no significant group effect ($F(1,40)=2.87$, $p>0.05$), or time effect ($F(3,120)=6.43$, $p>.05$) was demonstrated. However, a significant group x time interaction ($F(3,120)=2.97$, $p<.05$) was observed. The significant interaction term indicates that the pattern of confusion scores over time for the breast cancer group is different from the pattern of confusion scores over time for the non-breast cancer group (Figure 5).

Confusion scores at Time 4 were significantly higher in the other cancers group compared to the breast cancer group when analyzed by independent t tests ($t=-2.27$, $p<0.05$; Figure 5 and Table 7).

When the tension scores for the breast cancer group were compared with the other cancers group using a two-way, repeated measures ANOVA, no significant group

effect ($F(1,39)=1.05, p>.05$) was demonstrated. However, a significant time effect ($F(3,117)=10.17, p<0.05$) and a significant group x time interaction ($F(3,117)=2.89, p<0.05$) were demonstrated. The significant interaction term indicates that the pattern of tension scores over time for the breast cancer group is different from the pattern of tension scores over time for the other cancers group (Figure 4).

Independent t tests demonstrated that tension levels were significantly higher at Time 4 in the other cancers groups when compared to the breast cancer group ($t= 2.25, p<0.05$) as tension had markedly decreased in the breast cancer group over the four occasions but had increased in the other cancers group (Figure 4 and Table 7).

No significant group, time, or group x time interactions, were demonstrated for the subscales scores of anger, depression, fatigue, or vigor, using a two-factor, repeated measures ANOVA. However, independent t tests demonstrated that fatigue levels were significantly higher at Time 1 in the other cancers group when compared to the breast cancer group ($t=-2.5, p<0.05$). The highest levels of fatigue for both groups, were observed at Time 4 (Figure 8).

Summary of Findings

Study Purpose # 1. Do the affective states of women with breast cancer change over 4 consecutive cycles of chemotherapy?

While the TMD scores did not change over time in the breast cancer population subscale differences were observed. Tension and confusion were highest at the onset of treatment and decreased over time while vigor scores decreased over time (indicating less vigor) and were the lowest at Time 3, approximately 9 to 12 weeks after the initiation of chemotherapy.

Study Purpose # 2 Do the affective states of women with cancers other than breast, change over 4 consecutive cycles of chemotherapy?

The TMD scores did not change over time in the other cancers population. However a difference was observed in the confusion subscale . Confusion scores increased over time and were the highest at Time 4, approximately 12 to 16 weeks after the beginning of chemotherapy.

Study Purpose # 3. Do the affective states of women with breast cancer differ from women with cancers other than breast?

While there were no significant differences in TMD

scores between the breast cancer group and the group with other cancers, subscale differences between the two groups were observed . The women with cancers other than breast had greater levels of fatigue at the onset of treatment than the breast cancer group and had higher levels of confusion and tension, 12 to 16 weeks into the study (Time 4) than the breast cancer group.

CHAPTER V

DISCUSSION OF DATA

Significance

The purposes of this study were: 1) to determine if the affective mood states of women with breast cancer changed over 4 consecutive cycles of chemotherapy; 2) to determine if the affective mood states of women with cancers other than breast, changed over 4 consecutive cycles of chemotherapy; and 3) to determine if the affective mood states of women with breast cancer differed from women with cancers other than breast.

The results indicate that TMD scores did not change significantly in either the breast cancer group or the other cancers group over the four consecutive cycles of chemotherapy (Figure 3).

Total Mood Disturbance scores for both study groups were somewhat lower than the TMD scores reported in Schacham (1983) study of cancer patients in pain. The higher TMD scores in the patients with pain may relate to the negative impact of pain on mood. Both of these studies utilized the shortened version of the POMS and comparison scores for all subsets are given in Table

8. Differences over time were demonstrated, when the POMS subscale scores were evaluated. Differences in confusion, tension, fatigue, and vigor scores were observed between these two groups of women. In both groups, confusion and tension scores changed over time. However, the patterns of change was not identical. In the breast cancer group, confusion and tension levels were highest at the initiation of chemotherapy and decreased over time. While in the other cancers group, confusion levels gradually decreased between Time 1 and 2, but rose sharply during the interval between Time 3 and 4. Tension scores followed a similar pattern in the other cancers group (Figures 4 and 5).

Vigor scores changed significantly in the breast cancer group, with women experiencing the greatest loss of vigor at Time 3 (Figure 6). Fatigue scores at the initiation of chemotherapy, were significantly higher in the other cancers group than in the breast cancer group. However, fatigue scores gradually increased over time in both groups (Figure 8). The higher level of fatigue in the other cancers group at Time 1 may be explained by the lower performance status (KPS) in these women. Fatigue gradually increased in both groups over time. Vigor scores were higher in the breast cancer group at Time 1 than in the other cancers group. However, vigor

scores decreased over time as fatigue levels increased over time in the breast cancer group, suggesting a reciprocal relationship between the subscales of vigor and fatigue. Curiously, vigor levels remained fairly constant over time in the other cancers group although levels of fatigue gradually increased.

