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PERCEIVED SOCIAL SUPPORT, COPING, AND PSYCHOLOGICAL DISTRESS IN ADVANCED CANCER PATIENTS

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TABLE OF CONTENTS

APPENDICES

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

THE RESEARCH OBJECTIVE

Introduction

Identifying the variables that affect psychological distress in cancer patients is an essential part of being able to help these patients manage their disease and its treatment. More specially, understanding how perceived social support and coping strategies relate to psychological distress in cancer patients could lead to the design of successful nursing interventions.

Social support is the main environmental resource used by cancer patients trying to adapt emotionally to the disease. The perception of high levels of social support is consistently related to low levels of psychological distress in these patients (Rowland, 1990). Social support is especially beneficial to the cancer patient in the advanced stages of the disease, who has a heightened need for verbal and physical expression of affection (Lieber, Plumb, Gerstenzang, & Holland, 1976). In addition, the emotional component of social support is more helpful in advanced than in early cancer stages (Moos & Tsu, 1977). Despite their increased need for social support, cancer patients at advanced stages experience higher levels of psychological distress (Bukberg, Penman, & Holland, 1984) and perceive less social support than those at earlier stages (Carver et al., 1993; Dodd, Dibble, & Thomas, 1993). These findings suggest that the relationship between perceived social support and psychological distress varies with cancer stage.

The relationship between coping strategies and psychological distress may also vary according to cancer stage. For example, patients with advanced disease use more emotion-focused coping (Gotay, 1984) and report higher levels of psychological distress (Pardue, Fenton, & Rounds, 1989) than those at earlier stages. Moreover, the effectiveness of many coping strategies remains unclear. For instance, denial, wishful thinking, avoidance, and acceptance have been associated with both high and low psychological distress in cancer patients (Carver et al., 1993; Lerman et al., 1990; Mishel & Sorenson, 1991).

These contradictory findings in the relationship between coping strategies and psychological distress could be due to differences in cancer stage among study participants. Research in psycho-oncology often includes, in the same study, subjects at different stages of cancer development and undergoing different treatment modalities. This approach fails to limit the number of stressors under study. Thus, there remains a methodological need to reduce the complexity of the interaction among multidimensional variables (Cella, Jacobsen, & Lesko, 1990; Lazarus, 1993).

In the present study the confounding effects of cancer stage and treatment modality have been controlled by targeting patients at only one phase of the disease, advanced cancer, and under one single modality of treatment, chemotherapy. The disease stage and the treatment modality generate their own specific set of stressors (Jalowiec, 1992). There is some empirical evidence that the unique stressors of having advanced cancer and receiving chemotherapy make the process of coping with the disease, the effect of perceived social support, and the level of psychological distress different from that seen in patients at earlier stages or under other treatment modalities (Cella et al., 1990; Holland, 1990a; Lazarus, 1993; Somerfield & Curbow, 1992). Chemotherapy is also associated with a high degree of psychological distress in cancer patients (Cull, 1990; Devlen, Maguire, Phillips, Crowther, & Chambers, 1987; Maguire et al., 1980). Therefore, selecting only advanced cancer patients undergoing chemotherapy limits the stressors to the subjects, which would be expected to improve the significance of the relationships among the study variables.

The purpose of this study, therefore, has been to clarify the relationships among perceived social support, coping strategies, and psychological distress in advanced cancer patients receiving chemotherapy. The possibility that coping strategies mediate the relationship between perceived social support and psychological distress also was studied.

The Problem

To what extent do perceived social support and coping strategies contribute to explaining psychological distress in advanced cancer patients receiving chemotherapy?

Definitions

Advanced Cancer is the phase of the disease at which no cure is possible; only supportive or palliative treatment can be administered (Holland, 1990a). This category may include patients first diagnosed as well as those in whom the disease progressed because of failing primary treatment. The disease at this phase may be disseminated throughout the body; metastasis may be clinically evident and could limit the daily activities of the patient.

Chemotherapy is the use of drugs to treat cancer (Holland & Lesko, 1990).

Coping Strategies or Coping Mechanisms are "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984a, p. 141). Coping strategies were assessed by the Ways of Coping Inventory - Cancer Version (WOC-CA) developed by Dunkel-Schetter, Feinstein, Taylor, and Falke (1992), which is congruent with the Lazarus and Folkman definition of the construct. The following five coping strategy subscales are included in the WOC-CA (Dunkel-Schetter, personal communication, June 30, 1995):

1. Seeking and Using Social Support (SS) is the effort to establish interactions with people who could provide informational, tangible, or emotional support and their actual use.
2. Behavioral Escape--voidance (BA) is the physical effort to prevent confronting with the stressor or to flee it through delayed or risky behavior.
3. Cognitive Escape--voidance (CA) is the mental effort to prevent confronting with the stressor or to flee it through fantasy or dreamlike thinking. This mechanism also includes wishful thinking (Lazarus, 1993).
4. Distancing (DIS) is the effort to deal objectively with the stressor by minimizing its significance, also referred to as detachment or disengagement.

5. Focusing on the Positive (FOP) is the effort to approach the stressor with a constructive attitude, also referred to as positive thinking or positive reappraisal.

Perceived Social Support (PSS) is an individual's awareness of those aspects of the environment, especially of the interpersonal relationships, that offer the following resources: attachment, social integration, opportunity for nurturance, reassurance of self-worth as a person and in role accomplishments, and assistance and guidance provided as informational, emotional, or material help (Weinert & Brandt, 1987). The Personal Resource Questionnaire -1985- Part 2 (PRQ-85) (Brandt & Weinert, 1981; Weinert & Brandt, 1987) was used to measure perceived social support as an environmental resource.

Psychological Distress is a subjective negative affect attached to a particular experience or the degree of unpleasantness or upset reported (Guadagnoli & Mor, 1989). The degree of psychological distress was measured by the Total Mood Disturbance Score of the Profile of Mood States (POMS) (McNair, Lorr, & Droppleman, 1992).

Delimitations

This study was limited to adult patients receiving chemotherapy for advanced cancer. All participants were 18 years of age or older. Because cancer threatens or disrupts age-specific developmental life tasks in the young (Holland, 1990a), only adult patients were included in the study. Subjects had to be able to read English, so written questionnaires could be answered. The criteria for patient selection also included a Karnofsky performance score over fifty, as measured by the Karnofsky activity acale (Karnofsky & Burchenal, 1949). Patients with a Karnofsky score over 50 are able to care for themselves, require only occasional assistance, and may therefore be able to complete the questionnaires. Medical oncologists evaluated the potential participant's Karnofsky performance before referral.

Participants had advanced cancer. The study focused on this patient population because this phase of the disease is related to high levels of psychological distress (Cella et al., 1990; Lazarus, 1993; Somerfield & Curbow, 1992). Participants had to be receiving chemotherapy treatment with palliative intent. Eligible subjects had no concurrent surgery, radiotherapy, or hormonal therapy, thus eliminating from the study the stressors and the various levels of psychological distress associated with different treatment modalities (Holland, 1990a).

Study Rationale

The Lazarus and Folkman model of Stress and Coping (LFSC) (Lazarus & Folkman, 1984a) provided the framework for the study (Figure 1, Appendix A). The LFSC model identifies two processes, cognitive appraisal and coping, as critical mediators between the stressors and adaptational outcomes that people experience. In this model, stressor is "a particular relationship between the person and the environment that is appraised by the person as taxing or exceeding his or her resources and endangering his or her well-being" (Lazarus & Folkman, 1984a, p. 19).

Cognitive appraisal is an evaluative process, focused on meaning and significance, that people use to determine why and to what extent a particular transaction is stressful. It involves a primary appraisal and a secondary appraisal. Primary appraisal judges how stressful the stressor is. Secondary appraisal evaluates what might and can be done to manage the situation. The LFSC model also uses the concept of reappraisal, that is, a changed appraisal based on new information from the environment or from the person's own reactions.

The LFSC model identifies coping as a contextual process, in which the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate. Coping viewed as a contextual process, rather than a personality disposition, emphasizes environmental influences and instability over time and across encounters. Coping has two main functions: problem-focused coping and emotion-focused coping. Problem-focused coping tries to change the stressor and includes constructive actions in which people attempt to modify the conditions that harm, threaten, or challenge them by acting on both themselves and the environment. Emotion-focused coping tries to regulate the emotion itself by changing the meaning of the stressor (Lazarus & Folkman, 1984b). These two functions interact with each other and are used simultaneously. Studying multiple coping strategies is helpful in understanding how people adapt to stressors, because different coping strategies have different adaptational outcomes.

Adaptational outcomes indicate whether the coping strategies have been effective (adaptive) or ineffective (maladaptive). In the LFSC model, the adaptational response includes three basic kinds of outcomes: morale, functioning in work and social living, and somatic health. Morale, also referred to as mood or emotional state, pertains to how people feel about themselves and their conditions of life (Lazarus and Folkman, 1984a, p. 194). In this context morale is a long-term, relatively enduring affective state, rather than a momentary evaluation. It is a multidimensional construct that includes positive and negative affect. Positive affect has also been described in the literature as avowed happiness, satisfaction, and psychological well-being. Negative affect has also been referred to as psychological distress.

In the LFSC model, a person's cognitive appraisal of the stressors influences which coping strategies the individual chooses, and these, in turn, affect the adaptational outcomes (Figure 1, Appendix A). Moreover, the cognitive appraisal of the stressors and, consequently, the way people actually cope depends on the resources available to them (Figure 1). Resources are defined as factors, characteristics, or assets that a person or group may draw upon in order to cope (Lazarus & Folkman, 1984a). They could be personal resources, such as values, beliefs or commitments, or environmental resources, such as social support. Social support is defined as "functions performed for an individual under stress by significant others, such as family members, friends, or professionals" (Schaefer, Coyne, & Lazarus, 1981). Social support acts as an immediate buffer to stress and its destructive somatic consequences and is vital for the individual's survival and growth. Social support includes three different aspects: emotional support, which "contributes to the feeling that one is loved or cared about;" tangible support, which "involves direct aid, such as loans, gifts, or services;" and informational support, which "provides information or advice and gives feedback that helps the person maintain social identity and a sense of integration in society" (Lazarus & Folkman, 1984a, p. 250). The LFSC model recognizes the multidimensionality of social support. Within this model, social support could be considered either an environmental resource, where availability is measured as it is perceived by the individual, or a coping strategy used by the individual to manage the stressors (Lazarus & Folkman, 1984a). Perceived social support refers to the nature of the interactions occurring in social relationships, especially how these are evaluated by the person as to their supportiveness (Lazarus & Folkman, 1984a, p. 249).

This study evaluated how the coping mechanisms and perceived social support used by advanced cancer patients under chemotherapy treatment relate to psychological distress. The variation in the reported frequency of occurrence for these variables with cancer stage is consistent with the idea that the relationships among them may vary at the different cancer stages. For instance, patients at advanced stages report higher psychological distress than at early stages (Bukberg et al., 1984; Cassileth, Lusk, Brown, & Cross, 1985; Derogatis et al., 1983; Holland, 1987; Pardue et al., 1989). Advanced disease explains twice as much of the variance in psychological distress as early disease in patients with breast, lung, or colorectal cancer (Ell, Mantell, Hamovitch, & Nishimoto, 1989). Perceived social support is useful at all cancer stages, as the literature consistently reports an association between increased levels of social support and reduced levels of psychological distress in samples of cancer patients at different stages. In addition, the frequency, requirement, and usefulness of the different types of social support vary with cancer stage (Ell, Nishimoto, Medianky, Mantell, & Hamovitch, 1992). Emotional support is especially useful at advanced cancer stages, because these patients can no longer maintain the previously assumed level of work and family activities and they are increasingly dependent on others to adjust to the physical and emotional burdens associated with tumor progression (e.g., to meet personal needs unaided). Thus, the literature has reported that emotional support is much more helpful in advanced cancer patients than the kinds of support (e.g., informational or tangible support) used by patients at early stages of cancer (Moos & Tsu, 1977; Dunkel-Schetter, 1984). Social integration also exerts far stronger effects on psychological distress in advanced cancer patients than in early cancer patients (Ell et al., 1989). Ironically, there is a decrease in perceived social support as the disease progresses (Carver et al., 1993; Dodd et al., 1993), despite patients' increased need for social support at advanced stages (Pardue et al., 1989). Coping mechanisms also vary with cancer stage and may relate differently to perceived social support or psychological distress at different stages. For instance, denial and avoidance are more frequently used in advanced than in early cancer patients (Gotay, 1984), although their effectiveness (i.e., whether they are related to low levels of psychological distress) has not yet been established. Thus, variation in frequency of coping mechanisms, psychological distress and perceived social support with cancer stage has been shown. The present study evaluated the relationship among these variables in advanced cancer patients receiving chemotherapy.

This study also explored the possible mediating effect of particular coping strategies between perceived social support and psychological distress. Specific coping mechanisms may be associated with reduced psychological distress and may mediate the effect of perceived social support on adaptation to cancer. Bloom (1982) has shown that coping, as a global construct, mediates the effects of social support on different adaptational outcomes, including psychological distress; however, these findings are questionable, because the instrument used measured only avoidant coping and its reliability and validity were not reported.

Though most of the research on social support and cancer has only studied perceived social support, this study evaluated both perceived social support and seeking and using social support. The former is an environmental resource, whereas the latter is a coping mechanism. Perceived social support was measured using the PRQ-85 and seeking and using social support by a subscale of the WOC-CA.

Cognitive appraisal was not assessed in this study. The virtual absence of empirical research on this construct, its multidimensionality, and the lack of a reliable and valid instrument to measure it demand a separate study for its proper evaluation.

In this study, then, the following research questions were explored within the LFSC model (Figure 2, Appendix B).

Research Questions

1. Among advanced cancer patients receiving chemotherapy, do the coping strategies of seeking and using social support, distancing, focusing on the positive, cognitive escape-avoidance and behavioral escape-avoidance relate individually and collectively to psychological distress?

2. Among advanced cancer patients receiving chemotherapy, what is the relative importance of the various coping strategies in explaining psychological distress?

3. Among advanced cancer patients receiving chemotherapy, to what extent does perceived social support contribute over and above coping strategies to explain the variance of psychological distress?

4. Among advanced cancer patients receiving chemotherapy, is there an interaction between perceived social support and coping strategies on psychological distress?

Although Lazarus and Folkman's Stress and Coping model views coping as a mediator of the emotional responses (Folkman & Lazarus, 1991), empirical evidence of such a mediating effect between perceived social support and psychological distress in cancer patients is lacking. A mediating variable (coping strategies) is generated in the encounter and it decreases the strength of the original relationship between the antecedent or predictor (perceived social support) and the outcome or criterion variable (psychological distress) (Baron & Kenny, 1986; Folkman & Lazarus, 1988). Therefore, the researcher sought to answer the following question:

5. Do coping strategies have a mediating effect between perceived social support and psychological distress among advanced cancer patients receiving chemotherapy?

Need for the Study

The Oncology Nursing Society has identified stress, coping, and adaptation as top research priorities in nursing (Stetz, Haberman, Holcombe, & Jones, 1995). Although studies in this area have been abundant, their designs were not focused. Most did not distinguish among particular stages of the disease or among treatment modalities; thus their results were inconclusive. This study responded to the need for research that controls for two of the confounding variables: cancer stage and treatment modality (Jalowiec, 1992). Limiting the scope of the study by controlling for these variables increased the likelihood of obtaining significant findings. This new approach was justified because in cancer patients stressors change as the disease progresses. Because cancer is a complex source of psychological stress, there is a need to define the specific stages of the disease (e.g., early versus advanced disease) and to study them separately, rather than broaden the focus of attention to the overall illness (Cella et al., 1990; Jalowiec, 1992; Lazarus, 1993). The cancer stage strongly influences the patient's state of mind (Lazarus, 1993) and the stressors of his or her concern (e.g., the psychosocial or physical impact of a progressing disease, the side effects of its treatment, the abandonment of the expectation for cure or the awareness of the fatal nature of the disease) (Holland, 1990a; Somerfield & Curbow, 1992).

Although at early cancer stages the main stressors and the coping mechanisms vary widely with tumor site (Holland, 1990a; Wainstock, 1991), in patients at advanced stages, the stressors associated with tumor site become less relevant than the imminence of death and the reduced quality of life. Imminence of death represents the main stressor for patients at advanced stages with different primary tumor sites. Physical debilitation, increased dependency on others and increased level of pain are additional stressors present mainly at advanced stages. These differences in stressors are reflected in differences in the frequency and type of coping strategies between patients at advanced and at early cancer stages (Holland, 1990a) and underlie the methodological need to consider the disease stage when studying coping in cancer patients.

An additional way to control the number of stressors under study is to limit prospective subjects to those receiving only one treatment modality. Each treatment modality (chemotherapy, radiotherapy, surgery, endocrine therapy, and immunotherapy) has its own set of associated stressors (Holland, 1990b; Holland & Lesko, 1990; Hughson, Cooper, McArdle, & Smith, 1986). In advanced cancer patients, cure is not possible, but chemotherapy is commonly used to control tumor growth, pain and discomfort, and to maintain patient quality of life (Holland, 1990a). Nevertheless, patients receiving chemotherapy must endure the concurrent burden of its side effects. Some patients may even discontinue treatment to avoid these side effects (Wilcox, Fetting, Nettesheim, & Abeloff, 1982). Patients who decide to follow chemotherapy at an advanced stage of the disease constitute a group with similar and considerably high psychological demands, who have to deal simultaneously with the stressors associated with their advanced stage and with those related to their chemotherapy. This study included only patients at one stage of the disease, advanced cancer, and under a single treatment modality, chemotherapy.

Therefore, this study focused on an unexplored area in psycho-oncology: the relationships among perceived social support, coping mechanisms and psychological distress in advanced cancer patients receiving chemotherapy. The association between coping strategies and psychological distress in cancer patients at different stages and under several treatment modalities remains unclear. Studies of these characteristics in sample populations offer contradictory findings on the effectiveness of the particular coping strategies. For instance, denial (Carver et al., 1993; Dougherty, Templer, & Brown, 1986; Meyeriwitz, 1983;), wishful thinking (Mishel & Sorenson, 1991, Zacharias, Gilg, & Foxall, 1994), avoidance (Felton & Revenson, 1984; Lerman et al., 1990), and acceptance (Feifel, Strack, & Nagy, 1987; Stone, Kennedy-Moore, Newman, Greenberg, & Neale, 1992) were associated with high, as well as low, psychological distress in cancer patients. Other coping strategies, such as distancing (Carver et al., 1993; Dunkel-Schetter et al., 1992; Manne et al., 1994), focusing on the positive (Dunkel-Schetter et al., 1992; Felton & Revenson, 1984; Manne et al., 1994; Mishel & Sorenson, 1991), and seeking and using social support (Dunkel-Schetter et al., 1992) were related to low psychological distress in cancer patients. In contrast, escape-avoidance (Behen & Rodrigue, 1994; Carver et al., 1993; Dunkel-Schetter et al., 1992; Feifel et al., 1987; Felton, Revenson, & Hinrichsen, 1984; Johnson, 1984; Manne et al., 1994) was associated with high psychological distress in these patients. Therefore, there is a need to address the issue of which coping strategies are used by advanced cancer patients under chemotherapy.

Because of the high levels of psychological distress in cancer patiens, distress has been frequently used in the cancer literature as an operational measure of psychological adaptation.

Although the study focused on coping, psychological distress was the dependent variable. Focusing on coping mechanisms was justified because future nursing interventions may be developed based on a more accurate knowledge of this construct. Nevertheless, evaluating the degree of psychological distress was also necessary to determine the effectiveness of the coping strategies within the LFSC model. Psychological distress cannot be directly manipulated through behavioral efforts, but can only be modified by influencing its associated coping mechanisms through psychological interventions.

To further focus the analysis, only the negative affect or psychological distress, out of all possible adaptational outcomes, was studied. Neither physical nor social adaptational outcomes, nor psychological well-being was evaluated in this study. This was justified because of the high prevalence of negative emotions in advanced cancer patients. In patients at advanced stages of the disease, the prevalence of psychological distress is much higher than psychological well-being when compared with patients at early stages. In a life-threatening disease like cancer the emotional adaptational outcomes assume a predominant role over somatic variables (Lazarus, 1993). Despite a high incidence of negative emotional adaptational outcomes in cancer patients (e.g., depression and anxiety), particularly at advanced stages, the mechanisms that relate to these outcomes, and the possible development of therapeutic interventions, have been less explored than the physical adaptation to the disease (e.g., control of nausea or vomiting). Thus, this study addressed the need to evaluate psychological distress in advanced cancer patients and its relation to coping and perceived social support.

Perceived social support is likely to be negatively related to psychological distress in the study population, because previous empirical studies abound in the idea that an increased level of perceived social support is associated with decreased psychological distress in cancer patients of all stages (Bloom, 1982; Goldberg & Cullen, 1985; Gotcher, 1992; Hoskins et al., 1996; Mechanic, 1974; Northouse, 1987; Rowland, 1990; Taylor et al., 1985; Wortman, 1984). However, evidence that this function is also in place in advanced cancer patients during chemotherapy is still missing. In addition, this study addressed the need to evaluate the relationship between perceived social support and coping strategies, because the few studies performed in this area yielded contradictory results: Bloom (1982) documented such associations but Dodd et al. (1993) did not.

The researcher expects this study to expand the body of knowledge in an area of research scarcely explored to date; the relationship between perceived social support, coping mechanisms, and psychological distress in advanced cancer patients receiving chemotherapy, and the possible mediator effect of coping mechanisms between perceived social support and psychological distress. Without an accurate appreciation of the factors involved in coping with the stressors associated with the patients' clinical condition and to its treatment, attempts to help patients may be both ineffective and potentially harmful (McHaffie, 1992). Knowledge in this area could provide the basis for identifying patients at high risk for psychiatric morbidity and for developing nursing interventions that reinforce the use of the most adaptive environmental resources and coping mechanisms. Nurses need to know which specific coping mechanims advanced cancer patients use to deal with the harm or threats associated with their illness and which are their most frequent states of psychological distress. Consequently, nurses taking care of oncology patients require familiarity with the assessment of affective distress and coping mechanisms. Moreover, nursing interventions need to be designed that help patients and their families learn to use effective coping strategies (i.e., those associated with low psychological distress) (Gammon, 1993). Finally, to implement these interventions, nurses need to identify appropriate adaptive tasks, realistically appraise the situation and provide guidance through the whole process of advanced cancer. Nurses engaging in this endeavor may improve the quality and effectiveness of the present psychological interventions while contributing to the growth of nursing science, because coping and adaptation to illness are at the heart of nursing science (Benner & Wrubel, 1989; Ellis, 1968; McHaffie, 1992; Walker & Avant, 1988).

Psychological interventions for advanced cancer patients, whether developed by nurses or other health professionals, should lower the frequency of distressing states or behaviors. Adjuvant psychological therapy (APT), a cognitive-behavioral treatment program developed specifically for cancer patients, has already been demonstrated to reduce psychological distress in a prospective, randomized and longitudinal clinical trial in cancer patients (N = 156) at different disease stages (Greer et al., 1992). In the APT group, four months after the initiation of therapy, anxiety levels dropped from 46 to 20% and depression levels from 40 to 18%; whereas in the control group anxiety dropped only from 48 to 43% and depression from 30 to 23%. APT focuses on the personal meaning of cancer to the individual and on potentiating the patient's coping strategies. This therapy, although effective, could theoretically be improved by targeting the needs of patients with specific sets of stressors. APT assumes a similar response for all cancer patients, regardless of disease stage or demographic variables. It also assumes the effectiveness of the active coping responses, and the ineffectiveness of denial or distancing from the disease, because these two strategies are considered to be associated with higher levels of psychological distress. However, results of several studies challenge these assumptions. Indeed, some authors have reported denial of illness (Reardon & Buck, 1989; Meyeriwitz, 1983; Grassi, Rosti, Albieri, & Marangoloet, 1989) and distancing (Carver, 1993; Dunkel-Schetter, 1992; Manne et al., 1994) to be related to positive outcomes in cancer. It should be noted that distancing could be related to denial in that denial is an active rejection of diagnosis, with no expression of emotional distress, and distancing also has a component of repressed feeling. Although APT has the same assumptions for patients at all cancer stages, the literature reports differences in the use of coping mechanims in cancer patients at different stages. APT does not target the specific needs of the patients at advanced stages and excludes as possible beneficiaries of psychological therapy a significant portion of the cancer population, those who use denial and distancing, two of the more common coping mechanisms in advanced cancer patients.