The decrease in vigor over time, in the breast cancer group may relate to treatment-induced exhaustion. However, if this were a treatment effect the same effect might have been expected in the other cancers group. The study results might be explained by the differences in KPS between the two groups. The loss of vigor and energy might have been more acutely experienced by the "healthier" breast cancer group with the fairly rapid loss of vigor and energy induced by chemotherapy. In contrast, the other cancers group had poorer KPS scores at the onset of treatment and participants may have adjusted their life styles to compensate for the illness induced loss of vigor before treatment. Therefore, women in the other cancers group may not have subjectively experienced as acute a change in vigor over a short period of time as experienced by the breast cancer group. However, the changes in vigor and fatigue over time are consistent with previous reports (McCorkle, et al. 1986; Dodd, et al. 1990).

The patterns for confusion and tension were significantly different for the women with breast cancer compared to the women with other types of cancer.

As illustrated in Figure 5, women with breast cancer had the highest confusion scores at Time 1 and confusion scores decreased over time. In contrast, women with other types of cancer had higher confusion scores across all time periods compared to women with breast cancer. In addition, the highest confusion scores for these women were measured at Time 4.

Women with breast cancer had the highest levels of tension at Time 1. Tension levels decreased over time and the lowest scores were recorded at Time 4 (Figure 4). The other cancers group initially had lower tension scores than the breast cancer group. Tension levels gradually decreased over occasions 2 and 3 but then increased. Scores at Time 4 were when the highest tension scores were observed in the other cancer group. Perhaps for breast cancer patients, the initiation of chemotherapy precipitated fear of the unknown; concern about their prognosis, the efficacy of treatment, or worry about side effects of the treatment; or the cancer itself could contribute to higher levels of confusion and tension. Mastery of the experience and the appraisal of treatment as a positive experience with

health associated benefits may explain the decline in levels of tension and confusion for the breast cancer group. The fact that confusion and tension levels were significantly higher in the other cancers group at Time 4 than in the breast cancer group, may be indicative of concern over expected treatment results, and/or deteriorating physical condition. Future studies are needed to expand this study's results.

Although other studies (Bukberg et al. 1984; Cella, 1987; Derogatis, 1983; Holland, 1986) have reported a 25% rate of depression among cancer patients, this study did not replicate previous findings. Although depression scores increased over time and were the highest at Time 4 in the non-breast cancer group the changes were not statistically significant. The depression scores in the breast cancer group were highest at Time 1 then decreased and remained fairly stable over the next three data collection periods (Figure 9). This lack of significance in depression scores may be due to the small sample size (other cancers, n=12; breast cancer, n=31) and/or the need to follow patients for a longer period of time. Depression may be more specific to certain times in the illness trajectory. The initiation of chemotherapy treatment may be perceived as a hopeful time, while

depression may occur in the period of diagnosis or with treatment failure. Future study is needed to explore this question.

Anger scores were not significantly different in either group. Anger scores decreased in the breast cancer group from Time 1 to Time 2 and remained fairly stable through Time 4. Anger scores decreased during the interval between Time 1 and Time 2 and then increased at Times 3 and were the highest at Time 4 in the non-breast cancer group (Figure 7). Anger scores may also fluctuate with certain periods of the illness trajectory and patients may experience a "sense of relief" when their cancer treatment is initiated but have higher levels of anger throughout the period of diagnosis. Future studies are needed to explore anger in cancer patients.

Limitations of this study

One of the limitations of this study was the loss of subjects over time. A larger sample would be more representative of the population at large of women with cancers other than breast (Wilson, 1989). The other cancers group was also very heterogenous in terms of diagnoses and a larger sample size would increase the validity of the results in a heterogenous group (Wilson, 1989). However, it would be fairly difficult to obtain

a sufficient sample of women with a single cancer diagnosis other than breast or lung because these are the most frequently occurring cancers in women (Boring, et al. 1992). Lung cancer, other than small cell, does not respond favorably to chemotherapy therefore few patients are started on antineoplastic drugs (DeVita, 1985) and those women with lung cancer would have been ineligible for study.

The findings from this study are applicable to newly diagnosed populations of women undergoing chemotherapy. Because the breast cancer population is so large and the disease chronic it would be interesting to compare the affective states of women with breast cancer in different stages of the illness trajectory to better understand their emotional needs during these different stages.

Implications for Practice

This study's findings have identified that several affective mood states of women undergoing chemotherapy do change over time. The mood states most affected during the study period were confusion, tension, vigor and fatigue. The data also suggests that newly diagnosed women with breast cancer have a higher performance status (KPS) than women with cancers other than breast. If a nurse is concerned that a female

patient may be experiencing unusual levels of tension, confusion, anger, depression, fatigue, loss of vigor, or total mood disturbance, than she/he could evaluate the patient's affective state utilizing the POMS instrument. It would be important to establish baseline information on each patient using the POMS, and to then compare changes from this baseline on subsequent visits. Recording these changes on graph paper could be particularly helpful in identifying patterns and/or mood swings.

While this study did not demonstrate statistically significant differences in depression scores, other studies have identified the need to evaluate cancer patients for mood disturbances and the pervasiveness of a depressed mood. A mood disturbance can be diagnostic of depression. A number of researchers believe that depression is an underdiagnosed, undertreated, and serious problem in the cancer population (Bukberg, et al. 1984; Little & Penman, 1989). Further studies are needed to determine the extent of depression in an ambulatory oncology population.

Understanding how affective states can change over time and throughout the illness trajectory may provide health care professionals with a way of predicting "mood swings" in their patients and planning interventions to

help patients prepare for these changes. Changes in mood state may be particularly problematic at the time of chemotherapy initiation and approximately 3 months into treatment. This study's results indicated women with breast cancer had high levels of confusion and tension at the onset of therapy. Therefore, these women may benefit, at the onset of treatment from supportive nursing care that would include explanations of the therapy, expected side effects, and emotional support for the patient which could include follow-up phone calls to the patient after the first cycle of chemotherapy to assess the emotional and physical response to the treatment.

This study's results also demonstrated that scores increased in all the subsets of the POMS over the course of therapy, in women with cancers other than breast. This is an understudied population of patients, perhaps due to the heterogeneity of the group in terms of diagnoses. In contrast, many studies have been conducted in the breast cancer population perhaps increasing the health care professional's awareness of the physical and emotional needs of the breast cancer patient. Increased awareness of the potential for adverse changes in affect with planned appropriate interventions can enhance the treatment course for women

with cancer other than breast.

Nurses also need to anticipate higher levels of fatigue and loss of vigor in all women, 9 to 16 weeks into treatment. By foreseeing this response, nurses may be able to help women prepare for this energy loss with suggestions for obtaining more help in the home or with childcare or seeking social services support.

Knowledge of the influence of affective states on the individual's ability to effectively cope with a disease and its treatments "arms" the health care provider with a means of identifying individuals at significant risk for present or future psychosocial distress from the impact of the disease and treatment.

Future Studies

This study has identified the need to examine affective states in women with a single cancer diagnosis other than breast or in a large sample of women with heterogeneous cancer diagnoses. In addition, the study should be replicated with a larger sample of women with breast cancer.

Future studies could include longitudinal research on affective mood states of women with breast cancer and other cancers from the time of diagnosis and continued throughout the illness trajectory. Affective mood states of women with breast cancer could be

compared to the affective states of women suffering from chronic illnesses other than cancer, to gain further understanding of the impact of different chronic diseases on mood. Specific interventions designed to decrease tension and confusion at the initiation of treatment must be developed and tested for effectiveness in alleviating affective mood disturbance as well as interventions to help prepare patients for the loss of vigor and increased fatigue over time.

Cancer statistics predict that in 1992, 565,000 women in the country will be diagnosed with cancer with breast cancer being the most common diagnosis. Many of these women will receive and hopefully benefit from chemotherapy treatment. The chronicity of cancer, particularly breast cancer often warrants treatment for extended periods of time compelling nurses to understand the relationship between affect and disease and treatment related variables, and the impact of this relationship on the patient's life.

References

- Boring, C., Squires, T. & Tong, T. (1992). Cancer Statistics. CA-A Cancer Journal for Clinicians, 42, (1), 19-36.
- Bukberg, J., Penman, D. & Holland, J. (1984). Depression in hospitalized patients. Psychosomatic Medicine, 46, (3), 199-212.
- Cassileth, B., Lusk, E., Strouse, T., Miller, D., Brown, L., Cross, P. & Tenaglia, A. (1984). Psychosocial status in chronic illness. The New England Journal of Medicine,
- Cassileth, B., Lusk, E., Brown, L., Cross, P. (1986). Psychosocial status of cancer patients and next of kin: Normative data from the profile of mood states. Journal of Psychosocial Oncology, 3, (3), 99-105.
- Cella, D., Jacobsen, P., Orav, E., Holland, J., Silberfarb, P., & Rafla, S. (1987). A Brief POMS measure of distress for cancer patients. Journal of Chronic Diseases, 40, 939-924.
- Cella, D., Orofiamma, A., Holland, J., Silberfarb, P., Tross, S., Feldstein, M., Perry, M., Mauer, H., Comis, R. & Orav, J. (1987). The relationship of psychological distress, extent of disease, and performance status in patients with lung cancer. Cancer, 60, 1661-1667.

- Clayton, P. (1983). The prevalence and course of the affective disorders. In J.M. Davis & J.W. Maas (Eds). The Affective Disorders (pp. 193-201). Washington D.C: The American Psychiatric Press.
- Derogatis, L., Abeloff, M. & Melisaratos, N. (1979). Psychological coping mechanisms and survival time in metastatic breast cancer. JAMA, 242, (14), 1504-1508.
- Derogatis, L., Morrow, G., Fetting, J., Penman, D., Piasetsky, S., Schmale, A., Henrichs, M. & Carnicke, C. (1983). The prevalence of psychiatric disorders among cancer patients. JAMA, 249, (6), 751-757.
- Dodd, M. (1984). Measuring informational intervention for chemotherapy knowledge and self-care behavior. Research in Nursing and Health, 7, 43-50.
- Dodd, M. (1988). Self-care intervention to decrease chemotherapy morbidity. Unpublished research proposal. University of California, San Francisco.
- Dodd M., Lindsey, A., Larson, P., Musci, E., Thomas, M., Dibble, S., Hudes, M., Hauck, W. & Kato, F. (1990). Coping and self-care of cancer families, final report. (Grant No. R01 NRO144) San Francisco: University of California, National Institutes of Health.

- Dodd, M., Lovejoy, N., Larson, P., Stetz, K., Lewis, B., Holzemer, B., Hauck, W., Paul, S., Lindsey, A. & Musci, E. (1992). Self-care intervention to decrease chemotherapy morbidity. Unpublished research manuscript. University of California, School of Nursing, San Francisco.
- Endicott, J. (1983). Measurement of depression in patients with cancer. Cancer, 53, (Supplement) 2243-2248.
- Gottschalk, L.A. (1984). Measurement of mood and affect in cancer patients. Cancer, 53 (10, Suppl.), 2236-2241.
- Grieco, A. & Long, C. (1984). Investigation of the karnofsky performance status as a measure of quality of life. Health Psychology, 3, (2), 129-142.
- Henderson, C. (1990). What can a woman do about her risk of dying of breast cancer? Current Problems in Cancer, 14, (4), 163-223.
- Holland, J. (1976). Coping with cancer: a challenge to the behavioral sciences. In J. Cullen, B. Fox, & R. Isom (Eds.), Cancer: The Behavioral Dimensions (pp. 263-268). New York: Raven Press.
- Karnofsky, D. & Bucrchenal, J. (1949). The clincial evaluation of chemotherapeutic agents in cancer. In C.M. MacLeod (Ed.), Evaluation of chemotherapeutic agents New York: Columbia University Press.