Other psychological interventions recognize the need to consider the different stressors associated with the different stages of cancer. In patients with local or regional disease, attempts to deal with the severe distress of the diagnosis as a crisis intervention have been reported to be successful (Andersen, 1992). This approach emphasizes learning more about the stressors, confronting them with positive cognitive states and active behavioral strategies to reduce psychological distress. Nevertheless, the benefits of this therapy could be questioned because the distress at early cancer stages decreases over time with or without intervention. In contrast, in patients with advanced cancer the increased physical debilitation, increased dependency and increased pain shift the stressors toward imminence of death and to quality of life issues and demand a different type of intervention than that appropriate to patients with early disease (Andersen, 1992). The few intervention studies reported in advanced cancer patients are again based on the assumption that patients's knowledge about the disease is good; therefore, patients in denial are excluded. Perhaps because of this assumption, psychological interventions in advanced cancer patients have rarely been effective. In one study, patients reported lower levels of depression in the therapy group as compared with the control group only at three months but not thereafter (Linn, Linn, & Harris, 1982). The failure to reduce psychological distress in these patients may be due to the lack of understanding of the coping mechanims associated with low psychological distress in advanced cancer patients.

Therefore, there is a clear need for studies that make no a priori assumptions about which coping mechanisms are better suited to obtain lower levels of psychological distress. In response to this need, the present study sought to delineate the specific coping mechanisms that in advanced cancer patients are related to lower psychological distress. Results of the study may be applied in the promotion of effective coping mechanisms in cancer populations with characteristics similar to the study sample.

CHAPTER II

THE RELATED LITERATURE

Psychological Distress

Psychological distress encompasses a series of negative emotions that are the end states of a maladaptive process. This construct falls, therefore, within the realm of emotional or psychological adaptation. Adaptation was first applied to describe physiological processes. Physiological adaptation is a process in which a person adjusts to the conditions of the environment, and an outcome through which the person's behavior or attitude is measured against the standards or norms of those environmental conditions (Dubos, 1965). This definition has also been applied to social and psychological phenomena. Psychological and social adaptations are socially construed and vary according to cultural norms. They focus on a satisfactory life-style, which is the range of acceptable behavior established and maintained by the group's norms and customs (Duffy, 1987).

In the LFSC model the process of adjustment to the environment is termed coping, and the outcome of this process is called adaptation. Emotional adaptation is the psychological state achieved by coping with a demand, conflict, or distressing emotion, and, in this sense, differs from social adjustment to a crisis or biological adjustment to a noxious stimulus (Lazarus & Folkman, 1984b). The adaptational outcomes within the LFSC model include morale, functioning in work and social living, and somatic health. Morale is the positive or negative affect a person experiences during and after an encounter (Lazarus & Folkman, 1984a, p. 183) and involves how people feel about themselves and their life conditions (Lazarus and Folkman, 1984a, p. 194). Morale, mood or affect, is not a momentary evaluation, but rather a long-term relatively enduring affective state (Lazarus and Folkman, 1984a, p. 195).

Morale is a multidimensional construct that includes two dominant, independent, and uncorrelated dimensions: positive affect, or psychological well-being, and negative affect, or psychological distress (Veit & Ware, 1983; Watson & Tellegen, 1985). On the positive side, psychological well-being is the tendency to appraise encounters as challenges, to cope with negative stressors by putting them in a positive light, and overall, effectively to manage a wide range of demands. On the negative side, psychological distress is the degree of unpleasantness or upset reported by the individual (Guadagnoli & Mor, 1989). This term is used interchangeably with emotional distress.

Psychological Distress in Cancer Patients

It is generally accepted that cancer patients experience higher levels of psychological distress than the general population. The frequency of psychological distress in cancer patients varies from 30 to 47% (Blanchard & Ruckdeschel, 1986; Chaturvedy, 1994; Derogatis et al., 1983; Ford, Lewis, & Fallowfield, 1995; McNair et al., 1992; Spiegel, 1994); whereas in the general population the prevalence of depression is 8.3% and that of anxiety 14.6% (Bourdon, Rae, Locke, Narrow & Regier, 1992). One fourth to one third of all cancer patients experience depression (Grassi et al., 1989; Massie & Holland, 1990) and about two thirds experience death anxiety (Feroz & Ahmad, 1987).

Some of the variation in the prevalence of psychological distress among cancer patients could be attributed to differences in sample size, patient selection criteria, study methods, or definitions and measurements of psychological distress (Ganz, 1988). Whereas most studies found a high prevalence of distress in cancer patients, Cassileth et al. (1984) saw a lack of differences between cancer patients and patients with other chronic illness or with the norm. These authors compared psychological status in six groups of chronically ill patients (those with cancer, arthritis, diabetes, renal disease, dermatologic disorders, and psychiatric patients under treatment for depression) ($N = 758$). Psychological status was measured using the Mental Health Index developed by the Rand Corporation, which has well-documented validity and reliability.

There were no significant differences in psychological status among the five groups with physical illnesses and the general public; whereas all groups had significantly lower scores for psychological distress than patients under treatment for depression. Lower levels of psychological distress were found in the older patient population within each group. Patients under treatment and having advanced cancer showed high levels of psychological distress. Within the cancer patient group, individuals who had completed their course of treatment had better psychological status than patients under active therapy ($p < .05$). In turn, patients receiving active therapy had better psychological status than patients under palliative treatment ($p < .05$). Cancer patients at more advanced stages and with more symptoms had poorer psychological status than cancer patients capable of normal activity. Although the study did not find differences in psychological distress between cancer patients and the norm, it recognized advanced cancer stage and chemotherapy as additional stressors increasing psychological distress. Thus, independently of what the exact frequency of psychological distress in cancer patients is, all authors report higher levels of distress in advanced cancer patients.

Longitudinal studies also indicate that in cancer patients of all stages the high level of anxiety at diagnosis is reduced over time but the level of depression is not significantly changed. Ford et al. (1995) conducted a longitudinal study on psychological distress in 117 newly diagnosed outpatients with different tumor sites (mainly testicular and breast cancer) at different stages of the disease. Patients were asked to complete two questionnaires, the General Health Questionnaire (GHQ-30) and the Hospital Anxiety Depression Scale (HADS), at diagnosis and after a six-month follow-up. GHQ-30 detects probable cases of psychiatric disorders and HADS measures depression and anxiety. At the first assessment 30% of the sample scored above the threshold for probable psychiatric disorder, 22% for anxiety and 7% for depression. These levels dropped to 22%, 10% and 5%, respectively, at follow-up. Thus, most of improvement in psychiatric morbidity was in anxiety rather than depression. Mean scores for anxiety and depression were significantly greater in women than in men, and in patients without partners than in those with them.

Psychological distress not only varies with time but also with disease stage. The circumstantial evidence indicating that advanced and early cancer patients adapt differently to the disease is noteworthy. Advanced cancer patients experience higher levels of psychological distress than patients at early stages. Patients with poor prognosis (Derogatis et al., 1983) or receiving only palliative care (Cassileth et al., 1984) are also more psychologically distressed. Psychological distress in cancer patients is a consequence of the response to the specific stressors associated with the disease. For instance, the awareness that smoking may have caused a lung cancer, the change in body image in breast cancer as a consequence of its treatment, or the sequelae of an ostomy in colorectal cancer may represent important sources of stress (Holland & Rowland, 1990). Patients at early cancer stages experience different stressors depending on the tumor site (Holland, 1990a). However, patients at advanced stages abandon the expectation for cure and are aware of the fatal nature of their disease independently of the primary tumor site (Holland, 1990a; Wainstock, 1991).

The differences in psychological distress observed between early and advanced cancer patients may be a consequence of the changing pattern of stressors that occur with the progression of the disease. A considerable number of reports suggest that advanced and early cancer are separate entities in terms of their psychological demands on patients and should therefore be treated separately. For instance, maladaptation (Kaye & Gracely, 1993), depression (Blanchard & Ruckdeschel, 1986; Massie & Holland, 1990; Pettingale, Burgess, & Greer, 1988), and anxiety (Pettingale et al., 1988) are more frequently seen in advanced than in early cancer patients. Depression and anxiety are also present in most patients who fail to respond to treatment, and are, therefore, at advanced stages of the disease (Ell et al., 1989). Hence, advanced cancer patients constitute a group at high risk for psychological distress. This variation in psychological distress with cancer stage underlies the need to limit the stressors under study in psycho-oncology research in order to improve the interpretability of the findings.

Approximately two thirds of advanced cancer patients experience high levels of psychological distress and about one third have a psychiatric diagnosis. Kaasa et al. (1993)

studied psychological distress in 247 patients with lung, prostate and breast cancer at advanced stages. Patients were asked to answer the Impact of Event Scale, which assesses the patients' feelings after a severe stressful event, and the General Health Questionnaire, which measures subjective well-being and psychological distress. Seventy percent of the patients reported a high level of psychological distress. Patients with poor performance status and pain were the most distressed.

Patients with psychiatric illness are also more distressed. Chaturvedi (1994) studied stressors and psychological distress in 50 patients with advanced gynecological, breast or head and neck cancer. Sixteen patients (32%) had a psychiatric diagnosis according to the International Classification of Diseases (ICD-9). Patients reported their main concerns as pain (68%), physical health (60%), finances (54%), and fear for their future (52%), for their work (40%) and for their reduced performance (40%). They also reported sadness (32%) and anxiety (24%). Patients with psychiatric diagnosis reported significantly more concerns for their future (94%), physical health (87%), reduced performance (87%), pain (81%), finances (81%), and work (69%) than patients without a psychiatric illness. Sadness (87%) and anxiety (50%) were also more frequent in the psychiatric patients.

Stressors associated with the disease frequently coexist with those associated with its treatment. Most patients with advanced cancer, therefore, must cope with the stressors associated with their advanced disease as well as with the toxic effects of its treatment. Although at advanced stages cure is not possible, some patients are able to maintain a good quality of life because of the treatment they receive to control the tumor growth and to palliate their pain and discomfort (Holland, 1990a). Advanced cancer stage and more aggressive treatment modalities are associated with higher levels of psychological distress. Taylor et al. (1985) studied illness-related and treatment-related factors in psychological adjustment of 78 breast cancer patients. Stage of disease and type of surgery were assessed by instruments developed by the researcher. Psychological adjustment was measured by an overall measure of adjustment that was created by factor analysis of ten individual measures, including Global Adjustment to Illness Scale (GAIS)

(Derogatis, 1975a), Profile of Mood States (POMS) (McNair et al., 1992), Index of Well-Being (Campbell, Converse, & Rodgers, 1976), and Self-Esteem Scale (Rosenberg, 1965). Both advanced cancer stage (poorer prognosis) (Beta = .40, F (1, 64) = 13.96, $p < .01$) and use of more radical surgery (Beta = .29, F (1, 64) = 6.83, $p < .01$) independently predicted poor psychological adjustment. The degree of dysfunction and whether or not the patient had radiation therapy or chemotherapy had no independent effects on psychological distress.

The additional stressors that the treatment side effects represent (Cull, 1990) differ with treatment modality (Holland, 1990b; Holland & Lesko, 1990). The stressors of chemotherapy include physical side effects (e.g., nausea, vomiting, hair loss, immunosuppresion, fatigue) and psychological side effects, which result from the direct action of the cytotoxic drugs on the brain or from the emotional demands of the experience (Cull, 1990). High levels of psychological distress are frequent in patients treated with chemotherapy (Maguire et al., 1980) and both the quantity and the severity of its physical toxicity have been linked to the development of affective disorders (Devlen et al., 1987; Maguire et al., 1980).

Increased severity of side effects is related to increased depression, especially after the first treatment cycle. Ward, Viergutz, Tormey, DeMuth and Paulen (1992) studied psychological distress in 38 breast cancer patients under adjuvant therapy (chemotherapy followed by radiation). Psychological distress was assessed with the Center for Epidemiologic Studies Depression Scale (CESD) (Radloff, 1977). The 21-item Side Effect Checklist (Nerenz, Leventhal, & Love, 1982) was used to determine the number and severity of side effects experienced during chemotherapy. Measures were completed at the start of adjuvant chemotherapy, one week after chemotherapy was finished, and following completion of radiotherapy. Those who had more side effects at the completion of the chemotherapy treatment had been more depressed since the beginning of the adjuvant treatment (Beta = .48, $p < .05$). Repeated measures Anova revealed that depression scores decreased significantly from the first to the last measurement ($F(2,74) = 5.9$, $p = .004$). Similarly, Sabbioni, Bovbjerg, Jacobsen, Manne, and Redd (1992) found that in 82 breast cancer patients undergoing adjuvant chemotherapy, psychological distress, measured by the Visual Analog Scale, decreased significantly from the first to the second cycle (F(1,13) = 5.52, p = .04). After this initial decrease, the level of distress remained stable. These authors observed that the type of chemotherapy, the number of treatments, and the use of effective antiemetic drugs had no significant effect on these patients' psychological distress.

Coping Strategies

Coping has been conceptualized as a defense mechanism, as a trait and as a process. Coping as a defense mechanism concerns the reflexive responses associated with danger and safety (Vaillant, 1977). As a trait or style, coping refers to cognitions or behaviors used consistently by individuals across situations to deal with stressors (Lipowski, 1970). Coping as a process was first defined as mastery in meeting challenges or task requirements through thoughtful use of available social and psychological resources (Caplan, 1981). More recently, Lazarus and Folkman (1984a) defined coping as a transactional process or "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (p. 141). The environment is constantly changing and so is the person and his or her relationship with it. Coping is the process by which the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate. Coping is contextual because it emphasizes environmental influences and instability over time and across encounters, which make it different from coping as a trait or personality disposition. The investigative approaches that consider coping as a contextual process have improved our understanding of the strategies that patients use to deal with the stressors associated with cancer and its treatment and our ability to distinguish them on the basis of their effectiveness.

The coping strategies used by cancer patients change as the stressors associated with the illness and its treatment change (Burish et al., 1984). Patients may use different coping strategies at different stages of the disease (Smith, Ackerson, & Blotcky, 1989). At early stages, problem-focused coping (Gotay, 1984) and fighting spirit (Heim et al., 1987) are frequently used. In contrast, at advanced stages emotion-focused coping strategies are more prevalent. Religious activities, denial or avoidance (Gotay, 1984), acceptance (Heim et al., 1987; Payne, 1990) positive thinking, fearfulness or hopelessness (Payne, 1990) are more common at advanced than at early stages. These reports support the need to study coping strategies in advanced cancer separately from early cancer.

A qualitative study of coping with cancer (Krause, 1993) identified coping responses qualitatively identical to those used by the general population in dealing with stressful events (Billings & Moss, 1981; Folkman & Lazarus, 1980). The most frequently used coping strategy (in 123 cancer patients with a variety of cancer types and at different disease stages) was problem-solving, either by directly tackling the problem (54%) or by cognitive means (46%), such as discovering more about cancer and its treatment. Active and passive emotion-focused coping strategies were also used. Active-cognitive coping included sharing feelings with other people (38%), attempting to accept the disease and focus on the positive (15%), taking refuge in religious beliefs (11%), and humor (10%). Passive-cognitive emotion coping included attempting to forget the illness (19%) and becoming resigned to the illness (7%).

Psychological Distress and Coping Strategies in Cancer Patients

Cancer patients use different coping strategies to deal with the stressors associated with the disease and its treatment. These coping strategies have different degrees of effectiveness in helping patients adapt to the stressors. The degree of effectiveness is frequently measured as level of psychological distress (Rowland, 1990). Some coping strategies appear to be associated with low psychological distress in cancer patients, whereas other strategies are associated with high psychological distress. For instance, focusing on the positive has been associated with low psychological distress in cancer patients. Mishel and her collaborators (1991) demonstrated this association ($r = -.16$, $p < .05$) in 231 women with various stages of gynecological cancer who had had surgery and were receiving chemotherapy and/or radiotherapy (Mishel & Sorenson, 1991;

Mishel, Padilla, Grant, & Sorenson, 1991). Psychological distress was measured by the POMS (McNair et al., 1992), which includes the subscales of tension-anxiety, depression-dejection, anger-hostility, vigor-activity, fatigue-inertia, and confusion-bewilderment. The revised Ways of Coping Checklist (WCC) (Folkman & Lazarus, 1985), adapted by factor analysis for use in cancer populations, was used to measure coping (Mishel & Sorenson, 1991). Validity and reliability are well established for both instruments. The association between focusing on the positive and low psychological distress has also been reported in patients with breast, lymphoid tissue and gastrointestinal cancer at various stages of disease by Dunkel-Schetter et al. (1992) ($r = .22$, $p < .001$), Felton et al. (1984) ($r = .11$, $p < .01$) and Manne et al. (1994) ($r = .55$, $p < 001$). This finding have been reinforced by reports of higher levels of depression and anxiety in cancer patients experiencing hopelessness (Burgess, Morris, & Pettingale, 1988).

Distancing coping has also been associated with low psychological distress. Manne et al. (1994) demonstrated this association in 43 women undergoing adjuvant chemotherapy for breast cancer ($r = -.42$, $p < .01$). Patients were asked to report how they coped with chemotherapy, rather than with cancer in general. Coping was assessed with a revised version of the Ways of Coping Questionnaire (WOC) (Folkman, Lazarus, Dunkel-Schetter, Delongis, & Gruen, 1986), and emotional adaptation was measured using a revised version of the POMS validated in cancer patients (Guadagnoli & Mor, 1989). The WOC questionnaire includes the subscales of confrontation, escape-avoidance, problem-solving, positive reappraisal, acceptance, self-control, seeking social support, wishful thinking, detachment, and focusing on the positive. One criticism of this study is the difficulty subjects probably experienced trying to respond to the WOC questionnaire by focusing only on stressors associated with chemotherapy. The phrasing of the items does not allow the patient to respond exclusively to treatment. Indeed, some of the questions are related more to the disease than to its treatment (i.e., the statement 'realize I brought the problem to myself' reflects the use of a coping strategy that deals with the stressor of having cancer rather than with that of being treated for it). The association between distancing and low psychological distress has also been documented in breast, gastrointestinal and hematologic cancer patients in whom stressors associated with the whole disease process rather than with treatment only were measured (Carver et al., 1993; Dunkel-Schetter et al., 1992).

Dunkel-Schetter et al. (1992) reported that the use of social support as a coping strategy in breast, colo-rectal and hematologic cancer, at various disease stages, is related to low psychological distress ($\underline{r} = -.20$, $\underline{p} < .001$). The investigators analyzed psychological distress and its relationship to coping strategies in a large sample ($\underline{N} = 603$) of cancer patients. Nevertheless, as in most studies in psycho-oncology, patients in both early and advanced stages were included. The interpretation of these findings is difficult, because early and advanced cancer patients are thought to have different patterns of psychological stressors (Holland, 1990a). Despite this limitation, the study provides some support for the research questions in the present research proposal. The authors used a bipolar version of the POMS to measure adaptational outcomes and adjusted the WOC to cancer patients. The instrument developed by Dunkel-Schetter et al. (1992) to assess coping in cancer patients has adequate validity and reliability and was used to evaluate coping in the present study.

In contrast to coping by focusing on the positive, distancing, or seeking and using social support, escape-avoidant coping appears to be related to high psychological distress in cancer patients (Behen & Rodrigue, 1994; Carver et al., 1993; Feifel et al., 1987; Felton et al., 1984; Manne et al., 1994; Stone et al., 1992). However, Lerman et al. (1990) reported a low level of anxiety (psychological distress) in patients using avoidant coping while receiving chemotherapy. Some authors have studied separately cognitive and behavioral escape-avoidant coping. Cognitive escape-avoidance was related to high psychological distress (Dunkel-Schetter et al., 1992; Felton et al., 1984). Wishful thinking, a prototypical cognitive escape-avoidant strategy, has been associated with both high (Zacharias et al., 1994) and low (Mishel et al., 1991) psychological distress in cancer patients. Behavioral escape-avoidant coping has also been associated with high levels of psychological distress (Dunkel-Schetter et al., 1992).

Although most studies on coping and psychological distress in cancer patients have not distinguished between early and advanced disease, some authors have proposed that the effectiveness of coping strategies may change depending on the stage of the disease (Somerfield & Curbow, 1992). Although no empirical research has addressed this issue, the differences reported in the use of coping strategies depending on stage are consistent with this argument. For instance, denial and avoidance are more frequently used in advanced cancer patients than in early-stage patients (Gotay, 1984). Although these coping strategies are thought to be related to high psychological distress at early stages of the disease, they may be effective and appropriate (related to low levels of psychological distress) at advanced stages, when cure is not the goal of the treatment (Lazarus, 1985).

Perceived Social Support

Although the social environment may be a source of stress, it also provides vital resources that the individual can draw upon to survive and flourish (Lazarus & Folkman, 1984a). It is usually assumed that being embedded in a social network is essential for people to feel good about themselves and their lives. Social support acts as an immediate buffer to stress and its destructive somatic consequences. Authors vary in the specific content they feel falls under the aegis of "social support" and in how much this content should be emphasized. Caplan (1974) defined social support as others who help people mobilize their psychological resources to deal with emotional problems; share people's tasks; and provide people with money, materials, tools, skills, information, or advice to help them deal with the particular stressful situations to which they are exposed. Cobb (1976) defined social support as information leading the subject to believe that he or she is cared for and loved, esteemed and valued, and a member of a network of communication and mutual obligations. Kaplan, Cassel and Gore (1977) identified social support as the degree to which a person's basic needs are gratified through interactions with others. Lin, Simeone, Ensel and Kwo (1979) defined social support as support accessible to an individual through social ties to other individuals, groups, and the larger community. Wallston, Alagna, B. DeVellis and R. DeVellis (1983) described social support as the comfort, assistance, and/or information one receives through formal or informal contacts with individuals or groups.

When faced with stressful life conditions people feel better if they have social support. The lack of such support contributes to physical illness and psychopathology (Bloom, 1982; Schaefer et al., 1981). Social support is most commonly defined as functions performed for an individual under stress by significant others, such as family members, friends, or professionals (Schaefer et al., 1981). These functions are tangible or instrumental, emotional, and informational assistance (House & Kahn, 1985). Tangible support involves direct aid or services (e.g., loans, gifts of money or goods and services). Emotional support includes intimacy and attachment, reassurance, and being able to confide in and rely on another (e.g., caring, listening). Informational support includes information or advice that could help a person solve a problem, and feedback about how that person is doing (e.g., education or advice concerning the disease or its treatment).

Dunkel-Schetter, Folkman, and Lazarus (1987) argued that the relation between coping and social support could indicate an interplay of these two stress-related processes based on explicit or implicit communication between donor and recipient. The authors found that members of an individual's social network tend to be responsive to the way an individual copes.

Consistent with Schaefer et al. (1981), Lazarus and Folkman (1984a) recognized three different functions of social support: emotional support that "contributes to the feeling that one is loved or cared about," tangible support that "involves direct aid such as loans or gifts or services," and informational support that "provides information or advice and gives feed back that helps the person maintain social identity and a sense of integration in society" (p. 250).

Lazarus and Folkman (1984a) view social support as a dynamic and multidimensional construct. Under the LFSC model, social support is considered a process that changes with shifts in the person-environment relationship. The model treats social support both as an environmental resource that affects the coping response (perceived social support) and as a coping mechanism (seeking and using of social support) (Figure 1, Appendix A). Within the LFSC model, the way people actually cope depends on the available personal and environmental resources, the constraints that inhibit using these resources in the context of the specific encounter, and the situational requirements (Lazarus & Folkman, 1984a). Resources are defined as factors, characteristics, or assets that a person or group may draw upon in order to cope. Health, energy, positive beliefs, and social skills are personal resources. Winemiller, Mitchell, Sutliff and Cline (1993), in reviewing studies that sough to measure social support, identified the need to distinguish between perceived social support and using social support to develop and test hypotheses about the mechanisms at work in social support.

When social support is considered an environmental resource, it is important to distinguish between how many types of relationships a person has (social network) and the "nature of the interactions occurring in social relationships, especially how these are evaluated by the person as to their supportiveness" (perceived social support) (Lazarus & Folkman, 1984a, p. 249). Environmental resources include the perception of social support and material aid (Lazarus & Folkman, 1984a). Such influences interact in shaping the mediating process of appraisal, which, in turn, influences the choice of coping activity and determines the adaptational outcome (Lazarus & Folkman, 1984b) (Figure 1, Appendix A). In reviewing the literature on social support, Barrera (1986) identified perceived social support as the most frequently assessed aspect of social support. The author stated that this variable has been consistently negatively related to distress. In a recent review of the social support literature, Thoits (1995) concluded that perceived emotional support is associated with better physical and psychological health and usually buffers the damaging psychological impacts of major life events and chronic events.