- Irvine, D., Brown, B., Crooks, D., Roberts, J. & Brown, G. (1990) Psychosocial adjustment in women with cancer. Cancer, 67, 1097-1117.
- Lazarus, R., Averall, J. & Opton, E. (1974). The psychology of coping: Issues or research and assessment. In G.U. Coelho, D.H. Hamberg, & J.E. Adams (Eds.), Coping and Adaptation. NY: Basic Books, Inc.
- Lazarus, R., & Folkman, S. (1984). Stress Appraisal and Coping. New York: Springer Publishing Co.
- Little, K., & Penman, E. (1989). Measuring subacute mood changes using the profile of mood states and visual analogue scales. Psychopathology, 22, 42-49.
- McNair, D., Lorr, M., & Droppleman, L. (1971), EITS manual for the profile of mood states. San Diego: Educational and Industrial Testing.
- McCorke, R. & Benoliel, J. (1983). Symptom distress, current concerns and mood disturbance after diagnosis of life threatening disease. Social Science Medicine, 17, (7), 431-438..
- McCorke, R., Benoliel, J. Donaldson, G & Goodell, B. (1986). Evaluation of home care for lung cancer patients. (DHHS, Grant #NU 01001) University of Washington, Seattle.

- Musci, E. & Dodd, M. (1990). Predicting self-care with patients and family members' affective states and family functioning. Oncology Nursing Forum, 3, 394-400.
- Shacham, S. (1983). A shortened version of the profile of mood states. Journal of Personality Assessment, 47,(3). 305-306.
- Spiegel, D. (1986). Psychosocial interventions with cancer patients. Journal of Psychosocial Oncology, 3,(4). 83-95.
- Spiegel, D. (1990). Facilitating emotional coping during treatment. Cancer, 66, 1422-1426.
- Valanis, B. & Runpler, D. (1985). Helping women to choose breast cancer treatment alternatives. Cancer Nursing, 8, 167-175.
- Weisman, A. & Worden, J. (1975). Psychosocial analysis of cancer deaths. Omega, 6,(1), 61-76.
- Weisman, A. & Worden, J. (1976). The existential plight in cancer: significance of the first 100 days. International Journal of Psychiatry in Medicine, 7,(1), 1-15.
- Weisman, A. & Worden, J. (1986). The emotional impact of recurrent cancer. Journal of Psychosocial Oncology, 3. (4), (5-16).

APPENDIX A

1. Who currently lives at home with you?

<u>Name</u>	<u>Sex</u>	<u>Age</u>	<u>Relationship</u>
			<u>Self</u>

2. How many children are there in the family? _____

3. What is your current partner status?

Married.....1	Separated.....4
Widowed.....2	Never married.....5
Divorced.....3	Not married but living together.....6

4. What is the highest grade or year you completed in regular school, vocational school, college or graduate professional training? (circle highest grade or year completed and indicate if diploma/degree was obtained.)

No formal school: 0

Grade school/junior high: 1 2 3 4 5 6 7 8

High school/vocational/trade: 9 10 11 12.....Diploma: Yes No

College/specialized training: Degree or
13 14 15 16.....Diploma: Yes No

Graduate professional training:
17 18 19 20 or more....Degree: Yes No

5. Please circle your religious preference at the present time:

a Protestant	d Other (specify) _____
b Catholic	e None
c Jewish	

6. Please circle your current employment status:

- | | | | |
|---|---------------------|---|------------------|
| a | Full time | e | Leave of absence |
| | No change in status | f | Disability |
| b | Full time | g | Not employed |
| | Change in status | h | Retired |
| c | Part time | i | Other |
| | No change in status | | |
| d | Part time | | |
| | change in status | | |

7. Please circle your partner's current employment status:

- | | | | |
|---|---------------------|---|------------------|
| a | Full time | e | Leave of absence |
| | No change in status | f | Disability |
| b | Full time | g | Not employed |
| | Change in status | h | Retired |
| c | Part time | i | Not applicable |
| | No change in status | | |
| d | Part time | | |
| | Change in status | | |

8. If you have been previously or are currently employed, what do/did you do?

9. What type of work did/does your partner do?

10. Circle the number that best describes your ethnic group:

- | | |
|---------------------------------|--|
| Asian or Pacific Islander.....1 | Eurasian.....5 |
| American Indian.....2 | Hispanic.....6 |
| Black.....3 | Family has mixed ethnic background.....7 |
| Caucasian/White.....4 | Other (specify).....8 |

11. Circle the number that best describes your partner's ethnic group:

- | | |
|---------------------------------|--|
| Asian or Pacific Islander.....1 | Eurasian.....5 |
| American Indian.....2 | Hispanic.....6 |
| Black.....3 | Family has mixed ethnic background.....7 |
| Caucasian/White.....4 | Other (specify).....8 |
| Not applicable.....9 | |

12. Please look at the list below and circle the letter next to the amount that comes closest to your family's total income last year.