Psychological Distress and Perceived Social Support in Cancer Patients

Most of the literature related to cancer considers social support as an environmental resource, thus, emphasizing the concept of perceived social support. In general, social support has been related to low psychological distress in cancer patients (Goldberg & Cullen, 1985; Gotcher, 1992; Mechanic, 1974; Northouse, 1987; Rowland, 1990; Taylor et al., 1985). This correlation is true in other diseases as well. Recently, Spitzer, Bar-Tal and Golander (1995) found similar results in 77 patients with rheumatoid arthritis, in whom perceived social support was negatively related to psychological distress ($r = -.20$, $p < .05$). This is a universal finding in the literature on adaptation to cancer, in patients both at early (Bloom, 1982) and advanced stages (Pardue et al., 1989).

Northouse (1987) reported that a high level of perceived social support is associated with a low level of psychological distress after surgery for cancer at early stages ($r = -.51$, $p < .001$). The author studied the relationship between perceived social support and adjustment (psychological distress) in 50 breast cancer patients, with regional lymph node involvement in one third of them, 3 and 30 days after mastectomy. Perceived social support was measured using the Social Support Questionnaire, an instrument specifically designed for the study with adequate levels of validity and reliability (alpha coefficient of .90). Adjustment was measured combining standardized scores of three instruments: Psychological Adjustment to Illness Scale (Derogatis, 1975a), Affects Balance Scale (Derogatis, 1975b), and Brief Symptom Inventory (Derogatis, 1975c). Principal components factor analyses supported the use of this composite index.

The literature indicates that in cancer patients emotional support is a more effective type of social support than providing informational or tangible support (Pardue et al., 1989; Smith, Redman, Burns, & Sagert, 1985). Some authors also describe a decrease in perceived social support as the disease progresses (Carver et al., 1993; Ell et al., 1992; Dodd et al., 1993), despite an increased need for social support (Pardue et al., 1989) and for verbal and physical expression of affection (Lieber et al., 1976) at advanced stages. The literature also reports that particular types of psychological distress, such as depression or anxiety, tend to decrease when social support increases (Hobfoll & Walfisch, 1984) and that a reduction in social support is accompanied by an increase in psychological distress (Ell et al., 1989).

Emotional support is especially useful when provided by close relatives. Smith et al. (1985) in a qualitative study explored the role of social support in 375 women recently diagnosed with breast, endometrial, or ovarian cancer. The results indicated that the husbands were the most important members of the support network for married women and the relatives for single women. The most beneficial type of support was emotional: i.e., listening to or talking with the patient about the disease. Roberts, Cox, Shannon and Wells (1994) also found that perceived social support is related to low levels of psychological distress in newly diagnosed patients with breast cancer ($N = 135$). Single women with high levels of perceived social support from friends had low levels of psychological distress ($r = -.41$, $p < .05$). Married women with high levels of perceived social support from their spouses had low psychological distress ($r = -.27$, $p < .01$).

Cancer patients perception of the social support they receive is related to the degree of their psychological distress. Perceived social support, especially the perception of its availability among family members, has been negatively correlated with psychological distress in cancer patients. Gotcher (1992) studied perceived social support and psychological adjustment in 102 cancer patients, being treated with radiotherapy, mainly for breast or prostate cancer. Perceived social support was measured using the Patient-Family Interaction instrument (PFI), adapted from the Perceived Social Support subscale from the Family Index (Procidano & Heller, 1983), and psychological and social adjustment was measured using the Psychosocial Adjustment to Illness Scale (PAIS) (Derogatis, Abeloff & Melisaratos, 1979). The PFI quantifies frequency, honesty, unpleasant topics and emotional support, and the PAIS quantifies adjustment to illness in the domains of health care orientation, vocational environment, domestic environment, sexual relationships, extended family relationships, social environment, and psychological distress. Both instruments have acceptable levels of validity and reliability. As communication between patient and family improved (as reflected by higher scores), so did psychological adjustment (as reflected by lower scores) ($r = -.43$, $p < .001$). Well-adjusted patients had a higher frequency of interactions and perceived more emotional support (i.e., felt loved as a person) than maladjusted patients. Having frequent emotionally supportive interactions is more important than honesty or engaging in the discussion of unpleasant topics. The last two factors were not discriminating variables for adjustment.

Although social support is useful, as it is associated with low levels of psychological distress, its impact on survival is more questionable. Ell et al. (1992) examined the relationship between social relationships, social support, and survival following a first diagnosis of breast, colorectal, or lung cancer. The sample consisted of 369 patients with stage I to V disease. The Interview Schedule for Social Interaction measured perceived emotional support, social integration, and marital status. The Mental Health Inventory measured psychological distress. The Role-limitation Scale measured functional status. Findings showed different factors related to survival for patients with breast versus lung or colorectal cancer and for patients with localized versus non-localized cancers. For patients with breast cancer marital status was the only significant risk factor ($p = .04$) and emotional support the only significant protective factor predicting survival ($p = .03$). In contrast, disease stage and functional status were the only significant risk factors independently affecting survival of patients with colorectal or lung cancer. For patients with localized cancers, functional status ($p = .05$) and emotional support ($p = .02$) contributed significantly to predicting survival. Disease extension was the only significant predictor of survival in patients with advanced disease ($p = .02$). However, Cassileth et al. (1985) found no significant relationship between psychological variables and survival in advanced cancer patients. Social ties, marital history, job or life satisfaction, use of psychotropic drugs, health perception, degree of hopepeless/helplessness, and degree of adjustment to the diagnosis did not predict survival.

In summary, patients with advanced cancer experience more psychological distress (Pardue et al., 1989) and receive less social support (Carver et al., 1993; Ell et al., 1992; Dodd et al., 1993) than those at early stages. Advanced cancer patients tend to perceive emotional support as more helpful than other kinds of support (e.g., informational or tangible support) (Dunkel-Schetter, 1984; Moos & Tsu, 1977). Therefore, the usefulness of social support previously described in cancer patients at different stages could even be more significant at advanced stages. A higher level of perceived social support is likely to correlate with lower psychological distress in advanced cancer patients.

Perceived Social Support and Coping Strategies in Cancer Patients

Few researchers have investigated how perceived social support affect coping strategies in cancer patients, and these few have produced contradictory findings. Thus, there is a need to explore further this relationship. In cancer patients, social support appears to be most useful as a source for emotional coping rather than for informational or tangible support. In a longitudinal qualitative study Saunders and McCorkle (1987) evaluated how social support affects coping with the diagnosis of lung cancer. The investigators used the Lazarus and Folkman's model of coping (1984a) to study six patients one and two months after the diagnosis of lung cancer. They identified radiation therapy as the most important stressor requiring a problem-solving coping strategy, and other efforts were to be held in abeyance until these treatments were finished and the results known. Although participants identified uncertain health as a major problem, they did not seek information to increase their knowledge and therefore reduce their uncertainty. Mishel and Sorenson (1991) suggested that uncertainty, experienced when the course of the illness is not known, generates a need for further information. Instead of seeking further information as a coping strategy to reduce their uncertainty, the study patients discussed their concerns about the disease with other people. Participants sought social support to strengthen the bonds that buffer against feelings of abandonment while providing continuity in their life-style. Physicians were not seen as persons with whom they could discuss their feelings.

The frequent use of emotion-focused coping and the infrequent use of problem-focused coping strategies seen in cancer patients contrasts with coping strategies seen in healthy individuals. Dunkel-Schetter, Folkman and Lazarus (1987) studied the relationship between social support and coping strategies in 75 healthy married couples ($\underline{N} = 150$). Social support was measured by asking the participants about the informational, tangible, and emotional support they receive and about their sources of support. Coping strategies were assessed by the WOC questionnaire (Folkman et al., 1986). Coping strategies were factor analyzed obtaining two factors. The first factor corresponded conceptually to problem-focused coping and contained seeking social support, problem solving, positive reappraisal, and confronting the problem. The second factor corresponded to emotion-focused coping and included distancing, accepting responsibility, and escape-avoidance. Self-control coping loaded similarly on both factors, so it was treated separately. Problem-focused coping was associated with significantly higher levels of informational support ($\underline{F}(1, 146) = 33.18$, $\underline{p} < .001$), assistance ($\underline{F}(1, 146) = 19.83$, $\underline{p} < .001$), emotional support ($\underline{F}(1, 146) = 17.58$, $\underline{p} < .001$), and sources of support ($\underline{F}(1, 146) = 23.21$, $\underline{p} < .001$). In contrast, emotion-focused coping was associated only with less informational support ($\underline{F}(1,146) = 5.05$, $\underline{p} < .05$). More sources of support were reported in situations in which subjects coped by seeking social support and positive reappraisal than in situations in which these were not used. The use of problem solving and seeking social support was associated with receiving more of all types of support. The use of positive reappraisal was associated with receiving more informational and more emotional support but not a differential amount of assistance. Coping by confronting the to be perceived problem and by self-control was associated only with receiving more informational support.

Cancer appears differently from other diseases, because the coping strategies used by cancer patients and their relation to social support differ from those used by patients with other diseases. This can be seen in the case of patients with cardiac disease. Bennett (1993) used path analysis to study perceived social support, uncertainty, degree of threat, coping strategies, emotions, and coping effectiveness in 81 cardiac patients with myocardial infarction. Perceived social support was measured by the Interpersonal Support Evaluation List (Cohen, Mermelstein, Kamarch, & Haberman, 1985). Coping strategies were operationalized through the Ways of Coping questionnaire (WOC) (Folkman & Lazarus, 1988). Emotions were measured with the Bipolar Profile of Mood States (McNair & Lorr, 1992). Emotions were an outcome of threat rather than coping. Perceived social support was found to have a significant negative relation with uncertainty ($\underline{r} = -.49$, $\underline{p} < .05$). Perceived social support was significantly and positively related to problem-focused ($\underline{r} = .40$, $\underline{p} < .05$) and emotion-focused ($\underline{r} = .35$, $\underline{p} < .05$) coping strategies. These relationships were consistent with the theoretical propositions of Lazarus and Folkman (1984a). Perceived social support and coping strategies were not related to emotions.

The investigators suggested that patients' emotional responses may be most influenced by their perceptions of a situation rather than by how they cope. However, coping strategies may alter the emotions experienced and this requires further study.

Psychological Distress, Coping Strategies, and Perceived Social Support in Cancer Patient

In the Lazarus and Folkman Stress and Coping model (LFSC), coping mediates the effects of perceived social support, an environmental resource, on psychological distress. These three variables have been assessed in multiple studies, including some in non-cancer patients, but the mediation of coping was rarely tested. White, Richter, and Fry (1992) assessed the impact of perceived social support, coping strategies, and psychological adaptation in 193 women with diabetes mellitus. Coping strategies were measured by the Ways of Coping Questionnaire (WCQ) (Folkman & Lazarus, 1988). After conducting factor analysis on WCQ the investigators found two dimensions of coping: problem-focused and palliative. Reliability estimates of internal consistency for the two dimensions were .88 and .87, respectively. Social support was measured by the Personal Resource Questionnaire (PRQ85, Part 2) (Weinert, 1989), obtaining a sample alpha coefficient of .93. Psychosocial adaptation was measured by the Psychosocial Adjustment to Illness Scale (PAIS). The authors found that perceived social support was not related to coping strategies, that participants used more problem-focused than palliative coping strategies, that problem-focused coping was not related to adaptation, and that palliative coping (including wishful thinking and behavioral and cognitive escape-avoidance) was negatively related to psychosocial adaptation. Perceived social support was positively related to psychosocial adaptation. Also, palliative coping strategies and perceived social support together with stressful life events and health status accounted for 56% of the variance in psychosocial adaptation. Finally, perceived social support was a better predictor (Beta = .26, $p < .05$) than palliative coping (Beta = -.15, $p < .05$) of psychosocial adaptation.

Eurelings-Bontekoe, Diekstra and Verschuur (1995) in a longitudinal study analyzed the relationships among perceived social support, seeking social support, and psychological distress in 131 mental health patients in The Netherlands. Perceived social support was assessed by the Kerkhof scale and a questionnaire developed by the researchers that measures level of satisfaction with social relationships. Seeking social support was assessed by the subscale "seeking social support" derived from the "Utrechtse Coping List," which has a Cronbach's alpha coefficient of .83. Psychological distress was measured by the Symptom Checklist, which has eight subscales - anxiety, agoraphobia, depression, somatization, sleeping problems, hostility, interpersonal sensitivity, and inadequacy- with a total scale Cronbach's alpha coefficient of .98. The results indicated that perceived social support was not related to seeking social support, and the latter was not related to psychological distress. Both perceived social support and seeking social support were observed to be stable over time. Perceived social support was negatively associated with the several aspects of psychological distress: anxiety ($r = -.33$, $p < .05$), agoraphobia ($r = -.25$, $p < .05$), depression ($r = -.33$, $p < .01$), somatization ($r = -.18$, $p < .05$), insufficiency ($r = -.37$, $p < .05$), interpersonal sensitivity ($r = -.43$, $p < .05$), hostility ($r = -.22$, $p < .05$), and severe psychopathology ($r = -.38$, $p < .05$). Thirteen percent of the variance of anxiety, 19% of the variance of depression, 21% of the variance of insufficiency, 14% of the variance of hostility and 7% of the variance of sleep disorders were explained by perceived social support together with social network.

As in other diseases, in cancer there are clear links between social support and psychological distress. Nevertheless, the links between coping strategies and psychological distress are less well documented. Ell et al. (1989) studied the relationship between perceived social support, coping, and psychological distress in 369 patients with a recent first diagnosis of breast, lung, or colorectal cancer. Coping was measured with an instrument developed by the researcher that yielded two dimensions by factor analysis: active reliance on religion and cognitive restructuring (efforts to minimize the impact of the illness). The Mental Health Inventory (Ware, Johnson, Davies-Avery, & Brook, 1979) measured negative (psychological distress) and positive (psychological well-being) adaptational outcomes. Social support and perceived social support were measured by a modified version of the Interview Schedule for

Social Interaction (ISSI) (Henderson, Byrne, & Duncan-Jones, 1981), which assessed interpersonal relationships (attachment) and social integration. All instruments achieved adequate levels of validity and reliability.

Non-localized cancer (Adjusted $\underline{R}^2 = .52$) explained twice as much of the variance in psychological distress as compared to localized cancer (Adjusted $\underline{R}^2 = .28$), signaling that stage of the disease is an important variable in determining adaptational outcomes. Social support was a significant predictor of psychological adaptation (Adjusted $\underline{R}^2 = .48$). Adequacy of attachment was more important in determining psychological well-being (Beta = .23, $\underline{p} < .001$), whereas social integration was a stronger factor in determining psychological distress (Beta = - .18, $\underline{p} < .001$). In predicting psychological distress social integration (Beta = - .21, $\underline{p} < .01$) was significant in advanced cancer patients, but not in those with early cancer. That the study failed to support a link between social support and coping strategies could be because only two out of various coping strategies reported in the literature were evaluated.

Rodrigue, Behen and Tumlin (1994) found the expected negative relationship between perceived social support and psychological distress and also an association between specific coping mechanisms and psychological distress. These authors examined the relationship between illness-related, demographic, coping, family, and perceived social support and psychological distress in 132 cancer patients with different types of cancer and at different stages of disease. Psychological distress was measured by the Symptom Checklist-90-Revised instrument (Derogatis & Lopez, 1983). Coping was assessed using the Medical Coping Modes Questionnaire (Feifel et al., 1987), which includes three subscales: confrontation, avoidance, and acceptance-resignation. Perceived social support and social network were measured using the Social Support Questionnaire (Sarason, Levine, Basham, & Sarason, 1983). Results revealed that 30 to 35% of subjects were experiencing clinically significant levels of psychological distress. Psychological distress was significantly related to avoidance ($\underline{r} = .48$, $\underline{p} < .001$) and acceptance-resignation ($\underline{r} = .48$, $\underline{p} < .001$) coping strategies, perceived social support ($\underline{r} = -.42$, $\underline{p} < .01$), social network ($\underline{r} = -.31$, $\underline{p} < .001$), family disturbance ($\underline{r} = .59$, $\underline{p} < .001$), perception of health ($r = .26$, $p < .01$), and health care satisfaction ($r = -.25$, $p < .01$). Family disturbance, coping strategies of acceptance-resignation and avoidance, and low perception of social support were the most predictive variables of high psychological distress ($R^2 = .53$).

The only known study examining perceived social support, coping strategies, and psychological adaptation in advanced cancer patients was performed by Bloom and Spiegel (1984). These authors, however, did not use psychological distress, but psychological well-being as the dependent variable. As these two variables measure different constructs and are not directly related, psychological distress remained unexplored. These authors investigated the relationships between the described variables in women with advanced breast cancer. Coping was measured with a scale that evaluated only cognitive and behavioral avoidance. Perceived social support was measured by three subscales of the Family Environment Scale (Moos, 1974), which measures perceived emotional support provided by family members, and the Social Activity Scale, which measures opportunities for social exchange, developed by the researchers, with adequate validity and reliability. The Outlook Scale (sense of achievement in life and hope for the future or psychological well-being) and Social Functioning Scale (Heimler, 1965) measured psychological well-being. Family support was moderately related to one's outlook ($r = .41$, $p < .01$), and social activity was related to social functioning as well as to one's outlook ($r = .21$, $p < .05$). Individuals who used less avoidance enjoyed better social functioning. The mediating effect of specific coping mechanisms between perceived social support and well-being was not tested in this study.

The only study that found coping to be a mediator between perceived social support and psychological distress in cancer patients was done with patients in early cancer stages. Bloom (1982) studied the relationship among perceived social support, coping strategies, and psychological distress in 130 women with non-metastatic breast cancer. Perceived social support was evaluated by three independent measures: perception of family cohesiveness, a susbscale of the Family Environment Scale (Moos, 1974), and two single-item indicators, developed by the researcher, that measured perception of social contact and perception of leisure activity. The instrument that measured coping was developed by the researcher and evaluated avoidant coping (smoking, eating, drinking, sleeping and worrying). The POMS (McNair, Lorr, & Droppelman, 1971) was used to measure psychological distress. Bloom found that perception of family cohesiveness and perception of social contact correlated with avoidant coping (r = .32 and -.42, respectively) and with psychological distress (r = - .23 and -.39, respectively) (p < .01). Coping was found to be negatively correlated with psychological distress (r = -.56). The researcher also showed that coping mediates the relationship between social support and psychological distress. The results were based on only avoidance coping; other coping strategies were not included. Reliability and validity for the perceived social support items and the coping strategies were not provided. These results are consistent with the mediating effect proposed for coping strategies between environmental resources and adaptational outcomes (psychological distress) in the Lazarus and Folkman model, which is the basis for investigating the mediator effect of coping between perceived social support and psychological distress in the present study.

In summary, perceived social support has been consistently associated with low psychological distress in cancer patients (Bloom, 1982; Gotcher, 1992; Mechanic, 1974; Northouse, 1987; Rowland, 1990; Taylor et al., 1985), including patients at advanced stages. The literature has also described relationships between social support and coping strategies, and between coping strategies and psychological distress, but a test for the mediator effect of coping between social support and psychological distress in advanced cancer patients has not been performed. This study addressed the possibility that specific coping mechanisms mediate perceived social support and psychological distress in advanced cancer patients receiving chemotherapy treatment.

CHAPTER III

THE METHOD

Design

This descriptive correlational study was designed to investigate the relationship of specific coping strategies and perceived social support to psychological distress in advanced cancer patients receiving chemotherapy. Multiple regression was used to test each research question.

Sample

The population of this study included adults with advanced cancer receiving chemotherapy. The sampling frame consisted of patients from oncology departments of major medical centers in the New York Metropolitan area.

A volunteer sample of cancer patients was recruited. Participants had a Karnofsky performance score over 50 (Karnofsky & Burchenal, 1949) and complied with all the delimitations of the study. There was no discrimination based on ethnicity. The analyses with six possible predictors in the regression equation required a sample size of 120. This sample size is congruent with the ratio of 20 cases per predictor as recommended by Tabachnich and Fidell (1989, p.128). Given the variables of interest, the sample size was determined for an alpha level of .05 and power of .80 with a medium effect size of $f^2 = .15$ (Cohen, 1988; Pedhazur, 1982). The study sample, therefore, consisted of a minimun of 120 male and female adult advanced cancer patients receiving chemotherapy, a robust sample for all statistical analyses proposed for this study (S. Weinberg, personal communication, March 21, 1995).

Data Collection Procedures

A letter of introduction was sent to the Directors of Cancer Centers (DOCC) (Appendix C). Within one week, a follow-up phone call was made to request an appointment to discuss the details of the study, including purpose, delimitations, sample, instruments, significance, and protection of human subjects. Permission to proceed with the study was granted by the DOCC, and approval from the institution's Internal Review Board was obtained (Appendices D & E).

At the initial meeting with the DOCC, the investigator requested assistance in identifying the medical oncologists treating advanced cancer patients with chemotherapy. Selected physicians also received a letter of introduction (Appendix F) asking for access to their patients. The medical oncologists identified advanced cancer patients who met the eligibility criteria and provided them with written (Appendix G) and verbal information on the study. Voluntary participation, confidentiality, and the assurance of being able to withdraw from the study at any time without any influence in medical care was provided. Potential participants were in- or outpatients. Physicians obtained patients' written consent (Appendix H) and informed the investigator about the potential participants. Participants filled in an identification card (Appendix I). The researcher collected the identification cards and had a personal contact with these individuals. Participants were assigned an identification number that was used on all data forms in lieu of names to ensure confidentiality. Only the researcher had access to the names matching the identification numbers, as this information was kept in a locked file cabinet separate from the data and was destroyed after completion of the study. A mail survey was conducted. A packet containing the questionnaires was mailed to the participants. Participants completed the questionnaires in their homes between ten days post-chemotherapy and before the next treatment. Once the questionnaires had been completed, subjets were requested to return them to the investigator by mail to ensure confidentiality. All participants were encouraged to call the researcher collect if they had any questions about the study.

The study packet, constructed according to Dillman's Total Design Method (1978), contained a cover letter (Appendix J) that described the study and instructions for participants.

the questionnaire booklet, a postcard and a return envelope. Each questionnaire booklet included the Profile of Mood States (POMS), the Ways of Coping Inventory-Cancer Version (WOC-CA) (Appendix K), the Personal Resources Questionnaire (PRQ-85) (Appendix L) and the demographic information sheet (Appendix M). A stamped postcard (Appendix N) with the participant's identification number was also included in the study packet for mailing purposes only. To ensure complete confidentiality, it was emphasized that the postcard had to be returned separately upon mailing the questionnaire booklet. When the postcard was received by the researcher, the participant's identification number and corresponding name were deleted from the follow-up mailing schedule for two (Appendix O) and three weeks (Appendix P) after the initial mailing, as suggested by Dillman (1978). Follow-up phone calls were made by the researcher to participants as necessary. An addressed envelope with first-class postage was also provided to facilitate the return of the questionnaire booklet. A Medical Data Form (Appendix Q) was completed by the researcher from participants' medical records.

The items on the questionnaire booklet could increase patients' awareness of, or sensitivity to, certain feelings. If participants became distressed while completing the questionnaire booklet, they could contact the investigator who could determine if they wished to speak to their physician or be referred for counseling.

Instruments

Profile of Mood States

The Profile of Mood States (POMS) (McNair et al., 1992) is a patient affect scale widely used to measure psychological distress associated with cancer and its treatment (Guadagnoli & Mor, 1989). The POMS was used to measure the participants' emotional response to the experience of having advanced cancer and receiving chemotherapy. Consisting of a 65-item adjective checklist the POMS reflects six primary mood states derived through repeated factor analyses (McNair et al., 1992): tension-anxiety (T) (nine items), depression-dejection (D) (fifteen items), confusion-bewilderment (C) (seven items), anger-hostility (A) (twelve items), vigor-activity (V) (eight items), and fatigue-inertia (F) (seven items). Items number 1, 6, 13, 25, 30, 43 and 55 initially were factored as a subscale called friendliness, but in subsequent analyses it did not demonstrate to be separable from the vigor subscale. Thus, the evidence for replicability of this factor is considered too weak for valid scoring, and these seven items are not part of the Total Mood Score. The authors said "to utilize the Total Mood Disturbance Score whenever the researcher wants a single global estimate of affective state" (McNair et al., 1992, p. 9). The Total Mood Disturbance Score measures the degree of psychological distress.

Participants were asked to rate how much each adjective describes the way they felt during the week before and the day they complete the questionnaire. One week is a sufficiently long period to depict patients' mood reactions to their advanced cancer. POMS is a 5-point Likert scale with responses ranging from 0 = "not at all" to 4 = "extremely." The POMS was scored to attain one score for each of the six moods, calculated by totaling the responses obtained for the adjectives defining the mood. The Total Mood Disturbance Score was determined by totaling the scores for moods T, D, A, F, and C and then subtracting the score for mood V.