- | | | | |
|---|---------------------|---|---------------------|
| a | Less than \$10,000 | d | \$50,000 - \$69,999 |
| b | \$10,000 - \$29,999 | e | Over \$70,000 |
| c | \$30,000 - \$49,999 | f | No answer |

APPENDIX B

POMS

INSTRUCTIONS: PLEASE CIRCLE THE NUMBER THAT BEST DESCRIBES HOW YOU HAVE BEEN
FEELING DURING THE PAST WEEK INCLUDING TODAY.

		Not at all	A little	Moderately	Quite a bit	Extremely
1.	Tense	0	1	2	3	4
2.	Angry	0	1	2	3	4
3.	Worn out	0	1	2	3	4
4.	Unhappy	0	1	2	3	4
5.	Lively	0	1	2	3	4
6.	Confused	0	1	2	3	4
7.	Peeved	0	1	2	3	4
8.	Sad	0	1	2	3	4
9.	Active	0	1	2	3	4
10.	On edge	0	1	2	3	4
11.	Grouchy	0	1	2	3	4
12.	Blue	0	1	2	3	4
13.	Energetic	0	1	2	3	4
14.	Hopeless	0	1	2	3	4
15.	Uneasy	0	1	2	3	4
16.	Restless	0	1	2	3	4
17.	Unable to concentrate . . .	0	1	2	3	4
18.	Fatigued	0	1	2	3	4
19.	Annoyed	0	1	2	3	4
20.	Discouraged	0	1	2	3	4

		Not at all	A little	Moderately	Quite a bit	Extremely
21.	Resentful	0	1	2	3	4
22.	Nervous	0	1	2	3	4
23.	Miserable	0	1	2	3	4
24.	Cheerful	0	1	2	3	4
25.	Bitter	0	1	2	3	4
26.	Exhausted	0	1	2	3	4
27.	Anxious	0	1	2	3	4
28.	Helpless	0	1	2	3	4
29.	Weary	0	1	2	3	4
30.	Bewildered	0	1	2	3	4
31.	Furious	0	1	2	3	4
32.	Full of pep	0	1	2	3	4
33.	Worthless	0	1	2	3	4
34.	Forgetful	0	1	2	3	4
35.	Vigorous	0	1	2	3	4
36.	Uncertain about things . . .	0	1	2	3	4
37.	Bushed	0	1	2	3	4

Table 1

Comparisons of the Total Mood Disturbance Scores on the
Profile of Mood States Reported in the Literature Review

Author/Source	Sample Size	Mean
Dodd, 1984		
Time 1	48	37.5
Time 2	48	32.5
Dodd, 1990		
- Time 1	93	33.65
- Time 3	78	37.53
- Time 5	68	27.9
McCorkle, Benoliel 1984		
-Lung Cancer 1st occ.	56	32.20
-MI Patients " "	65	17.80
-Lung Cancer 2nd occ	56	22.18
-MI Patients " "	65	14.05
McCorkle, Benoliel et al. 1986		
-Time 4	84	37.59
-Time 5	70	35.43
Cassileth, 1986		
-Patients with mixed cancer dxs.	375	25.6
-Breast Cancer	118	20.0
-Lung Cancer	24	25.0

P. Gillespie,
May 1992

TABLE 2
SPECIFIC CANCER DIAGNOSES
IN CANCERS OTHER THAN BREAST GROUP
Sample Size 31

DIAGNOSES	FREQUENCY	PERCENT
Ovarian	11	35
Lung	5	16
Lymphoma	3	9
Colon	2	6
Hodgkins	2	6
Bladder	2	6
Other	2	6
Gastric	1	3
Renal	1	3
Osteosarcoma	1	3
Multiple Myeloma	1	3

Table 3

DEMOGRAPHIC VARIABLES BY STUDY GROUP

	BREAST CANCER n= 50	OTHER CANCERS n = 31
Age (years)		
mean	49.35	50.9
SD	11.11	15.5
median	48.5	52.0
Marital Status		
married	68.5%	48.4%
unmarried	31.5%	48.6%
Educ. Level		
years of educ.		
mean	14.5	13.63
SD	3.00	2.85
median	14.0	14.0
Employment status		
full time	22%	15%
disability	15%	18%
unemployed	21%	20%
Ethnicity		
caucasian	75 %	84%
Karnofsky Score on entrance to study	87 (mean)	*75 (mean)
Time since diagnosis to treatment	6.8 months (mean)	10 months (mean)
months	S.D.=18.8 months range .25 to 112 months	S.D.=33.6 months range .25 to 112 months

*= $p < 0.05$

Table 4

COMPARISON BETWEEN THE ORIGINAL POMS SCALES
AND THE SHORT FORM SCALES

Original Scales		Short Form Scales		
	Mean Score	number of items	Mean Score number of items	Correlation between the 2 versions
<u>Subscales:</u>				
Tension-Anxiety	11.97	9	8.64	6 .951
Depression-Dejection	13.65	15	9.52	8 .968
Anger-Hostility	6.60	12	4.56	7 .972
Vigor-Activity	11.12	8	7.50	6 .972
Fatigue-Inertia	7.88	7	8.65	5 .979
Confusion- Bewilderment	7.91	7	4.95	5 .961
Total Mood Disturb.	36.88	58	28.81	37 .990
TOTAL # OF ITEMS	65		37	

Adapted From:
Shacham, S (1983). A shortened version of the profile of mood
states. Journal of Personality Assessment, 47,(3). 305-308.

P. Gillespie, April, 1992

Table 5
CHANGES IN POMS SCORES OVER TIME FOR PATIENT
WITH BREAST CANCER

	Time I	Time II	Time III	Time IV
Tension	*8.43	5.25	4.50	4.30
Confusion	*4.47	2.61	2.56	3.12
Vigor **	9.54	9.86	*7.32	8.27
Anger	3.18	2.58	2.32	2.45
Fatigue	5.84	6.51	7.16	7.61
Depression	5.20	3.28	3.67	4.16
Total Mood Disturbance	18.30	10.49	12.72	13.60

Mean scores based on an n of 31 per occasion

*** Significant at p <0.05 level**

**** Lower scores indicate less vigor, with this study's
application of the POMS.**

Table 6

**CHANGES IN POMS SCORES OVER TIME FOR PATIENTS WITH
CANCER OTHER THAN BREAST**

	Time I	Time II	Time III	Time IV
Tension	7.60	6.30	6.00	8.10
Confusion	4.97	4.80	3.55	*6.50
Vigor**	7.30	7.60	7.70	7.90
Anger	2.70	2.00	2.40	4.40
Fatigue	8.40	8.90	8.40	9.30
Depression	4.90	5.50	5.30	8.10
Total Mood Disturbance	26.83	17.93	16.23	25.33

Mean scores are based on an sample size of 10 per occasion

**Lower Scores indicate less vigor, with this study's
application of the POMS

*Significant at $p < 0.05$ level

Table 7

Comparison of POMS scores between Breast Cancer Group
and Women with Other Cancers Group

	Time 1		Time 2	
	Breast Cancer n=50	Other Cancer n=31	Breast Cancer n=43	Other Cancer n=16
Tension	8.27	8.63	5.67	5.75
Depression	4.81	7.38	3.74	5.25
Anger	3.18	4.23	3.14	3.00
Vigor	10.27	8.78	9.89	9.00
Fatigue	5.27	*8.22	7.18	8.16
Confusion	4.23	4.81	3.50	3.64
Total Mood				
Disturbance	16.06	26.83	20.40	21.00

	Time 3		Time 4	
	Breast Cancer n=38	Other Cancer n=15	Breast Cancer n=36	Other Cancer n=12
Tension	5.15	6.20	4.56	*7.91
Depression	4.31	4.53	4.58	6.83
Anger	2.92	2.06	2.75	3.91
Vigor	7.82	7.40	8.51	8.08
Fatigue	7.47	8.00	7.83	8.69
Confusion	2.97	3.17	3.33	*5.94
Total Mood				
Disturbance	18.71	14.76	14.36	25.33

*significant at $p < 0.05$ level

Table 8

Comparison of POMS Scores obtained in this Study at Time 1 with the scores obtained from Shacham's study of Cancer patients with pain (both studies utilizing the shortened version of the POMS)

	Breast n=50	Cancer	Other Cancers n=31	Schacham's Study n=83
Tension	8.27		8.63	8.64
Depression	4.87		7.38	9.52
Anger	3.18		4.23	4.55
Vigor	10.27		8.78	7.50
Fatigue	5.27		8.22	8.65
Confusion	4.23		4.83	4.95
Total Mood Disturbance	20.25		26.83	28.81

Figure 1. Study Model of Stress, Coping and Adaptation, adapted from Lazarus and Folkman, 1984, with Study variables.