A score of zero indicates that a particular mood state is not felt at the time of measurement; a higher score indicates the degree to which that mood is experienced. The range of scores for the mood of tension is 0 - 36; depression, 0 - 60; anger, 0 - 48; fatigue, 0 - 28; confusion, 0 - 28; vigor, (-32) - 0. The range for the Total Mood Disturbance Score is (-32) to 200.

Six independent factor analytic studies were conducted in the development of the POMS. Five studies involved between 150 and 650 psychiatric outpatients of Veterans Administration Mental Hygiene Clinics and another study involved 235 college students. A correlation of .30 or higher between an item and a factor was considered significant. The six replicated POMS factor scores indicated highly satisfactory reliabilities. Internal consistency coefficients for each of the six mood factors ranged from .84 to .95, and test-retest coefficients for each of the mood scales ranged from .65 to .74. The stability coefficients are considerably lower than the .80 levels expected of measures of stable personality characteristics, because mood is a fluctuating state (McNair et al., 1992).

Factorial validity was obtained through six factor analytic replications (McNair et al., 1992). An examination of the individual items defining each mood scale supports the face or content validity of the factor scores. In addition, seven areas of research have provided evidence of the POMS predictive and construct validities: 1) brief psychotherapy studies; 2) controlled outpatient drug trials, 3) cancer research (Dunkel-Schetter et al., 1992; Mishel et al., 1991; Taylor et al., 1985), 4) drug abuse and addiction research, 5) studies of responses to emotion-induced conditions, 6) research on sports and athletes; and studies of concurrent validity coefficients with other POMS correlates (McNair et al., 1992). Construct validity coefficients were established by significant correlations between the POMS and other psychological distress measures as the Hopkins Symptom Distress scale (Parloff, Kelman, & Frank, 1954) (r = .42 to .77, p < .01), the Taylor Manifest Anxiety Scale (Taylor, 1953) (r = .36 to .80, p < .01), the Beck Depression Scale (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) (r = .61, p < .01).

Ways of Coping Inventory--Cancer Version

Dunkel-Schetter et al. (1992) revised the Ways of Coping Inventory (WOC) (Folkman & Lazarus, 1980; Lazarus & Folkman, 1984a) and adapted it for cancer patients (Appendix K). The revised WOC-CA is a 53-item scale that measures a broad range of behavioral and cognitive coping strategies that an individual might use to deal with problems associated with cancer. The instrument consists of 5 subscales: seeking and using social support (11 items), focusing on the positive (8 items), distancing (12 items), cognitive escape-avoidance (9 items), and behavioral escape-avoidance (9 items). A final open-ended item asks whether subjects applied any other particular coping techniques or strategies. Items number 2, 36 and 38 are not included in any subscale because of a low loading factor. The wording of the scales is phrased in past tense so participants can indicate how often they tried each strategy. Written permission to use the WOC-CA was obtained from Dr.Dunkel-Schetter (Appendix R).

Participants were asked to complete the WOC-CA to indicate how often they tried a particular strategy. On a 5-point Likert scale format, responses range from 0 = "never" to 4 = "very often." A score was obtained for each of the 5 subscales. Scoring was achieved by summing the ratings for the scale items. A scale score of 0 indicates that the participant feels the thoughts or behaviors described in a particular scale did not apply or were not used. A maximum score indicates that all the thoughts or behaviors in that scale were used frequently. The range of scores for: seeking and using social support is 0 - 44; focusing on the positive, 0 - 32; distancing, 0 - 48; cognitive escape-avoidance, 0 - 36; and behavioral escape-avoidance, 0 - 36.

Reliability was examined by testing for item consistency and Cronbach's alpha in 603 cancer patients (Dunkel-Schetter et al., 1992). The primary cancer types in this sample were breast (42%), gastrointestinal (13%), lymphoid (11%), female reproductive system (9%), respiratory system (8%), musculoskeletal (6%), head and neck (5%), and other cancers types including male reproductive system, skin, and eye cancer (6%). The seeking and using of social support subscale demonstrated a mean item-total correlation of .55 and reliability (coefficient alpha) of .86; focusing on the positive subscale, .57 and .85, respectively; cognitive escape-avoidance subscale, .46 and .78, respectively; distancing subscale, .45 and .80, resptectively; and behavioral escape-avoidance subscale, .41 and .74, respectively.

The validity of the WOC-CA instrument was supported by the theoretical position that coping strategies and their effectiveness vary according to the nature of the stressor situation (Folkman & Lazarus, 1985). Validity of the original WOC was examined using a sample of undergraduate psychology students (N = 108) who completed the checklist three times as part of a study of examination stress (Folkman & Lazarus, 1985). The original pool of items was derived from a review of the coping literature and the theoretical framework suggested by Folkman and Lazarus (1985). In the revised WOC (Folkman et al., 1986) the 51 items comprised eight factors. Five factors pertained to problem-focused coping (confrontive, self-control, seeking social support, accepting responsibility, and planful problem-solving) and three to emotion-focused coping (distancing, escape-avoidance, and positive reappraisal). Dunkel-

Schetter et al. (1992) evaluated the 51 items for their applicability to cancer. Six items were dropped because they were inappropriate for cancer patients. In addition, 4 of the 67 items of the earlier WOC version that did not load on the eight factors identified by Folkman et al. (1986) were included in the WOC-CA because they were relevant to cancer. Three of these items concerned the future (i.e., waiting or preparing for it), and one concerned comparing of one's own situation to hypothetical outcomes. Some of the 49 items were also reworded to be clearer or briefer. In addition, four items were added to represent various coping behaviors commonly observed in cancer patients (Dunkel-Schetter et al., 1992) but not already captured.

Factor analysis was conducted on data obtained from 603 respondents from several Cancer Centers in California who had different tumor sites, as previously described, and different stages of cancer. Seventy-two percent of the subjects had been diagnosed with cancer in the previous 5 years, more than 50% in the previous 3 years, and 25% in the previous 18 months. Oblique rotation was selected in order to permit correlation among factors. Based on a review of coping research, the authors specified 4 through 8 factors. A five-factor solution was the most coherent and most consistent with earlier research. The coping scales derived from this factor analytic procedure were as follows: seeking and using social support, focusing on the positive, distancing, cognitive escape-avoidance, and behavioral escape-avoidance.

Factor analysis procedures were repeated on subsets of the sample to determine whether factor pattern results would vary as a function of several variables, including recency of diagnosis, stage of cancer, which cancer-related problem subjects coped with, and participation or non-participation in a self-help group. The factors produced in these analyses were similar to the ones reported for the sample as a whole, generally varying only in the order in which items loaded on the five factors.

Personal Resource Questionnaire-85

The Personal Resource Questionnaire-85 (PRQ-85) (Brandt & Weinert, 1981; Weinert & Brandt, 1987) is a self-administered measure of an individual's perceived social support, and is a modified version of the PRQ originally developed by these authors in 1981 (PRQ-81) with revisions in 1982 and most recently in 1985 (PRQ-85). The PRQ-85 evaluates an individual's social network and that individual's perception of the availability of functional social support. As a two-part multidimensional instrument, it is based on R. Weiss' s (1974) five dimensions of social relationships: 1) provision of attachment/intimacy, 2) social integration, being an integral part of a group, 3) opportunity for nurturance, 4) reassurance of worth as an individual and in role accomplishments, and 5) assistance as the availability of informational, emotional, and material help. Part 1 assesses a person's social network, that is, the number and types of resources available. Part 1was not used in this study because the number of relationships in a person's social network is not an adequate measure of the provision of support (Cohen & Wills, 1985). Part 2 (Appendix L), which was used in this study, is a 25-item 7-point Likert scale and measures the respondent's level of perceived social support. Written permission to use the PRQ-85 was obtained from Dr. Brandt (Appendix S).

The PRQ has undergone extensive field testing in various patient populations (e.g., chronic illnesses, epilepsy, multiple sclerosis, arthritis, and diabetes). In cancer research the PRQ was recently used by Baker (1992) and Klemm (1994).

The PRQ-85-Part 2 consists of 25 items labeled a through y. As a 7-point Likert scale, the responses are weighted 7, 6, 5, 4, 3, 2, or 1. The maximun score of "7" means "strongly agree" and the minimum score of "1" means "strongly disagree." Negatively worded items (d, g, j, p, and x) are reversed score to reflect the positive direction of the other 20 items. The total score is the sum of the 25 items, with a positive range from 25 to 175. Higher scores indicate increased levels of perceived social support.

Following revision of the nurturance subscale to eliminate age differences, the PR-Q85-Part 2 demonstrated internal consistency across different study samples. A Cronbach alpha of .87 was obtained in a sample of 132 older persons, .90 in 100 middle-aged adults, and .89 in a 132 middle-aged adults (Weinert & Brandt, 1987). Combining the samples from these three studies, Weinert and Brandt (1987) performed a factor analysis on PRQ-85-Part 2. Perceived social support included the following subcategories: provision for attachment/intimacy; social integration, that is, being an integral part of a group; opportunity for nurturant behavior; reassurance of worth as an individual and in role accomplishments; and the availability of informational, emotional, and material assistance. The researchers found that the underlying structure was limited to three rather than five factors, as originally proposed by Weiss (1974). The three factors were identified as intimacy/assistance, integration/affirmation, and reciprocity and accounted for 43.3 % of the variance. Correlations among factors ranged from .17 to .36, indicating that the factors contribute uniquely to the total construct. For this combined sample, an alpha of .87 was obtained for the total scale (Weinert & Brandt, 1987).

Content validity of the PRQ-81 was evaluated by a panel of three experts on social support, and 15 graduate students with related content backgrounds categorized the items (Brandt & Weinert, 1981).

Brandt and Weinert (1981) provided construct and criterion validity of the PRQ-81. More recently, Weinert and Tilden (1990) also reported validity for the PRQ-85. In this study a sample of 353 middle-aged, white, middle-class spouses of patients diagnosed with multiple sclerosis completed the PRQ-85 and the Cost and Reciprocity Index (CRI) (Tilden & Galyen, 1987; Tilden & Nelson, 1988), a new index of social support. The internal consistency of the PRQ-85 was found to be .90, and its construct validity was supported by a correlation of .58 with the CRI. In addition, the Family APGAR (Smilkstein, 1978), a measure of family functioning, and the Spanier Dyadic Adjustment Scale (Spanier, 1976), which assesses marital satisfaction, were administered to evaluate family well-being. Correlations between the PRQ-85 and CRI and the two family well-being measures ranged from .37 to .55, demonstrating that the expected positive effect of social support on family functioning and satisfaction contributed to the construct validity of the PRQ-85.

In establishing criterion validity, Weinert and Tilden (1990) reported that the PRQ85 and the POMS were administered to a sample of 99 middle-class men and women. Congruent with previous research, a negative correlation ($\underline{r} = -.31$, $\underline{p} < .05$) was found between the PRQ-85 and the total POMS. The negative correlation of -.48 observed between the PRQ-85 and the depression subscale of the POMS was similar to previous findings (Weinert & Brandt, 1987) reported with the Beck Depression Inventory (Beck et al., 1961).

Demographic Information Sheet

The Demographic Information Sheet (Appendix M) was used to obtain demographic data about the participants. Items include age, sex, race, marital status, education, income, employment, religion, living arrangements, and presence of side effects to chemotherapy. This form includes a checklist of 17 physical symptoms. The respondents were asked to rate each symptom according to the degree of distress experienced. The rating scale consists of four responses ranging from "1" (I don't have this symptom) to "4" (I have this symptom and feel continuous distress).

Medical Data Form

A Medical Data Form (Appendix Q) was used to obtain information on primary tumor site, cancer stage, time since diagnosis, type of chemotherapy currently being reveived, prior cancer treatments, and metastases location if any.

Data Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS for Windows). Univariate analyses were carried out to check for outliers, skewness and measures of central tendency, and variability. Transformations were undertaken as necessary. The correlation matrix between all pairs of variables was computed. The matrix was checked for possible problems of multicollinearity and redundancy between predictors. Correlations were considered statistically significant at a level of $p < .05$. Descriptive statistics were conducted with demographic and medical variables, and ancillary analyses were performed to determine their relationship to the study variables. Cronbach alpha coefficients for internal consistency reliability were computed for all psychometric measures.

The research questions were examined by multiple regression analyses. An examination of residuals assessed the regression assumptions of normal distribution, linearity, constant variation, and homocedasticity. Psychological distress was entered as the dependent variable, and the R^2 change and semipartial correlations revealed the unique contributions offered by perceived social support and coping strategies. In hierarchical multiple regression analysis, the five coping strategies, as a block, were given priority over perceived social support (independent variables) in assessing their contribution to the psychological distress variance. Adjusted and non-adjusted R-squared values were compared as indicators of the overall relationship between psychological distress and the collection of six predictors (seeking and using social support, focusing on the positive, distancing, behavioral escape-avoidance, cognitive escape-avoidance, and perceived social support). Multiple regressions were considered statistically significant at level of $p < .05$. When the R-square increased significantly from zero, the researcher looked at the beta weights to identify the relative importance of the predictors in contributing to psychological distress. The relative importance of the predictors in accounting for psychological distress was also analyzed using semipartial correlations.

The mediator effect of coping strategies was studied using multiple regression. If the relationship between perceived social support and psychological distress dropped significantly after controlling for coping, the mediator effect was demonstrated (Baron & Kenny, 1986).

CHAPTER IV

RESULTS

This study was designed to investigate the relationships among perceived social support, coping mechanisms, and psychological distress in advanced cancer patients receiving chemotherapy treatment. A voluntary sample of 132 patients completed the Personal Resource Questionnaire, the Ways of Coping Inventory-Cancer Version, the Profile of Mood States, and a Demographic Information Sheet. The data were analyzed using the Statistical Package for the Social Sciences (SPSS for Windows, 1994).

A total of 191 individuals who met the eligibility criteria were identified and asked to participate in the study. Fourteen patients refused to participate, of whom eight did not informe the researcher why they refused and six did. Of these six, four patients stated, "I don't want to think about it." Another patient said, "If you want to know how I cope, I'll tell you. I do forget it as soon as I leave this place. I don't talk about it with anyone, not even with my wife." Another potential participant refused to sign the consent form and said, "I don't like to put my name on any list. After signing I'll receive other questionnaires in the mail." In this case, the researcher reminded the patient of the confidential nature of his participation, but he still refused to participate.

One hundred and seventy-seven patients (92.7% of those asked) agreed to participate and signed the informed consent form. However, 44 of these patients did not complete the questionnaire booklet and one returned the booklet after the data were already analyzed. Of these 44 patients, 28 did not return their questionnaires, three died before completing them, five were not included because they left more than 10 % of the questionnaires incomplete, and eight communicated to the researcher that they were physically unable to do it. Of these eight patients, one was confused, one lacked concentration, three had difficulty understanding some words, one had hand tremors, one had poor eyesight, and another patient's husband died.

The final sample comprised 132 advanced cancer patients receiving chemotherapy. This study sample represented 69.1% of the patients asked to participate. Participants were recruited from two separate hospitals in the metropolitan area of New York: a city hospital (Bellevue Hospital) and a private hospital (New York University Medical Center). Most (88%) were recruited from the private hospital. The different medical services from which the sample was recruited are listed in Table 1.

Table 1

Hospital and Service Sample Characteristics

(N = 132)

Hospital	Service	n	Percent
Private: New York University Medical Center	Medicine Floor	2	1.5
	Cooperative Care Unit	42	32.0
	Physicians offices	72	54.5
Public: Bellevue Hospital	Medicine Floor	8	6.0
	Oncology Clinic	8	6.0

Demographic Characteristics

The ethnicity of the sample was relatively homogeneous. One hundred and fourteen individuals (86.4%) were Caucasian, eight (6.1%) African-American, seven (5.3%) Hispanic, two (1.5%) Asian, and one (0.8%) of other ethnic backgrounds. The sample included 88 women and 44 men. Participants' ages ranged from 33 to 83 years; the mean age was 60.24 years (SD =

11.78 years). Participants perceived their health either as excellent (9.1%), very good (20.5%), moderately good (40.9%), moderately poor (17.4%), or very poor (11.4%).

Most of the participants were less than 65 years old (58%), Caucasian (86.4%), married (62.9%), living with their spouses (48.5%), retired (37.9%) or working full-time (31.8%), and Roman Catholic (39.4%) or Jewish (34.8%). Most of the sample had an education level beyond high school (67.4%) and an annual income of above $60,000 (42.2%). A summary of the demographic characteristics is presented in Table 2.

Table 2

Demographic Characteristics

(N = 132)

Characteristic	n	Percent
Age in years		
33-65	76	57.6
66-83	56	42.4
Ethnicity		
African-American	8	6.1
Caucasian	114	86.4
Hispanic	7	5.3
Asian	2	1.5
Other	1	0.8
Marital status		
Never married	18	13.6
Married	83	62.9
Divorced	17	12.9
Separated	4	3.0

Table 2 continued

Widowed	9	6.8
Missing data	1	0.8
Employment		
Full-time	42	31.8
Part-time	13	9.8
Retired	50	37.9
Homemaker	5	3.8
Unemployed	8	6.1
Social security disability	11	8.3
Sick leave	1	0.8
Missing data	2	1.5
Living Arrangements		
Alone	26	19.7
With parents	5	3.8
With spouse	64	48.5
With spouse and children	18	13.6
With children	11	8.3
With friends	5	3.8
With sister or brother	2	1.5
Missing data	1	0.8
Religion		
Protestant	12	9.1
Roman Catholic	52	39.4
Jewish	46	34.8
Not religious	13	9.8

Table 2 continued

Other religion	6	4.5
Missing data	3	2.3
Education		
8th grade or less	2	1.5
Some high school	9	6.8
All high school	30	22.7
Some college	28	21.2
Baccalaureate	29	22.0
Graduate degree	32	24.2
Missing data	2	1.5
Annual family income		
Below $20,000	18	13.6
$20,000 to 39,999	30	22.7
$40,000 to 59,999	19	14.4
$60,000 and above	53	40.2
Missing data	12	9.1
Perception of health status		
Excellent	12	9.1
Very good	27	20.5
Moderately good	54	40.9
Moderately poor	23	17.4
Very poor	15	11.4
Missing data	1	0.8

Medical Characteristics

The most frequent primary tumor sites were breast (26.5%), ovary (18.2%), lung (12.9%), skin melanoma (11.4%), and colorectal (10.6%). The average time since the initial cancer diagnosis was 13 months, with a range from 2 months to 17 years. Ninety-two percent of the participants had metastases and the rest had locally advanced disease beyond possible cure. The metastases were located in one organ (41.7%), two organs (34.1%), or more than two organs (9.1%). Of the cases with only one metastatic organ, 15.2% were in the abdominal cavity, 12.1% in the liver, 8.3% in the lung, and 6.1% in the bone. All participants were undergoing chemotherapy and had completed from 1 to 92 cycles of treatment at the time of the study, with a mean of 16 cycles. None of the respondents were receiving radiation, immunotherapy or hormonal therapy at the time of the study. Prior to participation in the study 79% had had major surgery, 39% had had radiation treatment, and 28% had had hormonal treatment.

The most frequently reported chemotherapy side effects (i.e., those occurring occasionally or those continuously bothering the participants) were fatigue (77.5%), hair loss (59.4%), constipation (50%), shortness of breath (46.1%), tingling or numbness of extremities (46.1%), nausea (45.7%) and pain (43%) (See Table 3).

Table 3

Frequency of Chemotherapy Side Effects

(N=132)

Chemotherapy Side Effects	Not bothered by (%)	Bothered by (%)	Mean	<u>SD</u>
Nausea	54.3	45.7	2.10	1.07
Appetite loss	51.9	48.1	2.17	1.08
Vomiting	78.3	21.7	1.49	0.87
Insomnia	62.8	37.2	1.95	1.05
Fatigue	22.5	77.5	2.92	0.93

Table 3 continued

Constipation	50.0	50.0	2.19	1.12
Diarrhea	70.1	29.9	1.77	0.94
Worsening physical appearance	62.2	37.8	2.09	1.08
Weight loss	74.0	26.0	1.73	1.00
Weight gain	76.4	23.6	1.69	1.00
Swallowing difficulty	87.5	12.5	1.34	0.76
Mouth sores	77.3	22.7	1.55	0.91
Taste and smell change	59.5	40.5	2.13	1.34
Hair loss	40.6	59.4	2.63	1.16
Pain	57.0	43.0	2.03	1.09
Shortness of breath	53.9	46.1	2.07	1.08
Eye tearing	76.6	23.4	1.59	0.88
Extremities numbness	53.9	46.1	2.10	1.10
Other	89.9	10.1	1.27	0.80

Before answering the Ways of Coping Inventory, participants were asked which problem associated with cancer was the most difficult for them in the past six months. Fear and uncertainty about the future due to cancer (51%) was the most troubling problems associated with cancer, followed by limitations in physical abilities, change in appearance or lifestyle due to cancer (31.8%), and pain, symptoms or discomfort from illness or treatment (11.4%). None of the participants identified problems with family or friends as their source of stress related to cancer.

Reliability of the Instruments

Although the literature reports adequate reliabilities on the seven scales used in this research, each of the instruments was tested for internal consistency. The results of this analysis are reported in Table 4. The alpha coefficients for most of the instruments demonstrate levels of internal consistency above the minimum of .70, as recommended by Nunnally (1978). However, the scales of cognitive and behavioral escape-avoidance had alpha coefficients of .66 and .60, respectively. Additionally, alpha coefficients were computed for each mood-state subscale (confusion, fatigue, depression, vigor, anxiety, and anger) and for the chemotherapy side effects scale (see Table 5). All the subscales, except confusion, showed adequate reliability coefficients (alpha > .70).

Table 4

Alpha Reliability Coefficients of Instruments

(N = 132)

Instruments	Alpha coefficients
Personal Resource Questionnaire-85 Part-2 (PSS)	.74
Seeking and using social support (SS)	.92
Focusing on the positive (FOP)	.81
Distancing (DIS)	.74
Cognitive escape-avoidance (CA)	.66
Behavioral escape-avoidance (BA)	.60
Profile of Mood States (Distress)	.92

Table 5

Alpha Reliability Coefficients of Distress Subscales and Chemotherapy Side Effects Scale

Instruments	N	Alpha Coefficients
Confusion	132	.61
Fatigue	132	.92
Depression	132	.93
Vigor	132	.88
Anxiety	132	.81
Anger	132	.91
Chemotherapy side effects scale	128	.78

Descriptive Statistics

Descriptive statistics were compiled for the dependent variable psychological distress and for the independent variables perceived social support (PSS) and coping mechanisms, including seeking social support (SS), focusing on the positive (FOP), behavioral escape-avoidance (BA), cognitive escape-avoidance (CA), and distancing (DIS). The mean, standard deviation, possible range, actual range, and the ratio between skewness and the standard error of skewness are reported in Table 6. Coping mechanisms were found to be symmetrically distributed, but psychological distress and perceived support were skewed. PSS was negatively skewed (-1.1) meaning that the largest portion of data values were above the mean. Multiple regression analysis can only be applied to the tested variables when they meet the assumption of being normally distributed. A negatively skewed distribution must first be reflected and then transformed to meet this assumption. Following the recommendation of Tabachnick and Fidell (1989), to obtain a positively skewed variable, PSS was reflected by subtracting each score from a constant formed by the largest score in the distribution plus one (135 + 1 = 136). Psychological distress was found to be skewed, in a positive direction (.84); the largest portion of data values was below the mean. Square root transformations corrected the skewness, resulting in a non-skewed distribution (PSS skew = 0.24; and distress skew = 0.11).

Table 6

Means, Standard Deviation, Possible Range, Actual Range, and Transformed Skewness for Perceived Support (PSS), Seeking Support (SS), Focusing on the Positive (FOP), Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS, and Psychological Distress

(N = 132)

Variable	Mean	SD	Possible range	Actual range	Skewness/SE Skew*
PSS	101.52	21.49	25-175	27-135	0.24
SS	22.18	8.03	0-44	3-40	0.14
FOP	14.15	6.59	0-32	0-29	0.09
BA	10.40	4.85	0-36	0-25	1.75
CA	18.59	6.18	0-36	4-34	0.25
DIS	27.78	7.39	0-48	4-46	0.42
Distress	35.31	36.28	(-)32-200.0	(-)29-149.0	0.11

*SE Skew = standard error of skewness.