Figure 1

STUDY MODEL OF STRESS, COPING AND ADAPTATION
LAZARUS & FOLKMAN, 1984
WITH STUDY VARIABLES

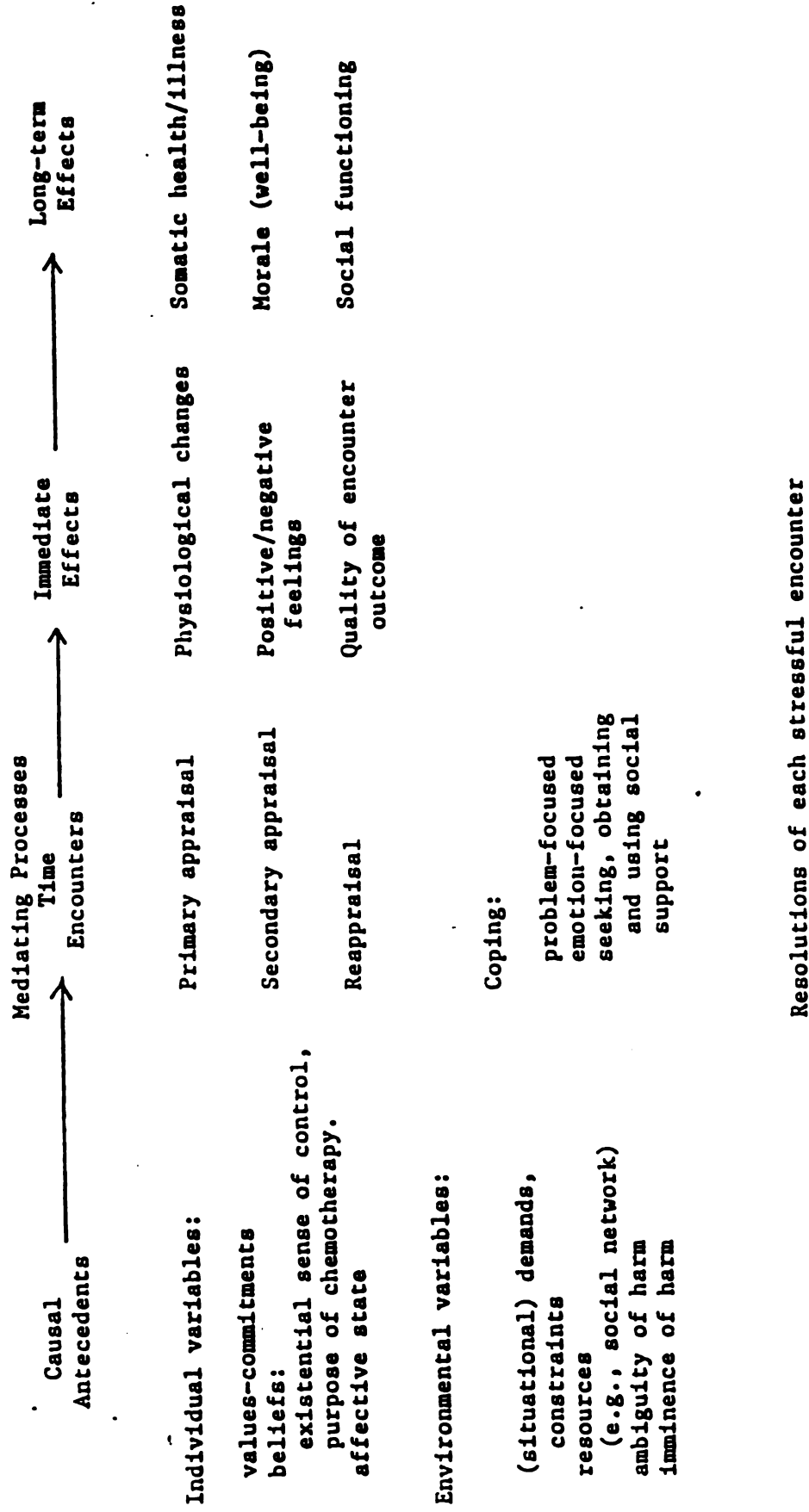
<u>Causal Antecedents</u>	<u>Mediating Processes</u>	<u>Immediate Effects</u>
a) Person variables or factors .Women .Dx of Cancer .Affective State (POMS at Time 1)	Appraisals of: .cancer chemotherapy .concurrent concerns Coping: .problem-focused .emotion-focused	Affective States (POMS at Times 2, 3, and 4)
b) Environmental variables or factors		

P. Gillespie
April, 1992

Figure 2. Conceptual Schematization of Stress, Coping and Adaptation

adapted from: Lazarus R., and Folkman, S. (1984, p.305).

Figure 2
CONCEPTUAL SCHEMATIZATION OF STRESS, COPING, AND ADAPTATION



Adapted from: Lazarus, R. S., & Folkman, S. (1984, p. 305)

Figure 3. Changes in Total Mood Disturbance Scores over time for women with breast cancer and women with other types of cancer.