Analysis of the descriptive statistics for the coping strategies showed that most of the subjects in the study used simultaneously different coping strategies to deal with the stressful aspects of advanced cancer. The coping strategy most often used in the study population was distancing (on average, 24.8% of subjects' total coping effort) which was followed by cognitive escape-avoidance (22.2%), seeking and using of social support (21.6%), and focusing on the positive (19%). The least used coping strategy was behavioral escape-avoidance (12.4%). Sixty-five percent of the cases had distancing scores higher than the 50th percentile; whereas only 4% had behavioral escape-avoidance scores higher than the 50th percentile. Seeking support, focusing on the positive, and cognitive avoidance occurred with a frequency above the 50th percentile for 55%, 44% and 50% of the cases, respectively. There were two coping mechanisms that several subjects never used: behavioral avoidance in two cases (1.5%) and focusing on the positive in one case (0.8%).

Missing values were few in number and appeared to be randomly distributed across variables. Therefore, all cases could be introduced for the statistical analysis substituting these missing values with the mean values. The mean, standard deviation, possible range, actual range, and skewness divided by the standard error of the skewness for the subscales of the dependent variable distress (anger, confusion, depression, fatigue, anxiety, and vigor) are presented in Table 7. Vigor was the only subscale found to be symmetrically distributed; anger, confusion, depression, fatigue, and anxiety were found to be skewed. Square-root transformations corrected the skewness, resulting in a non-skewed distribution. Only 10% of the subjects had more than moderate levels of psychological distress (above the 50th percentile), and of these only 4% had a distress score higher than 2 standard deviations from the obtained mean.

Table 7

Means, Standard Deviation, Possible Range, Actual Range, and Transformed Skewness of Anger, Confusion, Depression, Fatigue, Anxiety, and Vigor

(N = 132)

Variable	Mean	SD	Possible range	Actual range	Skewness/SE Skew
Anger	8.76	9.12	0-48	0-42	1.22
Confusion	6.67	4.52	0-28	0-21	1.12
Depression	11.91	11.25	0-60	0-59	0.90
Fatigue	11.53	6.90	0-28	0-28	1.61
Anxiety	10.82	7.51	0-36	0-32	0.49
Vigor	14.37	6.65	0-32	0-32	0.93

For statistical analysis to be applied, the variables must show the properties of homocedasticity, normality, and linearity. Therefore, residuals were plotted and investigated for these properties. The standardized scattered plots of the residuals indicated homogeneity of variance. Bivariate scatterplots revealed linearity of all variables. Multivariate outliers with a standardized residual greater than three standard deviations were not detected. A correlation matrix among the independent variables was computed to test for collinearity. A range of r's from .06 to .48 was obtained. All correlations were below .70, indicating that the variables were not redundant (Tabachnick & Fidell, 1989); that is, all variables were measuring different constructs. The independent variables of perceived social support and coping mechanisms were correlated with the dependent variable of distress (see Table 8). The correlations among coping mechanisms were all positive, ranging from .16 to .48. Seeking and using social support and focusing on the positive were the coping mechanisms most highly correlated with each other; distancing and behavioral escape-avoidance, the ones least so.

Table 8

Correlations Among Distress, Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on the Positive (FOP), Seeking Support (SS), and Perceived Support (PSS)

(N = 132)

Variables	BA	CA	DIS	FOP	SS	PSS
Distress	.38***	.38***	-.25**	-.16	-.002	-.43***
BA	—	.38***	.16*	.33***	.36***	-.14
CA		—	.05	.20**	.07	-.15
DIS			—	.40***	.06	.08
FOP				—	.48***	.25**
SS					—	.27***

Note: 2-tailed Sig. *p < .05. **p < . 01. ***p < .001.

Analysis of Research Questions

Research Question #1

Among advanced cancer patients who are receiving chemotherapy, do the coping strategies of seeking and using social support, distancing, focusing on the positive, cognitive escape-avoidance, and behavioral escape-avoidance relate individually and collectively to psychological distress?

The Pearson product moment correlation was used to analyze the relationships between each coping strategy and psychological distress. The zero-order correlation (Table 8) indicated that the coping strategies of distancing, and cognitive and behavioral escape-avoidance relate individually to psychological distress. However, seeking social support and focusing on the positive did not relate significantly to psychological distress. Behavioral avoidance ($r = .38$, $p < .001$) and cognitive avoidance ($r = .38$, $p < .001$) were positively related and distancing ($r = -.25$, $p < .01$) was negatively related to psychological distress. This indicates that low levels of psychological distress are associated with low levels of escape-avoidance (as theoretically expected) and with high levels of distancing.

Multiple regression analysis tested whether the coping mechanisms, when entered simultaneously, predicted psychological distress. This analysis revealed that the obtained F ratio of 14.07, with 5 and 126 degrees of freedom, was significant at the $p = .0001$ level. The coefficient of multiple determination ($R^2 = .36$, Adjusted $R^2 = .33$) indicated that 36% of the variance of psychological distress was predicted by the association of coping mechanisms (see Table 9). Behavioral and cognitive escape-avoidance, distancing, and focusing on the positive were the coping mechanisms that contributed significantly to psychological distress variance. In contrast, seeking and using social support did not significantly account for the variance in psychological distress. Therefore, coping through behavioral and cognitive escape-avoidance, distancing, and focusing on the positive explained a large part of the variance of psychological distress in advanced cancer patients.

Table 9

Psychological Distress Regressed on Coping Mechanisms

(N = 132)

Source	df	R	R^2	Adjusted R^2	F	p
Regression	5	.60	.36	.33	14.07	< .001
Residual	126					

Research Question # 2

What is the relative importance of the various coping strategies in explaining psychological distress in advanced cancer patients receiving chemotherapy?

The examination of Beta weights obtained after applying multiple regression analysis indicated behavioral escape-avoidance (Beta = .40) to be the most important coping mechanism contributing to overall psychological distress in advanced cancer patients (see Table 10). This was followed by cognitive escape-avoidance (Beta = .29), distancing (Beta = -.24), and focusing on the positive (Beta = .23). Therefore, behavioral escape-avoidance appears to be the most important predictor for overall psychological distress in the study sample.

The unique contribution of each independent variable (coping mechanism) in predicting the total variance of the dependent variable (psychological distress) was also assessed using squared semipartial correlations. This analysis evaluates the relationship between each coping mechanism and psychological distress after controlling for the other coping mechanisms. The results reported in Table 11, showed the same pattern of variable importance as the one obtained using beta weights. Behavioral avoidance, cognitive avoidance and distancing were the coping mechanisms that significantly accounted for the variance of psychological distress ($p < .05$). Focusing the positive also contributed to the variance of psychological distress, but less significantly. Behavioral avoidance was the coping mechanism that had the highest (15%)

unique contribution in explaining psychological distress, followed by cognitive avoidance (10%), distancing (5%), and focusing on the positive (5%).

Table 10

Variables in the Multiple Regression Analysis of Distress on Coping Mechanisms

(N = 132)

Variable	B	Beta	t	p
Behavioral escape-avoidance (BA)	.18	.40	+4.77	< .001
Cognitive escape-avoidance (CA)	.10	.29	+3.69	< .001
Distancing (DIS)	-.07	-.24	-2.98	.003
Focusing on the positive (FOP)	-.08	-.23	-2.53	.012
Seeking & using social support (SS)	-.01	-.04	-.44	.663
(Constant)	(7.25)			

Table 11

Squared Semipartial Correlation Coefficients of Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on Positive (FOP), and Seeking Support (SS) with Psychological Distress

(N = 132)

	BA	CA	DIS	FOP	SS
Squared Semipartial r	.15	.10	.07	.05	.002
p (2-tailed Sig.)	< .001	< .001	.003	.013	.66

Research Question # 3

To what extent does perceived social support contribute over and above coping strategies to explain the variance of psychological distress in advanced cancer patients?

A hierarchical multiple regression analysis was employed to determine if perceived social support (PSS) improved the prediction of psychological distress beyond that already explained by the coping mechanisms. After step 1, in which all of the coping mechanisms were entered simultaneously as a block of main effects (Tabachnick & Fidell, 1989), the coefficient of multiple determination ($R^2 = .36$) indicated that almost 36% of the variance of psychological distress was explained by the association of coping mechanisms (behavioral avoidance, cognitive avoidance, distancing, and focusing on the positive) ($p < .05$) (see Table 9). After step 2, in which perceived social support was added to prediction of psychological distress, the R^2 increased to .43. Therefore, over and above coping strategies, perceived social support explained an extra 7.6% of the variance of psychological distress. The overall equation remained statistically significant (F (6, 125) = 15.99, $p < .001$) (see Table 12). The Beta weight of perceived social support was also statistically significant (.30, $p < .001$). In this step the impacts of coping mechanisms retained their significance, except focusing on the positive, which became statistically non-significant ($p = .06$). The significant increment in R^2 observed for perceived social support indicates its importance in explaining psychological distress.

Table 12

Psychological Distress Regressed on Coping Mechanisms and Perceived Social Support (N = 132)

Source	df	R	R^2	Adjusted R^2	F	p
Regression	6	.66	.43	.41	15.99	< .001
Residual	125					

Besides coping strategies main effects, two-way-interaction effects involving coping stategies were also examined in relation to psychological distress. In regression analysis, interaction terms are represented as appropriate cross product terms. For this purpose, ten cross product terms (interactions) were introduced into the regression equation as a set: 1) cognitive avoidance by behavioral avoidance (CA x BA); 2) cognitive avoidance by distancing (CA x DIS); 3) cognitive avoidance by focusing on the positive (CA x FOP); 4) cognitive avoidance by seeking and using social support (CA x SS); 5) behavioral avoidance by distancing (BA x DIS); 6) behavioral avoidance by focusing on the positive (BA x FOP): 7) behavioral avoidance by seeking support (BA x SS); 8) distancing by focusing on the positive (DIS x FOP); 9) distancing by seeking social support (DIS x SS); and 10) focusing on the positive by seeking social support (FOP x SS). Only three of these ten interactions were significant (CA x DIS; BA x DIS; and FOP x SS) (see Table 13). The term CA x DIS ($\underline{p} < .01$) accounted for 47% of the variance in psychological distress; the term BA x DIS ($\underline{p} = .05$) 45%; and the term FOP x SS ($\underline{p} = .03$) 45%. To help in the interpretation of these interactions, the coping mechanisms were dichotomized into high and low scores at the median point. The resulting cell means are given in Tables 14, 15, and 16. These cell means were then plotted (see Figures 3, 4, and 5 in Appendices T, U, and V, respectively). As expected, distress was lower in participants with high levels of focusing on the positive, especially when they had high levels of seeking social support as compared with those with low levels. Also, psychological distress was higher in participants who used a high level of behavioral or cognitive avoidance, especially when they did not use distancing.

Table 13

Interaction Effect of Coping Mechanisms on Psychological Distress

(N = 132)

Interaction	Beta	p	Multiple R	R^2	Adjusted R^2
CA x DIS	-.92	< .01	.68	.47	.44
BA x DIS	-.64	.05	.67	.45	.42
FOP x SS	-.63	.03	.67	.45	.42

Note: CA = Cognitive avoidance, BA = Behavioral avoidance, FOP = Focusing on the positive, DIS = Distancing, and SS = Seeking support.

Table 14

Cell Means of the Dichotomized Variables of Cognitive Avoidance and Distancing on Psychological Distress

		Cognitive escape-avoidance	
		Low	High
Distancing	Low	M = 7.47 SD = 2.02 n = 31	M = 8.84 SD = 2.19 n = 41
	High	M = 6.58 SD = 1.56 n = 24	M = 7.57 SD = 2.46 n = 36

Table 15

Cell Means of the Dichotomized Variables of Behavioral Avoidance and Distancing on Psychological Distress

		Behavioral escape-avoidance	
		Low	High
Distancing	Low	M = 7.77 SD = 2.23 n = 38	M = 8.78 SD = 2.11 n = 34
	High	M = 6.16 SD = 1.91 n = 26	M = 7.95 SD = 2.08 n = 34

Table 16

Cell Means of the Dichotomized Variables of Focusing on the Positive and Seeking Support on Psychological Distress

		Focusing on the positive	
		Low	High
Seeking Social Support	Low	M = 8.02 SD = 2.24 n = 47	M = 7.48 SD = 1.77 n = 24
	High	M = 8.36 SD = 2.07 n = 22	M = 7.29 SD = 2.59 n = 39

Research Question # 4

Is there an interaction effect between perceived social support and coping strategies on psychological distress in advanced cancer patients receiving chemotherapy?

To answer this question, the researcher investigated whether the interaction between perceived social support and each coping strategy (i.e., behavioral avoidance, cognitive avoidance, distancing, focusing on the positive, and seeking social support) had an effect on psychological distress. Five cross-product terms representing these five interactions were introduced into the regression equation, between perceived social support and behavioral avoidance (PSS x BA), perceived social support and cognitive avoidance (PSS x CA), perceived social support and distancing (PSS x DIS), perceived social support and seeking support (PSS x SS), and perceived social support and focusing on the positive (PSS x FOP). Only one of these interactions, perceived support with behavioral avoidance, had a significant effect on psychological distress (PSS x BA, $p = .02$) (see Table 17). To help in the interpretation of this interaction, perceived support and behavioral avoidance were dichotomized into high and low scores at the median point. The resulting cell means are given in Table 18. These cell means were then plotted (see Figure 6, Appendix W). As seen in this figure, most of the psychological distress occurred when the study subjects had high levels of behavioral avoidance, especially when they perceived support to be low ($n = 38$).

Table 17

Interaction Effect of Perceived Support and Coping Mechanisms on Psychological Distress ($N = 132$)

Variable	Beta	p	Multiple R	R^2	Adjusted R^2
PSS x BA	.63	.02	.67	.46	.43
PSS x CA	.57	.06	.67	.44	.42
PSS x DIS	.12	.66	.66	.43	.40
PSS x FOP	-.02	.95	.66	.43	.40
PSS x SS	-.09	.70	.66	.44	.40

Table 18

Cell Means of the Dichotomized Variables of Behavioral Avoidance and Perceived Support on Psychological Distress

		Perceived Social Support	
		High	Low
Behavioral Escape Avoidance	Low	M = 6.58 SD = 2.06 n = 35	M = 7.77 SD = 2.31 n = 29
	High	M = 7.27 SD = 1.65 n = 30	M = 9.22 SD = 2.08 n = 38

Research Question # 5

Do coping strategies have a mediating effect between perceived social support and psychological distress in advanced cancer patients receiving chemotherapy?

In general, a given variable (e. g., coping mechanisms) is said to function as a mediator to the extent that it accounts for the relation between the predictor (e. g., perceived social support) and the criterion (e. g., psychological distress) variables. According to Baron and Kenny (1986), the mediator function of a third variable represents the generative mechanism through which the focal independent variable is able to influence the dependent variable of interest. Perfect mediation holds if the independent variable (perceived social support) has no effect om psychological distress when the mediator (coping mechanisms) is controlled. Because in psychooncology the study phenomena have multiple causes, a more realistic goal is to seek mediators that significantly decreases rather than eliminating the relation between the predictor and criterion variables.

Following the guidelines of Baron and Kenny (1986), the researcher studied whether or not the following conditions establishing mediation were held by the variables in the study (see Figure 7, Appendix X):

(a) Path a. The variations in levels of the independent variable (perceived social support) should significantly account for variations in the presumed mediator (coping). To this aim perceived social support was correlated with all coping strategies taken individually--i.e., behavioral avoidance, cognitive avoidance, distancing, focusing on the positive, and seeking social support--and with all coping strategies taken collectivelly as a block (Coping), which indicates coping in general (see Table 19). The variable of coping as a block (Coping) was calculated by summing all scores for the individual coping mechanisms. Higher scores indicated that the subjects were using more coping mechanisms. Coping as a block is only an estimate of the amount of the different strategies used and should be complemented with the analysis of the individual coping strategies. This first requirement was not met when all coping mechanisms were taken as a block; however, it was met for specific coping mechanisms. The relationship between perceived social support and coping as a block was not significant ($p = .12$). As theoretically expected, perceived social support was significantly related to focusing on the positive ($r = .24$, $p < .01$) and to seeking and using social support ($r = .27$, $p < .001$). Individuals with high levels of perceived social support focused more on the positive, and sought and used more social support (see Figure 8, Appendix Y).

Table 19

Correlations of Perceived Support (PSS) with Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on the Positive (FOP), Seeking Support (SS), and Coping (N = 132)

Variables	BA	CA	DIS	FOP	SS	COPING
PSS	-.14	-.15	.08	.24	.27	.13
p	.12	.09	.34	.004	.002	.12

Note: 2-tailed Sig.

(b) Path b. The variations in the mediator (coping) should significantly account for variations in the dependent variable (psychological distress). To test this condition in the study sample all coping as a block was correlated with psychological distress. This second condition was not met either, as the relationship between coping as a block and psychological distress was not significant ($p = .49$) (see Table 20). Some of the coping strategies, however, when taken individually were significantly related to psychological distress. Distancing ($r = -.25$, $p = 003$), behavioral escape-avoidance ($r = .38$, $p < .001$), and cognitive escape-avoidance ($r = .38$, $p < .001$) were significantly related to distress (see Figure 8, Appendix Y).

Table 20

Correlation of Psychological Distress with Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on the Positive (FOP), Seeking Support (SS), Coping, and Perceived Support (PSS)

($N = 132$)

Variable	BA	CA	DIS	FOP	SS	Coping	PSS
Distress	.38	.38	-.25	-.16	-.002	.06	-.43
p	< .001	< .001	.003	.07	.98	.49	< .001

Note: 2-tailed Sig.

(c) When Paths a and b are controlled (that is, when coping is controlled for) a previously significant relation between the independent (perceived support) and the dependent (psychological distress) variables should no longer be significant, with the strongest demonstration of mediation occurring when Path c is zero.

The initial relationship between perceived social support (PSS) and distress was statistically significant ($r = -.43$, $p < .001$). As expected, high levels of perceived support were associated with low distress. When controlling for the five coping mechanisms, the relationship between perceived support and distress, in a four-order partial correlation, decreased to $r = -.34$

($p < .001$). However, because paths a and b were not statistically significant, a mediator effect was not found (see Figure 7, Appendix X). This finding indicates that perceived social support and coping mechanisms are both independent variables that affect psychological distress, and that coping mechanisms do not mediate the relationship between perceived social support and psychological distress (see Figure 9, Appendix Z).

As recommended by Baron and Kenny (1986), a separate analysis was conducted to test this mediation by estimating three regression equations (Table 21). First, the possible mediator (coping as a block) was regressed on the independent variable (perceived social support). Second, the dependent variable (psychological distress) was regressed on the independent variable (perceived social support). Third, the dependent variable (psychological distress) was regressed on both the independent variable (perceived social support) and on the mediator (coping). Separate coefficients were estimated and tested for each equation. The first and third equations were not significant. Perceived social support did not affect coping in general (F = 2.44, p = .12), and the mediator (Coping) did not affect the dependent variable, psychological distress (F = .47, p = .49).

Table 21

Regression Equations in the Mediator Model

(N = 132)

Regression	r	p	Multiple R	R^2	F	p
Coping on PSS	.14	.060	.13	.020	2.44	.120
Distress on PSS	-.43	< .001	.43	.190	30.19	< .001
Distress on Coping	.06	.240	.06	.003	0.47	.490
Distress on PSS and Coping			.45	.200	16.41	< .001

Note: PSS = Perceived social support. N = 132

Although the second equation was statistically significant ($F = 30.19$, $p < .001$), indicating that perceived social support affects psychological distress, the use of coping as a block (all coping strategies entered together indicating coping in gereral) does not mediate between perceived social support and psychological distress in the study sample. The coping mechanisms when taken collectively did not account for the relation between perceived social support and psychological distress.

Ancillary Analysis

The researcher performed six additional analyses. These included the evaluation of the relationship among the study variables (perceived social support, coping mechanisms, and psychological distress), demographic and medical variables, and with the distress subscales (anger,

confusion, depression, fatigue, vigor, and anxiety). Gender and income differences in the study variables were also assessed. In addition, the researcher evaluated if the chemotherapy side effects, as an independent variable, increased the explained overall variance of psychological distress. Finally, the emotional aspects of psychological distress were also studied in relation to the independent variables (perceived social support and coping strategies).

Relationships of the Study Variables with Demographic and Medical Variables

Pearson product moment coefficients were computed to analyze the relationship between the demographic characteristics (e.g., age, education, income) or the medical variables (e.g., time since diagnosis, prior chemotherapy) with the study variables. As depicted in Table 22, the number of children was not significantly related to any study variable, and time since diagnosis was only related to participants' perception of health. Number of chemotherapy treatments was only negatively related to perceived social support, indicating that individuals with more chemotherapy side effects had less perceived support. Age was significantly related to behavioral and cognitive avoidance, focusing on the positive, seeking and using support, and chemotherapy side effects. Thus, as age increased, participants had less perception of social support, sought and used less social support, used less avoidance and less focusing on the positive, and had fewer chemotherapy side effects.

The level of education was found to be significantly related to cognitive avoidance and to seeking and using social support. Therefore, as education increased in the study sample, cognitive avoidance and seeking social support decreased. Level of income was negatively related to psychological distress and positively related to perceived social support and to seeking and using social support. As income increased, psychological distress decreased and perceived social support or seeking and using social support also increased.

Table 22

Correlations of Age, Education, Income, Time since Diagnosis (DIAG), Chemotherapy Treatment (Chemo), and Perception of Health (Health) with Perceived support (PSS), Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on the Positive (FOP), Seeking Support (SS), Psychological Distress, and Chemotherapy Side Effects (CSE)

(N = 132)

Variables	Age	Education	Income	DIAG	Chemo	Health
PSS	-.16	.11	.43***	-.12	-.19*	-.28***
BA	-.28***	-.04	-.08	.03	.09	.03
CA	-.20*	-.28***	-.10	.03	-.02	.19*
DIS	-.01	.12	.02	-.04	-.03	-.36***
FOP	-.31***	.04	.14	-.07	.03	-.30***
SS	-.37***	.21**	.18*	-.16	-.01	-.11
Distress	-.12	-.12	-.20*	.04	-.01	.37***
CSE	-.22**	.06	.15	.07	.10	.18*
Health	.01	-.17*	-.22**	.23**	.03	___

*p < .05. **p < . 01. ***p < .001.

Interestingly, participants' perception of health status (with a higher score indicating poor perception of health) was significantly associated with most of the variables. Perception of health was negatively related to perceived social support (r = -.28), distancing (r = -.36), focusing on the positive (r = -.30), education (r = -.17), and income (r = -.22). In contrast, perception of health was positively related to psychological distress (r = .37), cognitive avoidance (r = .19), chemotherapy side effects (r = .18), and time since diagnosis (r = . 23). As theoretically expected, these results showed that perception of health as good was associated with low distress, cognitive avoidance, and short time since diagnosis. Perception of health status as good was also associated with high perception of social support, distancing, focusing on the positive, income, and education.

Relationships of the study variables with psychological distress subscales

First, a correlation matrix among the subscales of the dependent variable of psychological distress (anger, confusion, depression, fatigue, anxiety, and vigor) was performed. Almost all subscales were positively correlated with each other, except vigor, which was negatively correlated with the others. A range of r's from -.22 to .77 was obtained (see Table 23).

Table 23

Correlations among Anger, Confusion, Depression, Fatigue, Anxiety, and Vigor (N = 132)

Variables	Anger	Confusion	Depression	Fatigue	Anxiety
Confusion	.56***				
Depression	.77***	.69***			
Fatigue	.51***	.49***	.49***		
Anxiety	.68***	.67***	.75***	.50***	
Vigor	-.22*	-.41***	-.34***	-.57***	-.39***

Note: 2-tailed Sig. *$p < .05$. **$p < .01$. ***$p < .001$.

Second, the independent variable, perceived social support, was correlated with anger, confusion, depression, fatigue, anxiety, and vigor. As indicated in Table 24, all correlations were statistically significant and moderate, ranging from .21 to .49. Anger ($r = -.34$, $p < .001$), confusion ($r = -.40$, $p < .001$), depression ($r = -.49$, $p < .001$), fatigue ($r = -.21$, $p < 01$), and anxiety ($r = -.35$, $p < .001$) were found to be inversely related, but vigor ($r = .22$, $p < .05$) was positively related to perceived social support. As theoretically expected, higher levels of perceived social support were associated with low levels of anger, confusion, depression, fatigue and anxiety, and with high levels of vigor. In addition, the association between perceived support and depression was very strong.

Third, analysis of the relationships between coping mechanisms and anger, confusion, depression, fatigue, anxiety, and vigor (see Table 24) revealed moderate positive correlations among behavioral or cognitive escape-avoidance and all the psychological distress subscales (r ranged from .18 to .46) except vigor. In contrast, distancing, following the opposite pattern, was negatively related to all subscales, except vigor. Focusing on the positive and seeking social support were only positively related to vigor ($r = .30$, and $r = .20$, respectively). Therefore, participants with a high level of avoidance had high levels of anger, confusion, depression, fatigue, and anxiety, and low levels of vigor. Conversely, participants with high levels of distancing had low levels of confusion, depression, fatigue, and anxiety, and had high levels of vigor. Finally, participants with high levels of focusing on the positive and seeking and using social support had high levels of vigor.