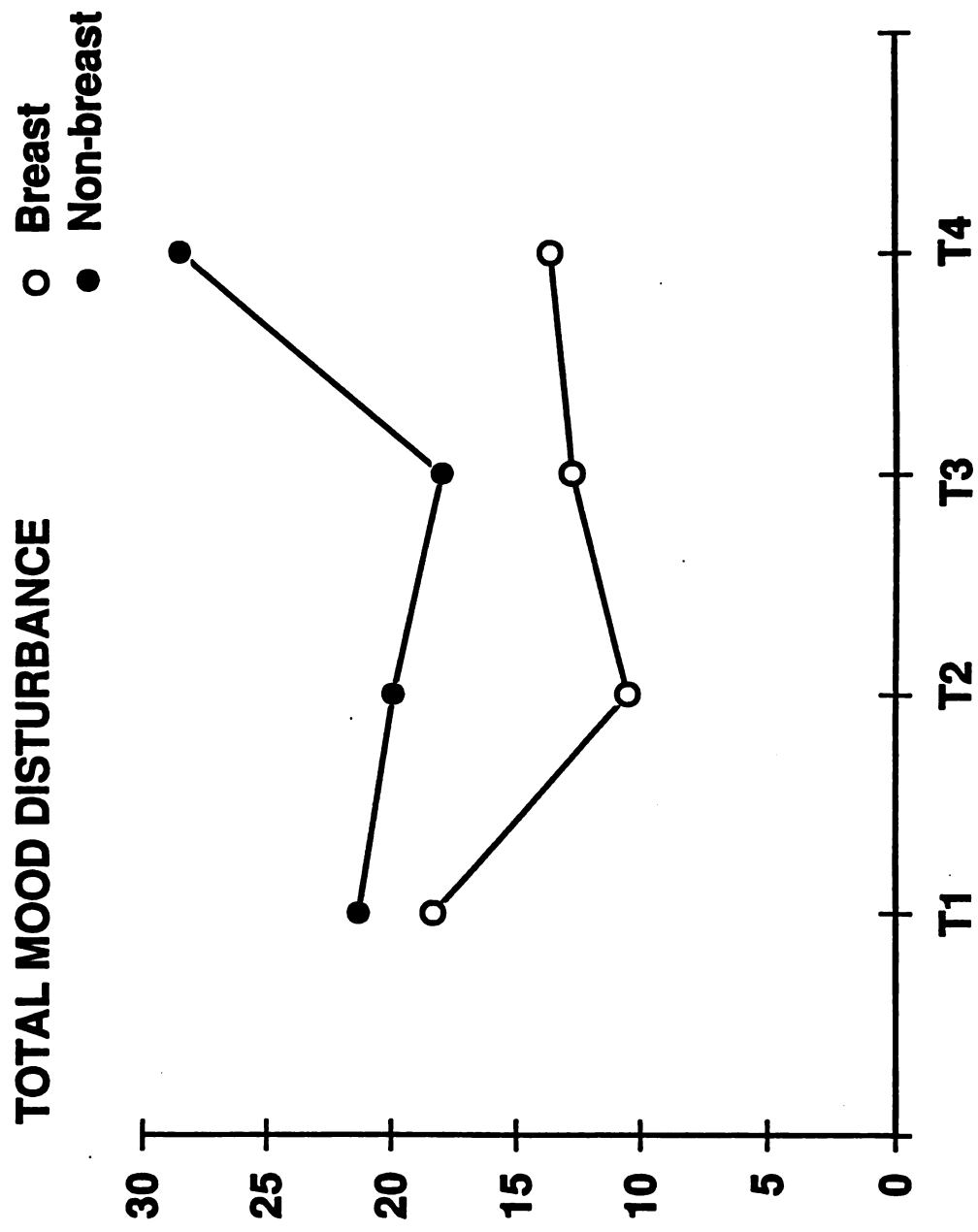


Figure 8. Changes in Fatigue scores over time in women with breast cancer and women with other types of cancer.

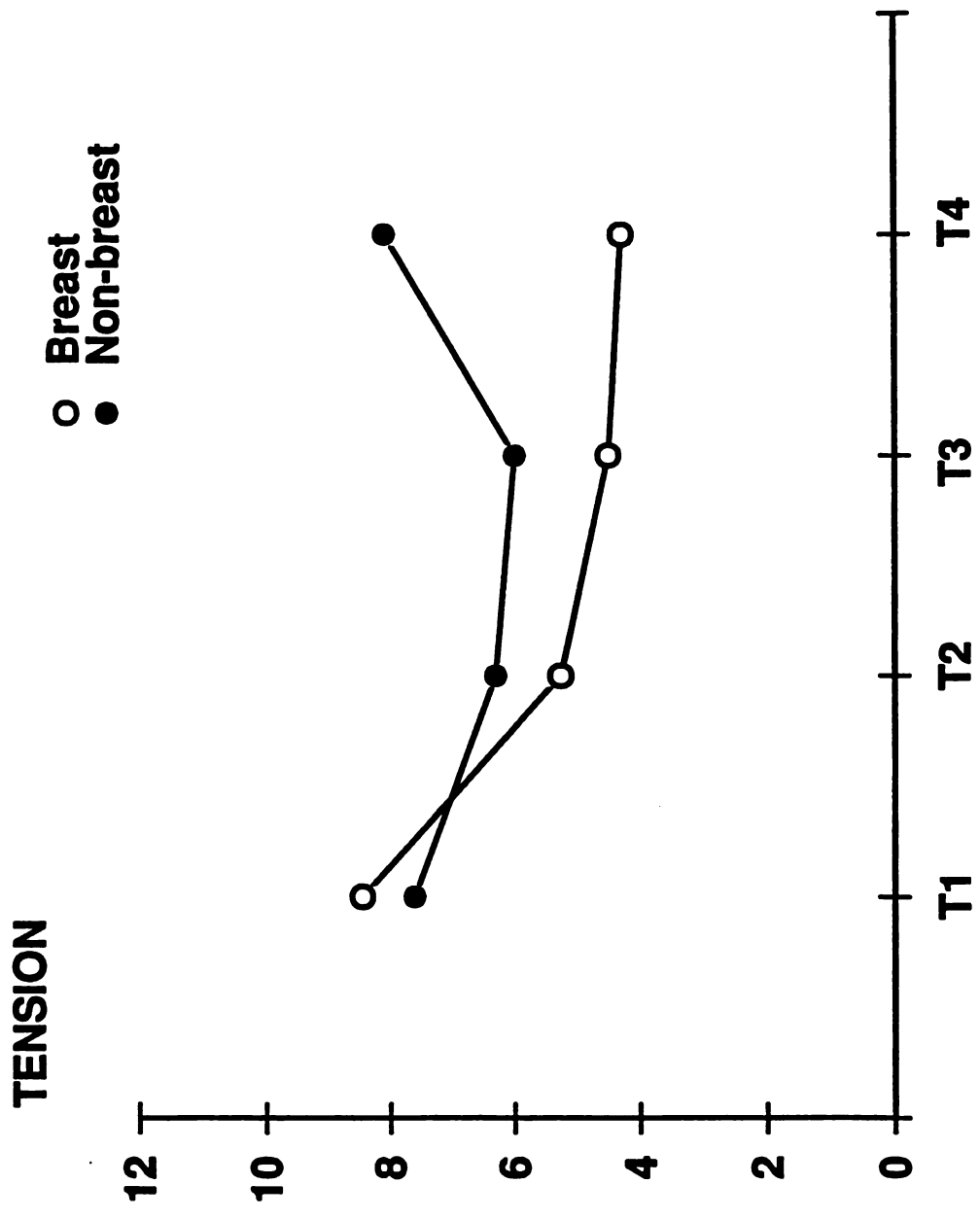


Figure 5. Changes in Confusion scores over time for women with breast cancer and women with other types of cancer.