Fourth, because depression and anxiety have been reported as important indicators of distress and are highly prevalent in advanced cancer, multiple regression equations were performed to investigate to what extent coping mechanisms and perceived social support contributed to explaining the subscales of psychological distress (anger, confusion, depression, fatigue, anxiety, and vigor) (see Table 25). A hierarchical regression analysis (entering all coping mechanisms simultaneouly first, and perceived social support second) showed all equations to be significant. Coping mechanisms and perceived social support explained a large portion of the variance of depression (50%), anger (34%), confusion (37%), anxiety (29%), vigor (21%), and fatigue (11%). A large and significant portion of the depression variance ($\underline{R}^2$ = 50)

Table 24

Correlations of Perceived Support (PSS), Behavioral Avoidance (BA), Cognitive Avoidance (CA), Distancing (DIS), Focusing on the Positive (FOP) and Seeking Support (SS) with Anger, Confusion, Depression, Fatigue, Anxiety, and Vigor

($\underline{N}$ = 132)

Variables	Anger	Confusion	Depression	Fatigue	Anxiety	Vigor
PSS	-.34***	-.40***	-.49***	-.21**	-.35***	.22**
BA	.44***	.42***	.38***	.20*	.28**	-.08
CA	.42***	.30***	. 46***	.18*	.39***	-.02
DIS	-.11	-.21*	-.23**	-.16*	-.17*	.33***
FOP	-.01	-.03	-.13	-.08	-.06	.30***
SS	.20*	.01	-.02	.03	.005	.20*

*$\underline{p}$ < .05. **$\underline{p}$ < . 01. ***$\underline{p}$ < .001.

Table 25

Depression, Anger, Confusion, Anxiety, Vigor, and Fatigue Regressed on Perceived Support and Coping Mechanisms

($\underline{N}$ = 132)

Variable	$\underline{R}$	$\underline{R}^2$	Adjusted $\underline{R}^2$	$\underline{F}$	$\underline{p}$
Depression	.71	.50	.48	21.12	< .001
Anger	.59	.34	.32	13.07	< .001
Confusion	.61	.37	.34	12.13	< .001
Anxiety	.54	.29	.25	8.45	< .001
Vigor	.46	.21	.18	5.63	< .001
Fatigue	.33	.11	.07	2.63	.019

was explained by coping mechanisms and perceived support, providing evidence of their importance in explaining depression. The examination of the Beta weights identified perceived social support first, followed by cognitive avoidance, behavioral avoidance, and distancing as the most important predictors of depression in this study sample.

Gender differences in the study variables

An independent groups t-test was conducted to determine if there were differences between men and women in the study variables (perceived social support, coping mechanisms, psychological distress, and chemotherapy side effects). Results of the t-test analysis revealed a significant difference in means by gender only in perceived social support and in chemotherapy side effects (see Table 26). Because perceived support was inverted before its transformation, higher scores indicated lower levels of perceived support. Thus, women perceived more social support and experienced more chemotherapy side effects than men. One-way analysis of variance showed the same results as the independent group t-test. The only statistically significant differences between male and female subjets were observed in perceived social support ($\underline{F} = 4.42$, $\underline{p} = .03$) and chemotherapy side effects ($\underline{F} = 4.98$, $\underline{p} = .02$).

Table 26

Comparison of Perceived Social Support (PSS) and Chemotherapy Side Effects (CSE) in Men and Women

($\underline{N} = 132$)

Variables	Gender	n	Mean	SD	t value	df	p (2-tail)
PSS	Female	88	5.36	1.86			
	Male	44	6.05	1.62	-2.10	130	.03
CSE	Female	86	38.09	8.94			
	Male	42	34.48	7.89	2.23	126	.02

Income differences in relation to the study variables

An independent groups t-test was also used to determine whether there were differences in the study variables (perceived support, coping mechanisms, distress, and demographic variables) according to different income levels. For this analysis income was dichotomized. Annual incomes lower than $40,000 (46%) were coded as low income and higher than $40,000 (54%) as high income. To control for type I error, significance was only considered if differences between groups were detected at a level of $p < .01$. If this level of significance was achieved, the samples tested would be considered to be from different populations (i.e., there would be a significant difference in the tested variable between low and high income). The results of the t-test analysis revealed a significant difference at the established p level between high and low income means for perceived support, seeking support, depression, confusion, and education level (see Table 27). Although there were significant differences in level of anxiety and anger between low- and high-income participants, there were no differences in the total psychological distress score. Low income was associated with low levels of perception of social support, seeking and using social support, and education, and with high levels of anxiety and anger.

Chemotherapy side effects

Chemotherapy side effects are considered important aspects in the adjustment to cancer treatment (Holland & Lesko, 1990). Based on their effect on adaptation, the investigator analyzed to what extent chemotherapy side effects contributed, over and above perceived social support and coping strategies, to explaining the overall variance of psychological distress in the study sample. A hierarchical multiple regression analysis was performed to evaluate this research question. In the first step of the multiple regression analysis, all of the coping mechanisms were entered simultaneously as a block of main effects. In the second step, perceived social support was entered. The coefficient of multiple determination ($R^2 = .43$) indicated that 43% of the variance of psychological distress may be explained by the association of perceived social support and coping mechanisms (see Table 12). In the third step of the multiple regression analysis, chemotherapy side effects were entered into the equation. The R^2 increased to .52, indicating that chemotherapy side effects added an extra 9% of the explained variance of psychological distress (see Table 28). Therefore, chemotherapy side effects accounted for a significant portion of psychological distress variance (i.e., as chemotherapy side effects increased, the level of distress rose).

Table 27

Comparison of Perceived Social Support (PSS), Seeking Social Support (SS), Anxiety, Anger, and Level of Education in Low--and High--Income Participants
(N =132)

Variables	Income	n	Mean	SD	t value	df	p
PSS	Low	48	6.41	1.73	4.78	118	< .001
	High	72	4.95	1.57			
SS	Low	48	20.25	7.75	-2.47	118	< .01
	High	72	23.76	7.55			
Anxiety	Low	48	3.28	1.31	7.02	118	< .01
	High	72	2.90	1.03			
Anger	Low	48	2.65	2.00	21.98	118	< .001
	High	72	2.37	1.26			
Education	Low	48	4.62	1.44	-4.97	117	< .001
	High	71	5.77	1.08			

Table 28

Regression Coefficients for the Estimated Effects of the Independent Variables on Overall Psychological Distress (Total POMS Scores)[a]

(N = 132)

Independent Variable	Step 1	Step 2	Step 3
Coping strategies			
Behavioral avoidance	.40***	.32***	.26**
Cognitive avoidance	.29***	.25***	.23**
Distancing	-.24**	-.23**	-.23**
Focusing on the positive	-.23*	-.17	-.13
Seeking support	-.04	-.04	.01
Perceived support		-.30***	-.28***
Chemotherapy side effects			.31***
Constant	7.25	4.85	2.52
R^2	.36	.43	.52

[a] Total scores of the POMS scale; a higher score, indicates greater distress.
*p < .05. **p < . 01. ***p < .001.

Emotional distress

Because some authors have recommended measuring only the emotional aspects of psychological distress when studying its relationship to other variables in the adaptation to the disease (Cella et al., 1990; & Manne et al.,1994), the Profile of Mood States (POMS) subscales that measure somatic variables (fatigue and vigor) were removed from this instrument. Fatigue may actually be a side effect of the disease or of its treatment rather than a component of psychological distress. Consequently, for this ancillary analysis psychological distress was measured only by the subscales of anger, anxiety, depression, and confusion. A hierarchical multiple regression analysis indicated that coping mechanisms (entered first and simultaneuosly) and perceived social support (entered second) explained 48% of the psychological distress (R^2 = .48) (see Table 29). Comparing this regression equation with the one obtained when fatigue and vigor subscales were included (R^2 = .43) (see Table 24), the researcher concluded that an extra 5% of the variance of distress is explained by coping mechanisms and perceived social support when these two somatic aspects (fatigue and vigor) are removed from the psychological distress scale.

Table 29

Emotional Distress Regressed on Perceived Support and Coping Mechanisms

(N = 132)

Source	df	R	R^2	Adjusted R^2	F	p
Regression	6	.70	.48	.46	19.65	< .001
Residual	125					

CHAPTER V

DISCUSSION OF THE FINDINGS

Coping Strategies and Psychological Distress

The discussion of the relationship between coping strategies and psychological distress in the present study must consider the unexpectedly low prevalence of psychological distress observed in the study subjects. Participants reported a level of distress (M = 35.31, SD = 36.28) similar to that described in healthy adults participating in a smoking cessation program (N = 2,360) (M = 30.4, SD = 34.8), lower than that reported in college students before taking a test (N = 856) (M = 43, SD = 31) and lower than that described in male (M = 65.5, SD = 40.5) (N = 350) or female (M = 81.5, SD = 44) (N = 650) psychiatric outpatients (McNair et al., 1992). Only 10% of the study population experienced more than moderate distress, and only 4% had distress higher than two standard deviations from the mean. In other words, 90% of the subjects reported low levels of psychological distress.

This level of distress is surprisingly low for cancer patients, specially in advanced cancer patients. Psychological distress affects from 30 to 47% of cancer patients of all stages (Chaturvedy, 1994; Derogatis et al., 1983; Ford et al., 1995) and has been reported as high as 70% in advanced cancer patients (Kaasa et al., 1993; Massie & Holland, 1990). The high level of distress observed at advanced stages reflects not only the response to the disease but also the response to the side effects associated with its palliative treatment (Coates, Abraham, & Sowerbutts, 1983). Although it is usual to find high levels of distress in cancer patients, a few studies reported distress scores similar to (M = 31.1 in men; M = 37.0 in women) (Cella et al., 1989) or even lower (M = 20.1) (Cassileth et al., 1985) than those observed in this study. These results are also consistent with previous research describing no differences in psychological distress between cancer patients of all stages and the general population (Cassileth et al., 1984) or patients afflicted by a chronic illness (Cassileth et al., 1984; Chakravorty, Souza, & Doongaji, 1993). Nevertheless, the low levels of distress in these two studies could be related to the inclusion of a significant portion of patients at early cancer stages who were not receiving chemotherapy at the time of the study. This is consistent with the Cassileth et al. (1985) report of high levels of distress in the subset of patients having advanced cancer. In contrast, in the present study, all participants were diagnosed with advanced cancer and were receiving chemotherapy treatment.

Because psychological distress is the dependent variable, the discussion of all the research questions is aimed at giving an interpretation of the unexpectedly low levels of distress observed. Research question 1 asked whether the coping strategies of seeking and using social support, distancing, focusing on the positive, cognitive escape-avoidance, and behavioral escape-avoidance relate individually and collectively to psychological distress in advanced cancer patients receiving chemotherapy. The evaluation of these relationships included correlational and multiple regression analyses. Distancing was negatively related ($p < .01$) and cognitive and behavioral escape-avoidance were positively related to distress ($p < .01$). Therefore, in the study sample, low levels of psychological distress were associated with high levels of distancing and with low levels of escape-avoidant activities. Seeking and using social support and focusing on the positive were not related to psychological distress. These results are consistent with previous findings in cancer patients. Patients report low distress when distancing is their main coping mechanism (Carver et al., 1993; Dunkel-Schetter et al., 1992; Manne et al., 1994) and high distress when avoidance is their most prevalent strategy (Carver et al., 1993; Dunkel-Schetter et al., 1992; Feifel et al., 1987; Felton et al., 1984; Manne et al., 1994; Rodrigue et al., 1994; Stone et al., 1992; White et al., 1992). Only one study found avoidance to be negatively related to the anxiety component of distress (Lerman, 1990). When the mental and the physical efforts of avoidance coping are evaluated separately, both cognitive (Dunkel-Schetter et al., 1992; Felton et al., 1984; Zaccarias, 1994) and behavioral (Dunkel-Schetter et al., 1992) escape-avoidant activities are positively related to psychological distress. Only one study found cognitive escape-avoidance negatively related to distress in cancer patients (Mishel et al., 1991).

Multiple regression analyses indicated that the coping strategies, when taken collectively, explained almost 36% of the psychological distress variance. Distancing and cognitive and behavioral escape-avoidance accounted for most of this variance ($\underline{p} < .01$), whereas seeking and using social support did not explain any of it ($\underline{p} > .05$). Although focusing on the positive contributed to part of the variance in distress, it was less significant. This interpretation is consistent with the lack of correlation found between focusing on the positive and distress. Thus, only emotion-focused coping mechanisms (behavioral and cognitive escape-avoidance, and distancing) were effective in the subjects in the present study. In the Lazarus and Folkman theory, the effectiveness of each particular coping strategy is measured, not by its prevalence but, by its associated end states of adaptation. In the present study, coping effectiveness is reflected, not by the frequency of its use, but by the percentage of the variance in psychological distress that each strategy is able to explain. Therefore, the results of the correlational and multiple regression analyses could, within the context of the Lazarus framework, be interpreted to indicate that distancing (which correlates negatively with distress and explains part of its variance) is effective in reducing psychological distress. These results also indicate that behavioral and cognitive escape-avoidance (which correlate positively with distress and explain part of its variance) effectively increase psychological distress. Seeking and using social support did not explain the variance in distress and is, therefore, ineffective in relation to distress.

Though correlational analyses have been commonly used in analyzing the relationship between coping and distress in cancer patients, multiple regression analyses have been infrequently used. Only Mishel and Sorenson (1993) performed a similar analysis, in women receiving treatment for gynecological cancer. These authors found that coping strategies explained a portion of the variance (32%) in psychological distress, similar to that described in the present study. The specific coping mechanisms that explained distress in each study were, however, different. Whereas in Mishel and Sorenson's study most of the psychological distress variance was explained by focusing on the positive, in the present study it was explained mostly by behavioral escape-avoidance.

Research question 2 asked what is the relative importance of the various coping strategies in explaining psychological distress in advanced cancer patients receiving chemotherapy. Multiple regression analyses indicated that the overall psychological distress was explained by behavioral and cognitive escape-avoidance, distancing, and focusing on the positive ($p < .05$). Despite being the least used coping strategy, behavioral escape-avoidance still explained the largest portion of the variance; hence, it was the most important predictor of psychological distress. This finding suggests that the low levels of psychological distress reported in the study subjects were associated, at least in part, with their infrequent use of behavioral escape-avoidance. Looking further, one finds that the most used coping strategy, distancing, also contributed to explain distress. Therefore, both the reduced use of behavioral escape-avoidance and the increased use of distancing in the study participants may have been instrumental in determining their low levels of psychological distress. These findings support the notion, advanced in the Lazarus and Folkman theory (1984a), that the frequency of the different coping strategies is not related to their effectiveness. Thus, it is possible that frequently used coping strategies have no association with psychological distress and are, therefore, ineffective (e.g., seeking and using social support).

The possibility that the concurrent use of two coping strategies explained a greater portion of variance was tested by analyzing the effect of interactions among all coping strategies on psychological distress. Distancing interacted with cognitive escape-avoidance ($p < .01$) and with behavioral escape-avoidance ($p = .05$) in explaining the variance in psychological distress. Therefore, psychological distress was higher in participants who used behavioral or cognitive escape-avoidance, especially when they did not distance themselves from the disease. The effects of interaction between coping strategies on psychological distress has not been assessed in other studies.

Perceived social support, coping, and psychological distress

Research questions 3, 4 and 5 analyzed the relationship and interactions among perceived social support, coping strategies and psychological distress, and the possible role of the coping strategies as mediators of the process of adaptation within the framework of Folkman and Lazarus. Dicussion of these questions must also include a consideration of the difference between perceived social support (the awareness of available social interactions as an environmental resource) and seeking and using social support (the search and actual use of social interactions as a coping mechanism). There is no a priori suggestion of the nature of the relationship between the two variables.

Research question 3 focused on the extent that perceived social support contributed over and above coping strategies to explain the variance in psychological distress. As previously noted, 36% of the variance in psychological distress was explained by the previously described coping strategies. Over and above coping strategies, perceived social support explained an extra 7.6% of the distress variance. The small contribution of focusing on the positive in explaining part of the distress variance previously found became non-significant when perceived social support was entered into the equation. It is likely that the distress variance explained by focusing on the positive is also explained by perceived social support. Because the later variable makes a much more important and significant contribution, it may render negligible the contribution of focusing on the positive. Thus, the variance on psychological distress is explained by the coping strategies of cognitive and behavioral escape-avoidance, and distancing, and by perceived social support. These findings suggest that perceived social support is an important determinant of psychological distress in advanced cancer patients. The direction of the relationship between perceived social support and psychological distress was negative ($\underline{r} = -.43$, $\underline{p} < .001$) (i.e., patients with low levels of perceived social support reported more distress). The high level of perceived social support found in this study effectively contributed to the low levels of psychological distress in the study subjets, an expected finding, as perceived social support has been consistently associated with low levels of psychological distress in cancer patients (Bloom, 1982;

Ell et al., 1989; Eurelings-Bontekoe et al., 1995; Ford et al., 1995; Gotcher, 1992; Hoskins et al., 1996; Kaplan et al., 1977; Mechanic, 1974; Northouse, 1987; Pardue et al., 1989; Robert et al., 1994; Rodrigue et al., 1994; Spitzer et al., 1995; Taylor et al., 1985). In advanced cancer patients, Ell et al. (1989) found the social integration component of perceived social support to be a significant predictor of psychological distress. Therefore, perceived social support and distancing coping contributed to reduced psychological distress, but escape-avoidance, to increased distress.

Once the contribution of perceived social support in explaining the low levels of psychological distress was established, the relationship between perceived social support and the different coping strategies was determined. Perceived social support was significantly related to focusing on the positive ($r = .25$, $p < .01$), and seeking and using social support ($r = .27$, $p < .001$), confirming findings by Bennet (1993), i.e., individuals with high levels of perceived social support tend to focus more on the positive and seek more support. Perceived social support was, however, unrelated to emotion-focused coping mechanisms (cognitive and behavioral escape-avoidance, and distancing). The impact of perceived social support in enhancing problem-focused coping strategies did not translate into reduced levels of psychological distress, because problem-focused strategies were not associated with distress. Thus, the impact of perceived social support on psychological distress (i.e., adding to the distress variance explained by coping) occurs independently of the problem-focused coping strategies. In contrast to these findings, other studies of patients at various cancer stages reported that perceived social support was unrelated to seeking or using social support (Eurelings et al., 1995) or to coping in general (Ell et al., 1989; White et al., 1992). Bloom (1982) also reported perceived support to be negatively related to avoidant coping, a relationship not found in the present study. Therefore, the relationship between perceived social support and coping remains uncertain. These contradictory findings may be due to the other investigators including within the same study patients at various disease stages.

Research question 4 asked whether there is any interaction effect between perceived social support and coping strategies on psychological distress. The effect of the interaction between perceived social support and behavioral escape-avoidance on psychological distress was the only significant relationship ($\underline{p} = .02$). This result suggests that the low levels of psychological distress in the study sample could be due to the combined effect of their high perception of social support and their low levels of behavioral escape-avoidance. Most of the psychological distress occurred in the presence of high levels of behavioral escape-avoidance, especially when perceived social support was low. Thus, advanced cancer patients who have low levels of perceived social support and who frequently use behavioral and cognitive escape-avoidance may be at high risk for psychological distress and in need of intervention. This is consistent with reports by Rodrigue et al. (1994) who found low perceived support and avoidant coping to be predictive of poor psychological adjustment in cancer patients receiving chemotherapy.

Research question 5 asked whether the coping strategies were a mediator between perceived social support and psychological distress. In general, a given variable (i.e., coping mechanisms) may be said to function as a mediator to the extent that it accounts for the relation between the predictor (i.e., perceived social support) and the criterion (i.e., psychological distress). Neither the coping mechanisms in general nor any of the coping mechanisms taken individually accounted for the relation between perceived social support and psychological distress. Therefore, the conditions of Baron and Kenny (1986) to establish mediation were not met, indicating that the coping strategies did not mediate between perceived social support and psychological distress in the study sample.

This finding contradicts Lazarus and Folkman's (1984) concept of coping strategies as mediators between available resources (perceived social support) and outcomes (psychological distress). Although Bloom (1982) in a previous study in cancer patients supported this mediator effect, the instrument used measured only avoidant coping and did not have documented validity and reliability. Thus, a model that considers both perceived social support and coping strategies as having direct and independent relationships with psychological distress is suggested. In addition, there are two possibilities consistent with the Lazarus and Folkman model. First, it is possible that a coping strategy not measured by the instrument used in this study (WOC-CA) could mediate between perceived social support and psychological distress. However, because this instrument includes many coping strategies, a second and more likely possibility is that perceived social support does not relate directly to the specific coping strategies but would instead relate to the cognitive appraisal of the stressors, as established in the Lazarus and Folkman framework. Cognitive appraisal may, in turn, relate to coping strategies and this to psychological distress. More studies need to be conducted to decipher the relationships within this complex area of research.

The implications of the study results for nursing practice, based on the researcher's interpretation, need to be framed against a background of therapies already established for cancer patients. The study suggests a reduction of psychological distress could be achieved by developing strategies that reduce cognitive and behavioral escape-avoidance, increase social support, and perhaps promote distancing. The association between reduced levels of escape-avoidance and low distress is a common clinical observation that has been integrated in psychological intervenions aimed at improving adaptation to the disease. In contrast, the association between high levels of distancing and low distress in the present and other studies has not been an option for psychological therapy. In this context, it is important to distinguish clearly distancing from escape-avoidance, as these two strategies have opposite effects on distress. Both coping strategies have a component of repression of feelings. Individuals who do not express their emotional distress could be misinterpreted as being in denial, when they are actually using distancing. A distinctive feature of distancing could be recognized in patients' efforts to continue with work and daily life activities, without letting the disease become the center of their lives. This still permits adequate treatment for the disease, but as soon as the treatment ends the focus shifts again toward daily life activities. In contrast, escape-avoidance, especially when it includes a component of denial (i.e., an active rejection of diagnosis with no expression of emotional distress), may lead to non-compliance or treatment refusal.

Therefore, a certain degree of repression of feelings may be useful as a chronic strategy in advanced cancer patients, that is, when the individual cannot do much about the stressor. In general, it is recognized that repression of feelings could be adaptive during the acute exposure to the stressor of facing a cancer diagnosis at early disease stages; however, long-term adaptation includes a shift towards increased use of problem-focused coping. In contrast, in advanced cancer, the level of repression of feeling that distancing provides may have a positive impact at all times in disease adaptation. Not only may distancing be effective in reducing distress in advanced cancer, but the absence of some degree of emotional repression could lead to a level of stress incompatible with functioning, given the gravity of an ultimately poor prognosis. These findings are consistent with the theoretical framework developed by Lazarus (1985), which recognizes a trend towards increased repression of feelings in advanced cancer patients.

The patients in this study may have benefitted from using distancing coping, and from perceiving high levels of social support, because of their still reasonably good performance status. Despite the poor prognosis associated with the patients' advanced stage, their clinical condition still permitted a majority of them to work. Thirty-two percent of the study subjects were working full time, 10% parttime, and 38% were retired. Working facilitates the process of distancing from the emotional stress of the disease (Krause, 1993), provides evidence of one's value to society, and creates opportunities for social contact (Bloom, 1982).

Psychological therapies for cancer patients have already been developed that have demonstrated effectiveness in reducing distress in cancer patients of all cancer stages. Distress reduction is achieved in supportive-expressive group therapy, for instance, by helping patients build bonds, express emotions, detoxify dying, take time, fortify families, deal with doctors and controll pain (Spiegel, 1994). Greer et al. (1992) in a randomized clinical trial demonstrated that adjuvant psychological therapy produces significant improvement in psychological distress in cancer patients. Adjuvant psychological therapy is a cognitive behavioral treatment program that focuses on the personal meaning of cancer to individuals and on their coping skills. Both therapies focus on participation in support groups, where patients can discuss the disease process and the emotions it generates. Both therapies are based on the assumption that suppression of emotions leads to psychological distress.

Perhaps these therapies increase perceived social support and reduce escape-avoidant coping, which in the present and other studies are associated with low distress. On the other hand, participation of advanced cancer patients in support groups that encourage them to discuss the disease and its treatment may be a constant reminder of their poor prognosis and imminent death. Instead, for these patients, support groups that focus on facilitating the continuation of their work and previous daily life activities, which distance them from the disease, may be a better alternative to reduce distress.

Ancillary Analysis

This section discusses the levels of psychological distress, relative frequency of coping, levels of perceived social support, and the relationships among demographic, medical variables,and study variables.

Psychological Distress

An analysis of the distinctive characteristics of the present study sample is warranted to explain its unexpectedly low level of psychological distress. The use of a convenience sample for the study could have led to these distinctive characteristics, which render the study findings not generalizable to the advanced cancer patient population. Evaluation of the stressors associated with the disease revealed that they were not different from those found in other advanced cancer patients. Fear and uncertainty about the future (51%), followed by limitations in physical abilities, appearance, or lifestyle (31.8%), and pain, symptoms or discomfort from illness or treatment (11.4%) were the most troubling problems associated with cancer in this study. None of the participants identified problems with family or friends as the most stressful source related to cancer. Similarly, fear and uncertainty, imminence of death or death anxiety were the main stressors reported in the literature for advanced cancer patients (Chaturvedi, 1994; Holland, 1990a; Krause, 1993; Saunders & McCorkle, 1987; Worthman, 1984). Chaturvedi (1994) found fear about the future (52%) to be the most frequent concern in patients with advanced gynecological, breast and head and neck cancer. Krause (1993) also found fear and uncertainty to be the most important problem related to cancer in 36% of patients. Keeping up with daily life activities (37%) and the follow-up of the medical situation and rehabilitation (27%) were also frequent concerns. Therefore, the low level of psychological distress in the study sample may find an explanation in variables other than the stressors associated with the disease.

The stressors associated with the side effects of the treatment for the disease could not explain the low level of distress in the study sample. All patients in this study experienced chemotherapy side effects, as receiving chemotherapy treatment was a criterion for subject inclusion. Fatigue (77%), hair loss (59%), constipation (50%), shortness of breath (46%), tingling or numbness of extremities (46%), nausea (46%), and pain (43%) were the most frequent side effects observed in this study. Similar findings were reported in other studies of cancer patients on adjuvant chemotherapy (Sabbioni, 1992; Ward et al., 1992). In addition, the observation of a positive moderate correlation between side effects and psychological distress ($r = .44$, $p < .001$) supports the idea that chemotherapy side effects are an important source of stress for the study sample. Because chemotherapy is associated with increased psychological distress (Cull, 1990), a higher rather than lower level of distress would have been expected in the study sample, especially if compared with other studies in which not all subjects were receiving chemotherapy. Therefore, the similarity in the stressors (fear, uncertainty, and chemotherapy side effects) confronted by patients in the study sample and by patients in previous reports leads one to question whether distinctive sociodemographic and/or clinical characteristics among the study subjects may explain their low incidence of distress.

The present study did not differ from most previous research studies in ethnic, age or gender distribution. Participants in this study were mainly female (67%), Caucasian (86%), and their average age was 60. This age is to be expected in patients at advanced cancer stages;

Caucasians are usually more represented than other ethnic groups in the cancer literature, and women are also typically more represented than men because of the intensive study of breast cancer patients in psycho-oncology. Interestingly, the total scores for psychological distress or the scores for each of the distress subscales (anger, confusion, depression, anxiety, fatigue, and vigor) in the study sample did not significantly differ between men and women. This agrees with findings by File and Kennedy (1993), by File, Kennedy and Robinson (1994), and by Rodrigue et al. (1994), who reported no significant differences in psychological distress, anxiety, depression, anger, confusion, or fatigue between men and women at various disease stages. In contrast, a common finding in the psychiatric and social science literature is that women in Western cultures are more vulnerable than men to developing psychological distress in response to negative life events (Ford et al., 1995; Wethington, McLeod, & Kessler, 1987), a finding has also been confirmed in normative samples (McNair et al., 1992). The lack of gender differences in cancer-related distress may be due to the nature of its associated stressors. The gender differences in distress that may exist when dealing with daily life activities possibly disappear when the main stressor becomes coping with cancer over a long time.

The unusually high levels of income observed in this study sample may explain, better than ethnicity, age, gender, or education, the low level of psychological distress. Forty percent of the study population reported an annual income of over $60,000. The negative association between income and psychological distress ($r = -.20$, $p < .05$) is consistent with the idea that patients with high income may experience low levels of distress. This finding recognizes the importance of income in explaining distress, as it has been previuosly reproted in the literature. Nevertheless, despite of its importance, income was not introduced in the regression analysis because it was beyond the scope of the study. This study focused on variables, such as patients's coping or social support, which may be amenable to clinical intervention. In contrast to income, education did not correlate with psychological distress. Thus, no impact on distress could be associated to the fact that 46% of the subjects had a baccalaureate or higher level of education.

The perception of the participants' health status as good was, in addition to their low level of distress, another unexpected finding. Most subjects (70%) perceived their health as moderately good or very good, despite most (92%) knowing their disease had spread to other organs. In this context, it seems reasonable to argue that the way patients perceive (i.e., the cognitive appraisal of) their illness and its associated coping mechanisms may be critical in determining their subsequent level of psychological distress (Langius & Lind, 1995; Munkres, Oberst, & Hughes, 1992). Higher scores in the perception of health item indicated "poorer" health. The correlations between perceived health status and income ($r = -.22$, $p < .01$) or education ($r = -.17$, $p < .05$) support the idea that these variables contribute to perception of health. High levels of income and education were found to be associated with perception of health as "good." These findings together with the strong correlation between perception of health status and psychological distress ($r = .37$, $p < .001$) point to a connection between income and/or education and distress. However, income plays a more prominet role than education in explaining distress, because income was significantly related to distress but education was not.

Because patients at advanced stages do not have a good health condition, if objective clinical criteria are applied, their disease appraisal and the coping strategies they use may be an attempt to distance themselves from the diagnosis. In the present study, distancing was the most frequently used coping strategy and was negatively related to distress. A report by Mackillop, Stewart, Ginsburg, and Steward (1988) showing that 33% of metastatic cancer patients under palliative treatment mistakenly believe that the purpose of the treatment is curative signals an attempt to distance from the disease.

The clinical condition of the patients under study could also contribute to an explanation of the low levels of distress. Most of the participants were outpatients (only 7.5% of the subjects received chemotherapy on an inpatient basis) and all were in fairly good physical condition (Karnofsky performance over 50). The literature reports higher distress in hospitalized patients than in outpatients, because they tend to have lower levels of physical performance (Bukberg et al., 1984; Devlen et al., 1987; Maguire et al., 1980; Massie & Holland, 1990). Therefore, the low psychological distress found in this study could be related to the fact that, despite being advanced cancer patients, their condition was such that it allowed them to remain ambulatory. In addition, the high levels of social support were due to the fact that 32% of the participants were recruited from the Cooperative Care Unit at New York University Medical Center. In this care system all patients have a permanent care partner (family member or friend) who is considered to be a primary source of support. As previously described, the high levels of social support contributed to an explanation of low psychological distress.

Coping Strategies

Most of the participants (97.7%) concomitantly used all of the studied coping mechanisms. Only two participants did not use behavioral escape-avoidance and only one subject did not use focusing on the positive. This finding is consistent with previous reports of patients using a large repertoire of cognitive and behavioral efforts to cope flexibly with the threats associated with their disease, rather than rigidly adhering to a particular coping style (Folkman & Lazarus, 1980; Folkman et al., 1986).

Despite using most of the coping strategies, subjects demonstrated a wide variation in the frequency of specific coping mechanisms. Relative frequency was calculated in the present study, using the approach described by Dunkel-Schetter et al. (1992), as the percentage that a reported score for a particular coping strategy represents relative to the total score for all coping strategies combined, correcting for the number of items that each coping strategy contains. The effectiveness of the different coping strategies, which does not relate to their relative frequency but rather to their relationship with psychological distress, was shown in this study.

The definitions for the different coping strategies and some examples of the items pertaining to each one permits the identification and clear understanding of the subtle differences in patients' efforts to deal with the disease process. Three emotion-focused (distancing, cognitive escape-avoidance, and behavioral escape-avoidance) and two problem-focused (focusing on the positive and seeking and using social support) coping mechanisms were evaluated in this study.

Distancing is the effort to deal objectively with the stressor by minimizing the significance of the event. It includes items such as: trying to keep my feeling from interfering; don't think about it; refuse to get too serious; went on as if nothing were happening; try to forget the whole thing; look on the bright side. Cognitive escape-avoidance is the mental effort to prevent dealing with the stressor or to get away by fantasy or wishful thinking, together with hints of fatalism, resignation, and preparing for a poor outcome. It includes items such as: hope a miracle would happen; prayed; prepare for the worst; wish the situation would go away or be over; had fantasies about how it might turn out. Behavioral escape-avoidance is the physical effort to prevent dealing with the stressor or to get away through delayed or risky behavior. It includes items such as: avoided being with people; tried to make myself feel better by eating, drinking, smoking, or using drugs; took a big chance and did something risky; took it out on other people. Seeking and using social support is the effort to establish interactions with people who could provide informational, tangible or emotional support and to eliminate the sources of stress through one's own behavior. It includes items such as: find out more about the disease; talk to someone about how I am feeling; seek help; get professional help; look for sympathy and understanding. Finally, focusing on the positive is the effort to see the stressor with a constructive attitude. It includes items such as: found new faith; rediscover what is important in life; change or grow as a person in a good way; change something about myself.

The correlations between coping strategies varied from .16 to .48, reflecting a shared variance ranging from 2% to 23%. As theoretically expected, coping strategies that had a similar intent were generally associated with each other. For instance, cognitive and behavioral escape-avoidance, which are both intended to moderate emotional reactions, were positively associated. Similarly, seeking and using social support and focusing on the positive, which are both problem-focused strategies and intended to alter the source of stress, were strongly related. Dunkel-Schetter et al. (1992) also found that seeking and using social support was highly correlated with focusing on the positive.

Among the study participants, distancing was the most frequently used coping strategy (24.8%), followed by cognitive escape-avoidance (22.2%), seeking and using of social support (21.6%) and focusing on the positive (19%). Behavioral escape-avoidance (12.4%) was the least used coping strategy. As in this study, other investigators have shown that distancing is the most frequently used coping strategy in cancer patients (Dunkel-Schetter, 1984; Dunkel-Schetter et al., 1992; Felton & Reveson, 1984). In other studies, avoidance through religious activities and denial (Gotay, 1984), focusing on the positive (Payne, 1990; Manne et al., 1994), and seeking and using social support (Krause, 1993) were described as the most frequent strategies in cancer patients at various disease stages. In contrast to Krause's report, Saunders and McCorkle (1987) found seeking and using social support to be infrequently used, even though patients identified uncertainty as their main stressor and recognized social support as a useful strategy to reduce it. The least used coping strategy also varies among studies. In the present study behavioral escape-avoidance was least used, a finding consistent with that of Dunkel-Schetter et al. (1992). The variation in the frequency of use of different coping strategies perhaps is related to the limited number of patients at different stages of the disease in most studies.

The fact that the study subjects, all at advanced stages of the disease, used more emotion-focused (i.e., distancing and cognitive escape-avoidance) than problem-focused (seeking and using social support and focusing on the positive) coping strategies is consistent with the theoretical framework developed by Lazarus and Folkman (1984a). This framework contends that emotion-focused coping is more helpful than problem-focused coping when there is not much that can be done about the stressful situation. The study results are also consistent with previous empirical reports (Gotay, 1984; Heim, 1987; Payne, 1990) describing emotion-focused coping as more frequently used in advanced cancer than in early cancer patients. Because advanced cancer has no cure, managing the emotional stress and maintaining the emotional equilibrium is more likely to be perceived as potentially helpful than any of the problem-focused coping strategies. Moreover, the use of certain problem-focused strategies at advanced cancer stages could sometimes be detrimental. For instance, although cancer patients may appreciate the opportunity to clarify their situation through discussion and supportive interactions with others, sometimes the use of this support increases distress (Wortman, 1984) and is regarded as unhelpful (Payne, 1990). In contrast, at early cancer stages there is a hope for cure and a sense that the stressors associated with the disease are manageable. Under these circumstances problem-focused strategies are more frequently used (Ptacek et al., 1994), although in some studies cognitive escape-avoidance also is reported (Jarret et al., 1992).

Although the wide variation in the relative frequency of the different coping strategies among previous studies makes comparison to the present study difficult, there was a distinctive trend in the frequency of two particular coping strategies. Subjects reported an unusually high level of distancing and an unusually low level of behavioral escape-avoidance. Approximately 65% of the patients had scores higher than the 50 percentile for distancing, but only 4% of the participants had scores higher than the 50 percentile for behavioral escape-avoidance. The other coping strategies (cognitive escape-avoidance, seeking and using social support, and focusing on the positive) were equally distributed, with approximately 50% above and 50% below the respective 50 percentile. Dunkel-Schetter et al. (1992) also reported distancing as the most frequently used (26% of subjects' total coping effort) and behavioral escape avoidance (11%) as the least frequently used coping strategy in patients at various cancer stages. It seems that though subjects tried to distance themselves from the disease, they simultaneously suppressed an escape-avoidant response, indicating an effort to see the disease objectively while trying not to let it overly interfere with their life. At the same time, they restrained themselves from engaging in risky behavior such as social withdrawal, drug use, or impulsivity. In summary, subjects in this study engaged in self-control (the aim of distancing) by forgetting the illness as much as possible in order to reduce stress, yet did not avoid dealing with cancer and its chemotherapy treatment.

Education was negatively associated with cognitive escape-avoidance and positively associated with seeking and using social support in the study sample. Well-educated patients used less cognitive escape-avoidance and sought and used more social support than less educated patients. Thus, most study participants, who were predominantly well educated, rarely used behavioral escape-avoidance. Moreover, as their education level rose, they also tended to suppress cognitive escape-avoidance. Dunkel-Schetter et al. (1992) also found a negative correlation between education and cognitive escape-avoidance. Although income was not related to escape-avoidance, it was positively associated with seeking and using social support.

Although age influenced how frequently different coping strategies were used, sex, time since diagnosis, and number of chemotherapy cycles did not. Age was negatively associated with cognitive escape-avoidance, seeking and using social support, and focusing on the positive. Younger patients focused more on the positive, engaged in conscious intellectual escape-avoidance, and sought and used more social support than older patients, a finding different from those of others (Dunkel-Schetter et al., 1992), who found that younger patients focus less on the positive, engage in less behavioral avoidance, and seek less social support than older patients. The average age of the study participants (M = 60) did not differ from most of the previous studies. There were no gender differences in the frequency of coping strategies in the present study, as compared to reports by Pettingale et al. (1988) and Dunkel-Schetter et al. (1992). Similarly, none of the coping mechanisms were associated with time since diagnosis or number of chemotherapy cycles. In contrast, Dunkel-Schetter et al. (1992) found that the greater the time since the first cancer diagnosis, the more frequent the use of behavioral escape-avoidance.

Perceived social support

Out of the possible range of 25 to 175, the scores for perceived social support ranged from 27 to 135. Although patients with low levels of social support were represented, most of the study participants perceived high levels of social support, because the distribution of perceived social support scores was negatively skewed and 63% of the participants had perceived social support scores higher than 100 (50th percentile). The mean (M = 101.52) and the standard deviation (SD = 21.49) for the perceived social support scores in the study sample were similar to those reported by Dunkel-Schetter (1984), Weinert (1989), and Fife, Kennedy and Robinson (1994) in cancer patients at various disease stages. The perception of social support was higher than what would be expected for advanced cancer patients. Because the literature supports the idea that as cancer progresses social support decreases (Carver et al., 1993; Dodd et al., 1993).

Income correlated positively with perceived social support and with seeking and using social support. Patients with low income perceived less social support and sought and used less social support than patients with high income. Also men perceived less social support than women ($t = 4.78$, $p < .001$), a finding consistent with the literature although it has not been observed with stressors associated with daily life activities (e.g., medical students entering college) (Flaherty & Richman, 1989). The cancer literature reports that women with cancer have more confidants and engage in more intimate, emotional, and self-disclosing relationships than men with similar diagnoses; men engaged instead in more task-oriented (problem-focused) behaviors (Fife, Kennedy & Robinson, 1994). The lower perception of social support among men may be associated with the threat that cancer represents to men in their perceived role of provider and strong person, making it difficult for them to receive support within family relationships (Spence & Helmreich, 1979). This is consistent with the absence of sex differences in the use of seeking and using social support found in the study sample. Thus, although men perceive less social support than women, this perception does not induce men to seek more social support. Consequently, men with advanced disease constitute a subset of cancer patients who are especially prone to perceiving low levels of social support. In addition, they cannot engage in problem-focused coping mechanisms, with which they feel more comfortable, because their advanced disease stage makes the problem-focused strategy unhelpful. Therefore, when developing interventions to promote adjustment, it is necessary to help men to use social support and to ensure that their needs for communication, information, and support from professionals are not overlooked.

The relationships among the demographic, medical, and study variables

An additional 5% of the variance in distress is explained by removing the two subscales that measure physical outcomes (fatigue and vigor) from the Profile of Mood States (POMS), as recommended by Cella et al. (1990) and Manne et al. (1994). This finding indicates that perceived social support and the coping strategies of behavioral and cognitive escape-avoidance, and distancing are more related to the emotional than to the somatic aspects of psychological distress. Therefore, the emotional components of psychological distress better explain and are more relevant to the process of coping with and adapting to advanced cancer than the somatic components.

Because depression is highly prevalent among cancer patients, especially at advanced stages (Chakravorty et al., 1993; Grassi et al., 1989; Massie & Holland, 1990), an evaluation of the relationship between this construct and the other study variables was conducted. Each of the psychological distress subscales (depression, anxiety, confusion, anger, fatigue, and vigor) was separately introduced as the dependent variable. The results showed that 50% of the variance in depression was accounted for by coping mechanisms and perceived social support. Perceived social support, cognitive and behavioral avoidance, and distancing were the only variables contributing to explain the variance in depression. This suggests that in advanced cancer patients depression is an important component of psychological distress in these patients.

The side effects of chemotherapy treatment were also an important determinant of psychological distress. Over and above coping strategies and perceived social support, chemotherapy side effects explained an extra 9% of the variance in psychological distress. More side effects were associated with more distress. This is consistent with the increased distress reported by cancer patients under chemotherapy treatment (Cull, 1990). Although women reported more chemotherapy side effects than men in this study, this finding was inconsequential in relation to distress, as there were no significant differences between male and female subjects in psychological distress. The negative correlation between perceived social support and chemotherapy side effects indicates that patients with lower perceptions of support tolerate their chemotherapy treatment less well.

Although age affected how often some of the coping strategies were used, it did not relate to psychological distress and was not, therefore, a parameter determining adaptation to the disease. Compared with younger patients, older patients made more frequent use of the coping strategies, including behavioral and cognitive escape-avoidance, focusing on the positive, and seeking and using social support. The number of years since diagnosis was not related to distress or to any other study variable. This is consistent with the idea that adaptation to the disease depends on the stressors associated with it and on the patient's available resources and coping skills, which may be independent of the time elapsed since acquiring the disease.

A further exploration of the relationships between perceived health status and other study variables was also conducted because of the central importance of this construct for adaptation within the Lazarus and Folkman framework and because of the apparent contradiction between the subjects' perception of their health as good and their poor clinical status. Participants rated their perceived health status in a single question whose possible responses ranged from 1 as excellent to 5 as very poor; thus, higher scores were associated with poorer perception of health. Health status was positively related to cognitive and behavioral escape-avoidance, and psychological distress, and was negatively related to perceived social support, distancing and focusing on the positive. As theoretically expected, perception of health as good was associated with low distress, cognitive avoidance, and chemotherapy side effects, and was also associated with high perception of social support, distancing, focusing on the positive, income and education. This finding is consistent with that of White et al. (1992), who found that perceived social support diminishes with poorer health status. Poorer health status may limit the opportunity for advanced cancer patients to develop and maintain social networks. In addition, a reciprocal effect may occur; lack of social support may contribute to health deterioration. White et al. (1992) also observed that better perception of health and more social support were associated with better adaptation. Rodrigue et al. (1994) showed that high perceived severity of illness, avoidance coping, and low social support were associated with high anxiety and adjustment difficulties. The lower the perceived severity of illness, the lower the level of psychological distress.

In considering the practical applications that can be made from the findings of this study one must take into account the limitations imposed by convenience sampling. The results cannot be generalized beyond patients with similar characteristics to those included in the sample (i.e., advanced cancer patients receiving chemotherapy with high levels of education and income, and similar clinical characteristics). The lack of control on the intake of psychotropic medication, or the participation on psychotherapy or support groups of the study subjects is recognized as a limitation of the study. All these variables affect the coping strategies used and the associated end states of psychological distress, and should be controlled in subsequent studies. Additionally, because of the cross-sectional design, the data represent an individual's perspective at one particular point in time, and day-to-day changes cannot be discerned. A cross-sectional design does not permit examination of how the relationships between the study variables change over time. Because most of the identified associations are correlational, it would be of interest to consider whether they are bidirectional. Lazarus and Folkman (1984a and b) use causal language (e.g., effectiveness of coping strategies in reducing distress); however, interpretation of the data in a reciprocal manner may be of value. In any case, the results of this study provide further understanding of the ways advanced cancer patients cope with their disease and how they relate to adaptational outcomes.

The criteria for patient selection included the issue of feasability (i.e., are patients able to understand the questions and undergo the data collection). The representation of minority populations was limited. Despite the inclusion of patients from a city hospital (12%), most subjects (88%) were recruited from a university hospital. In the city hospital most of the potential subjects were non-Caucasian, but language and low level of education were a barrier. Most of the potential participants who were able to read English were unable to understand some of the questions, especially some of the adjectives of the Profile of Mood States (POMS). The POMS requires a minimum of some high school education. The need to develop cross-cultural valid measurements so that minority populations can be increasingly represented in research studies is underscored.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

The purpose of this study was to examine the extent to which perceived social support and coping mechanisms contribute to explaining psychological distress in advanced cancer patients receiving chemotherapy. The Lazarus and Folkman stress and coping model (1984a) provided the framework. The LFSC model identifies two processes, cognitive appraisal and coping, as critical mediators between stressors and adaptational outcomes. Stressor is defined as a relationship between the person and the environment that is appraised by the person as taxing or exceeding one's resources and endangering one's well-being. Through the coping process, which includes cognitive and behavioral efforts, the individual manages the demands of the person-environment relationship that are appraised as stressful and the emotions they generate. The available environmental resources and the person's cognitive appraisal of the stressors influence which coping strategies the individual chooses, and these, in turn, affect the adaptational outcomes. The final adaptational outcomes indicate whether the coping strategies have been effective (adaptive) or ineffective (maladaptive). The enviromental resources include an individual's perception of social support. Although the process of coping with cancer in relation to adaptational outcomes has been previously studied in cancer patients at all disease stages, this process has not been studied in advanced cancer patients as a single cohort. Because advanced cancer patients face different stressors than patients at earlier stages, the whole process of adaptation may differ. Therefore, this study responded to the need to study coping and adaptation in advanced cancer patients as a distinct study population.

The final sample consisted of 132 advanced cancer patients who were between 33 and 83 years of age who met the study delimitations. Participants were recuited from oncology departments of two medical centers in metropolitan New York over a five-month period. All participants completed the Personal Resource Questionnaire-85-Part 2 (Brandt & Weinert, 1987), the Ways of Coping Inventory-Cancer Version (Dunkel-Schetter et al., 1992), the Profile of Mood States (McNair et al., 1992), and a personal data form.

The research questions were: Among advanced cancer patients who are receiving chemotherapy,

1. Do the coping strategies of seeking and using social support, distancing, focusing on the positive, cognitive escape-avoidance, and behavioral escape-avoidance relate individually and collectively to psychological distress?
2. What is the relative importance of the various coping strategies in explaining psychological distress?
3. To what extent does perceived social support contribute over and above coping strategies to explaining the variance of psychological distress?
4. Is there an interaction between perceived social support and coping strategies on psychological distress?
5. Is the use of coping strategies a mediator between perceived social support and psychological distress?

The data were analyzed using Pearson Product Moment Correlation Coefficients and multiple regression analyses. Analysis of research question 1 revealed that the coping strategies of distancing and cognitive and behavioral escape-avoidance relate individually to psychological distress. Distancing is negatively related and cognitive and behavioral escape-avoidance positively related to psychological distress. This indicates that low levels of psychological distress are associated with low levels of cognitive and behavioral escape-avoidance, as theoretically expected, and with high levels of distancing. Collectively, these three coping strategies explained 36% of the variance of psychological distress. Analysis of research question 2 revealed that behavioral escape-avoidance is the most important coping mechanism contributing to overall psychological distress. This is followed by cognitive escape-avoidance and distancing. Analysis of research question 3 revealed that over and above coping strategies, perceived social support explained an extra 7.6% of the variance of psychological distress. The significant increment in $\underline{R}^2$ provided further evidence of the importance of perceived support in explaining psychological distress. Analysis of research question 4 revealed that perceived social support interacted only with behavioral escape-avoidance. This interaction explained 46% of the variance of psychological distress. Most of the psychological distress occurred when advanced cancer patients had high levels of behavioral avoidance, especially when they perceived social support to be low. Analysis of research question 5 revealed that the use of coping strategies is not a mediator between perceived social support and psychological distress in advanced cancer patients receiving chemotherapy. A possible explanation for this finding is that perceived social support and coping mechanisms are independent variables that directly affect psychological distress.

Alpha reliability coefficients were computed for the Personal Resource Questionnaire-85-Part 2 (.74), seeking and using social support (.92), focusing on the positive (.81), distancing (.74), cognitive escape-avoidance (.66), behavioral escape-avoidance (.60), the Profile of Mood States (.92), and chemotherapy side effects (.78). The alpha coefficients were above .70 for all instruments, except cognitive and behavioral escape-avoidance, demostrating acceptable levels of internal consistency. Alpha reliability coefficients were also computed for the Profile of Mood States subscales. With the exception of confusion (.61), all other subscales (depression, anxiety, anger, vigor, and fatigue) were above .70, and therefore demonstrated acceptable levels of internal consistency.

Conclusions

The conclusions drawn from this study are based upon the analysis of the research questions and the ancillary findings. In advanced cancer patients receiving chemotherapy,

There was a significant moderate, positive relationship between behavioral escape-avoidance and psychological distress.

There was a significant moderate, positive relationship between cognitive escape-avoidance and psychological distress.

There was a significant moderate, negative relationship between distancing and psychological distress

There was a significant moderate, negative relationship between perceived social support and psychological distress.

There was a significant moderate, positive relationship between perceived social support and focusing on the positive.

There was a significant moderate, positive relationship between perceived social support and seeking and using social support.

The coping strategies of cognitive and behavioral escape-avoidance, distancing, and focusing on the positive explained 36% of the variance of psychological distress.

Behavioral escape-avoidance followed by cognitive avoidance and distancing were the most important coping mechanisms predicting psychological distress.

Perceived social support was also a significant predictor of psychological distress.

Perceived social support interacted with behavioral escape-avoidance on psychological distress.

Coping mechanisms did not mediate the relationship between perceived social support and psychological distress.

There was a significant moderate, positive relationship between perception of health status (with higher scores indicating poorer health perception) and psychological distress.

There was a significant negative relationship between income and psychological distress.

There was a significant positive relationship between income and perceived social support, and between income and seeking and using social support.

Chemotherapy side effets were also a significant predictor of psychological distress.

Recommendations

This study has contributed to a better understanding of the theoretical linkages among perceived social support, coping mechanisms, and psychological distress in advanced cancer patients. Based on the findings of this study, the following suggestions are made for future research and practice:

Replicate the study to enhance generalizability.

Clarify the process of coping in advanced cancer patients by conducting a longitudinal study in which the relationship between coping mechanisms and psychological distress is evaluated.

Design and test nursing interventions to minimize distress, perhaps by enhancing social support, reducing escape-avoidance, and encouraging appropriate distancing coping.

Promote further inquiry into coping mechanisms and psychological distress among advanced cancer patients in disadvantaged socioeconomic classes and in minority populations.

Develope cross-cultural versions of the instruments most used in psycho-oncology studies.

Investigate how and why perceived social support differs between men and women.

Further explore perceived health status in relation to coping and psychological distress in advanced cancer patients, as appraisal of the disease is a crucial component in the process of adapting to the disease.

Explore perceived social support and coping strategies in relation to positive outcome variables, such as psychological well-being.

From the findings of this study and the recommendations developed from it, health professionals need to take four considerations into account when caring for patients with advanced cancer. First, it is important to assess specific coping strategies that individuals use to cope with their disease. Second, the use of avoidant coping should be reduced by promoting alternative coping strategies that effectively reduce distress. Third, distancing is a coping strategy that may be effective in this cancer population. Fourth, patients with low levels of perceived social support should be closely monitored and, if possible, awareness of available social support resources should be enhanced.

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APPENDIX A

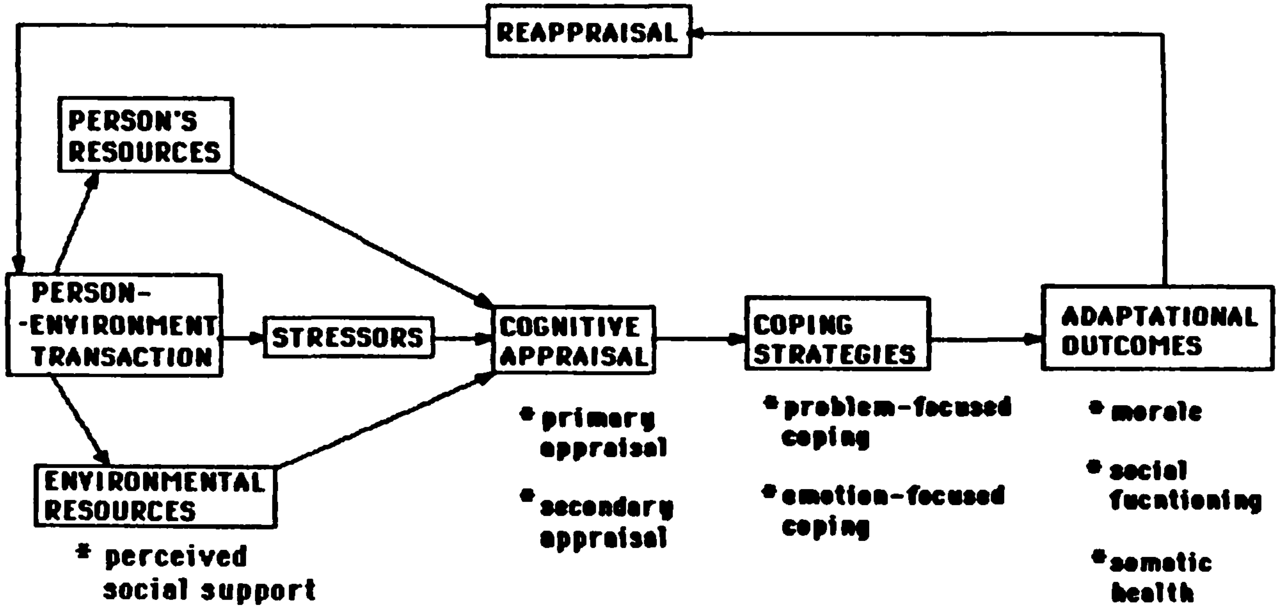

Figure 1. Conceptual schema of Lazarus and Folkman's stress and coping framework

APPENDIX B

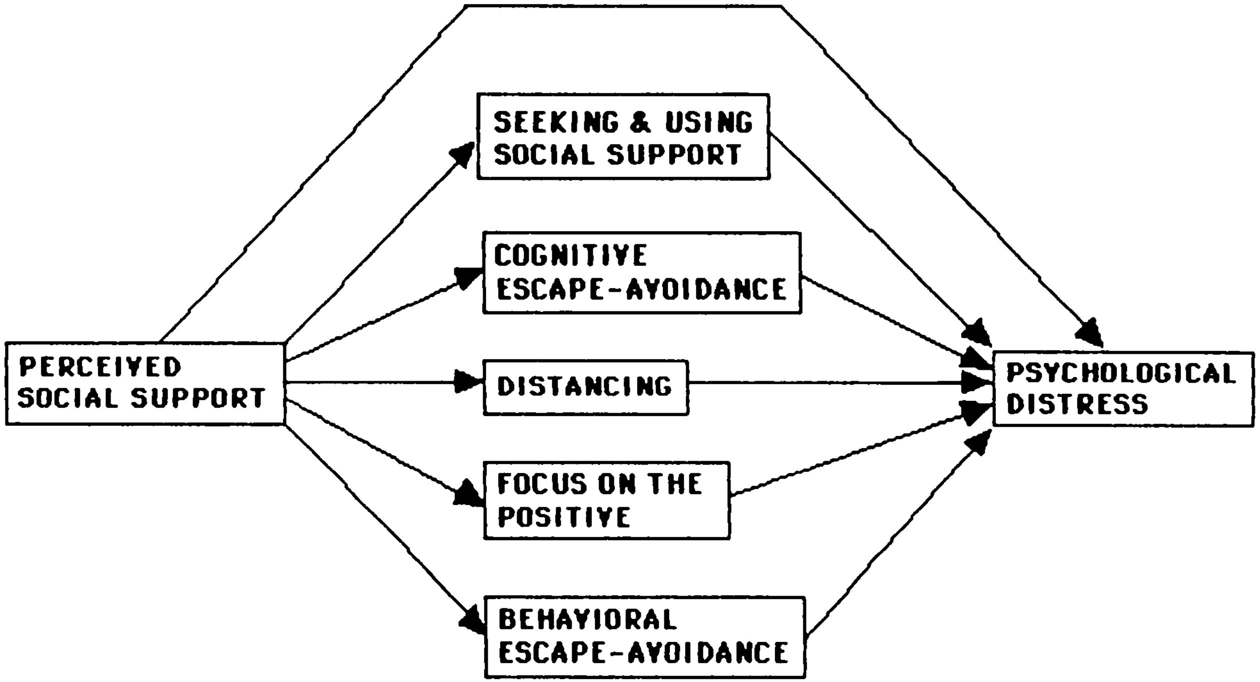

Figure 2. Diagram of the proposed relationships among the study variables

APPENDIX C

LETTER TO THE MEDICAL ONCOLOGY DIRECTORS

Date______,
Dr. _________
Director of Medical Oncology __________________,
New York, New York

Dear Dr. ___________:

I am a doctoral student in the Division of Nursing at New York University and am conducting a study as a partial requirement for my Ph.D. I am examining the relationships among perceived social support, coping strategies and psychological distress in advanced cancer patients receiving chemotherapy. While the importance of these variables has been recognized in the general cancer population, their interrelationship has not been studied in advanced cancer patients undergoing chemotherapy.

The purpose of this letter is to ask your permission for conducting the study at the Kaplan Cancer Center. Thus, I would like to have your approval for submitting the study to your institution's Internal Review Board and Nursing Research Committee, and, if approved, the opportunity to recruit participants for the study. I will seek informed written consent from all participants, and I will ask them to answer four questionnaires which take approximately 45 minutes to complete. Before proceeding the study must be approved by the Dissertation Committee, the Division of Nursing, and the Human Subjects Review Board at New York University. I will also comply with all research procedures at Kaplan Cancer Center.

I initially spoke to ______________, Director of Nursing Research at your Institution, as a consultant in the area of nursing research, and she expressed an interest in reviewing my proposal. I would be most interested in discussing the details of the study with you, especially its purpose, sample, delimitations, instruments, significance and the assurance of anonymity.

I look forward to speaking with you in the near future. I will call your office in approximately one week with the hope that an appointment may be scheduled to meet with you in person and discuss the details of the study.

Sincerely,

Adelaida Zabalegui, R.N., MSN

Ph.D. Candidate

APPENDIX D

NYU MEDICAL CENTER - NOTIFICATION OF APPROVAL

Human Subjects Protocol # **H6408-01**

Title: **Perceived Social Support, Coping and Psychological Distress in Advanced Cancer Patients**

Sponsor: **NYU Dept. of Education/Nursing**
Performance Dates: **01/01/96 - 12/31/96**
IBRA APPROVAL DATE: **12/18/95**

Dr. Ronald Blum
Medicine
556 BHC C&D Bldg.

December 19, 1995

The referenced protocol has been approved by IBRA for conduct at the following performance site(s). **Prior to conduct of this protocol you must receive in writing approval of an authorized representative of each site, unless otherwise stated below.**

NEW YORK UNIVERSITY MEDICAL CENTER: This protocol involving use of NYUMC clinical facilities has been reviewed by the Expedited or Preliminary Review process, therefore it requires no further approval by the Tisch Hospital Administration and can be activated at that site without further delay.

BELLEVUE HOSPITAL CENTER: The protocol has been recommended for approval by the *Bellevue Hospital Research Committee and is pending approval by the Executive Director* prior to being forwarded to the Health and Hospitals Corporation. Final approval for the use of Bellevue Hospital Center must be in writing from an authorized representative of the Corporation. You will be notified directly of the Corporation's action.

GENERAL CLINICAL RESEARCH CENTER: The protocol has been forwarded to the GCRC Executive Advisory Committee for their review and action. Notification of their action will be forwarded to you from this office.

NEW YORK VETERAN'S AFFAIRS MEDICAL CENTER: You are required to forward your protocol to the VAMC Research Committee. You will be notified directly of the VA's action.

In addition to the above-mentioned, this protocol is subject to the appended terms and conditions. Questions may be directed to Ms. Vernette Owens, extension 6705.

[redacted]

Arnold J. Friedhoff, M.D.
Menas Gregory Professor of Psychiatry
and, Director, Millhauser Laboratories
Chairman
Institutional Board of Research Associates

APPENDIX E

BELLEVUE HOSPITAL CENTER
First Avenue at 27th Street
New York, NY 10016
Tel: (212) 562-4141

MEMORANDUM

TO: R. Blum, M.D.

FROM: Pierre DuBose, Chairman
BHC Research Review Committee [redacted]

DATE: April 11, 1996

SUBJECT: IBRA/BRC#: 6408-01 HHC#:96-063
PERCEIVED SOCIAL SUPPORT COPING AND PSYCHOLOGICAL DISTRESS IN ADVANCED CANCER PATIENTS

This is to inform you that the above referenced research protocol has been approved by Bellevue Hospital Center and NYC Health and Hospitals Corporation for implementation.

This office must, however, be informed immediately if there is any major change in the protocol or if there are adverse patient events. This approval is valid for the period 01/01/96-12/31/96. You are reminded that you must also inform this office, when applicable, if you receive a Notice of Grant Award from an external funding agency or if the project is terminated within the period for which approval is now being given.

Research reports, whether published or not, must acknowledge cooperation from Bellevue Hospital Center and the NYC Health and Hospitals Corporation.

If you have any questions, please don't hesitate to contact Deborah A. Gregory at [redacted].

cc: Deborah A. Gregory
Vernette Owens
Cecilia Baquiran
Arlene Hurley, R.N.
William Sakolsky, R.N.

PLEASE NOTE: If you recruit from Bellevue's inpatient population, and you are NOT USING THE GCRC, you must notify Ms. Margaret Casey, Associate Director, Utilization Management, by Fax, (#[redacted] to inform her of the patient's name and cha time you enroll a patient.

New York City Health and Hospitals Corporation
Southern Manhattan/Northern Brooklyn Health Care Network

APPENDIX F

LETTER TO THE MEDICAL ONCOLOGISTS

Date______,

Dear Dr. __________________________:

I am a doctoral student in the Division of Nursing at New York University and am conducting a study as a partial requirement for my Ph.D. I am examining the relationships among perceived social support, coping strategies and psychological distress in advanced cancer patients receiving chemotherapy. While the importance of these variables has been recognized in the general cancer population, their interrelationship has not been studied in advanced cancer patients receiving chemotherapy.

The purpose of this letter is to ask you to afford me the opportunity to recruit participants for this study. Subjects will be adult cancer patients with any tumor type at an advanced stage and receiving chemotherapy. I will seek informed written consent from all participants and will ask them to complete four measures which will take approximately 45 minutes. I would be most interested in discussing the details of the study with you, especially its purpose, sample. delimitations, instruments, significance and assurance of confidentiality.

I initially spoke to Dr. _____________, Director of the Cancer Center at your institution, and he expressed support for my proposal. I will comply with all research procedures at ___________Cancer Center. Before proceeding, my proposal must also be approved by my Dissertation Committee, the Division of Nursing, and the Human Subjects Review Board at New York University.

I would appreciate your contribution in identifying some of your patients for the study.

Sincerely,

Adelaida Zabalegui, R.N., MSN

Ph. D. Candidate

APPENDIX G

DESCRIPTION OF THE STUDY

(This description will be available to adult cancer patients on various locations of the Cancer Center(s). The researcher will also provide verbal description of the study upon patients' request.)

This study evaluates how adult cancer patients adapt to their disease. It is hoped that the study will lead to an understanding of how cancer patients face the many challenges associated with their illness. The knowledge we will gain from this study is, therefore, likely to promote the well-being of cancer patients. I am proposing this study as a nurse researcher and a doctoral candidate at New York University.

Your participation involves your voluntary completion of a questionnaire booklet which will take approximately 45 minutes to finish. You will be assured of complete confidentiality and you may withdraw at any time without any risk or alteration in your medical care. There are no expected risks or benefits associated with your participation. You may also request a summary of the study results.

If you decide to participate in this study, please sign the written consent form and ask for the study package. The questionnaire ought to be completed preferably ten days after your chemotherapy and definitely before your next treatment cycle.

If you have any questions at any time, feel free to call Adelaida Zabalegui, collect, at

[redacted]

I greatly appreciate your participation in the study, because your contribution is essential to its viability and completion.

NEW YORK UNIVERSITY MEDICAL CENTER
AND BELLEVUE HOSPITAL CENTER
INFORMED CONSENT TO PARTICIPATE IN RESEARCH

You are being asked to volunteer to be a subject in a research study. This form is designed to provide you with information about this study so you know and understand as well as to answer any of your questions.

PROJECT DIRECTOR: Adelaida Zabalegui, RN/ Ronald Blum, MD. DEPT. Nursing/ Medicine
TEL. #(212)[redacted]

TITLE OF RESEARCH STUDY: The Relationships among Perceived Social Support, Coping, and Psychological Distress in Advanced Cancer Patients

SUBJECT PARTICIPATION: X INPATIENT/ X OUTPATIENT/ ___ OTHER
WE EXPECT TO ENLIST 120 SUBJECTS FOR THIS STUDY: 120
YOUR PARTICIPATION WILL INVOLVE THIS MANY VISITS: 0
EACH OF THESE VISITS WILL TAKE THE FOLLOWING AMOUNT OF TIME: 0

THE PURPOSE OF THE RESEARCH IS:

The purpose of this study is to evaluate to what extent do perceived social support and coping strategies contribute to explaining psychological distress in advanced cancer patients receiving chemotherapy. Without an accurate appreciation of the factors that influence the process of coping with the stressors associated with cancer and its treatment, attempts to help patients may be both ineffective and potentially harmful. Knowledge in this area could be the basis to develop nursing interventions that reinforce the most adaptive coping mechanisms.

THE FOLLOWING PROCEDURES WILL BE INVOLVED: (IF LIMITED TO BLOOD DONATION, LEAVE BLANK - SEE PAGE 2.)

You will receive a study packet containing a cover letter that describes the study and gives instructions, a questionnaire booklet, a postcard, and a return envelope. You will be asked to complete the questionnaire at you home between ten days post chemotherapy and before your next treatment. The questionnaire booklet will include The Profile of Mood States (POMS) (McNair, Lorr & Droppelman, 1992), The Ways of Coping Inventory-Cancer Version (WOC-CA) (Dunkel-Schetter, Feinstein, Taylor, & Falke, 1992), The Personal Resources Questionnaire-85 (PRQ-85)(Weiner & Brandt, 1987), and a Demographic Information Sheet (DIS). The POMS will measure psychological distress, the WOC-CA will evaluate a broad range of behavioral and cognitive coping strategies that an individual might use to deal with problems associated with cancer, the PRQ-85 will measure your perceived social support level, and the DIS will be used to obtain your demographic data.

A stamped postcard with your identification number will also be included in the study packet for mailing purposes. To ensure complete confidentiality it is emphasized that the postcard be returned separately upon mailing the questionnaire booklet. When the postcard is received by the researcher, your identification number and corresponding name will be deleted from the follow-up mailing schedule. An addressed envelope with postage will also be provided to facilitate the return of the questionnaire booklet. The completion of the questionnaire booklet will take you approximately 45 minutes. A Medical Data Form will be completed by the researcher from your medical records.

CONSENT TO PARTICIPATE IN RESEARCH (CONTINUED)

DONATION OF BLOOD: ______NA________ . cc. (equivalent to ___________ ounces). Frequency of withdrawal: ___NA___________. Total Amount: _______________. The potential risks of donating blood, may occasionally include pain, bruising, fainting or a small infection at the puncture site.

THE POTENTIAL RISKS OR DISCOMFORTS TO YO ARE: (IF LIMITED TO DONATION OF BLOOD, LEAVE BLANK.)

No known risks are expected as a result of participation in this research study.

THERAPEUTIC OBJECTIVES (CHECK THE APPLICABLE CHOICE(S) BELOW):

NA____ This research study includes procedures that may change the treatment you would otherwise receive. We hope the knowledge gained will be of benefit to you.

NA____ This research study includes procedures which may not give you immediate benefits. It is hoped the knowledge gained will be of benefit to others in the future.

NA___ This research study is planned to select by chance your treatment. It is not known if the treat-ment you will receive will be of benefit to you.

THE POTENTIAL BENEFITS TO YOU OR TO OTHERS ARE:

This study will increase our knowledge of how adult patients adapt to cancer and help improve our ability to assist future patients in their adjustment to cancer.

IF YOU DO PARTICIPATE IN THE RESEARCH, YOU MAY RECEIVE THE FOLLOWING ALTERNATIVE TREATMENT:

No alternative study is available. You are free at any time to withdraw from the study without any risk or alteration in your medical care.

GENERAL CONDITIONS

1. Should you consent to participate in this research, your identity will be kept confidential within these limits. If investigational drugs and/or devices subject to U.S. Food and Drug Administration regulations are involved, it may be necessary for this consent form and other medical records to be reviewed by representatives of the F.D.A. and the agency providing the test substance. Under New York State regulations a copy of informed consent documentation must also be made part of your hospital medical record.

2. All forms of medical diagnosis and treatment -- whether routine or experimental -- involve some risk of injury. In spite of all precautions, you might develop medical complications from participating in this study. If such complications arise, the researchers will provide emergency medical treatment and will assist you in obtaining appropriate follow-up medical treatment but this study does not provide compensation for additional medical or other costs, unless otherwise stated in 2.A. below.

2.A.

3. You will be told of any new findings that may influence your willingness to continue to participate in the research.

4. If you would like to discuss your participation with an institutional representative who is not part of this study, please call the Director, NYU Medical Center Office of Grants Administration and Institutitional Studies, Telephone No. [redacted]

5. Should you agree to participate in this research, you may change your mind at any time. Refusal to participate will not harm your relationship with the faculty and attending staff, nor will it prejudice your further treatment.

AGREEMENT TO PARTICIPATE

I have read the description of the research study and general conditions or it was read to me by:______________________________________. Anything I did not understand was explained to me by:____, and any questions I had were answered by:____. I certify that I am/am not (circle one) participating in another research project at this time, and have discussed the implications of such activity with the project director(s) of this project. In consideration of this understanding, I voluntarily agree to participate in this research at

___ NYUMC ___ Bellevue _______ Other (identify): ____________

WHEN THE SUBJECT IS AN ADULT

Print Name of Participant

Signature of Participant or Legal Date

Print Name of Person Obtaining

Signature of Person Obtaining Date

Print Name of Witness

Signature of Witness Date

*For subjects who may not be capable of providing informed consent the signature of a legal representative is required.

For children between the ages of 12 and 17, their signature is generally required in addition to that of the parent or legal representative.

**The signature of one parent is sufficient when the research is of minimal risk to the child, or when the research presents the prospect of direct benefit to the child. The signature of both parents is required when the research involves greater than minimal risk with no prospect of direct benefit to the child. The requirement for signature of both parents may be waived if one parent is deceased, unknown, incompetent, or not reasonably available, or when one parent has sole legal responsibility for the care and custody of the child.

APPENDIX I

STUDY PARTICIPATION POSTCARD

ID # __________

I would like to participate in the study on adaptation of cancer patients to their illness, being conducted by Adelaida Zabalegui, RN, PhD Candidate, New York University.

PLEASE PRINT:

Name: ____

Address: ____
____
____

Telephone: (_____) ________________

Medical Oncologist: Dr. ______________________________

Date: ____________

Thank you very much for your time and contribution. If you have any questions, please call Adelaida Zabalegui at ([redacted]

APPENDIX J

COVER LETTER TO PARTICIPANTS

Dear participant:

I am seeking volunteers to participate in a study that examines how adult cancer patients adapt to their disease. I am conducting this study in partial fulfillment of the requirements for my Doctoral Dissertation at New York University Division of Nursing. I am asking you to complete four questionnaires, ten days after your chemotherapy treatment, in your home. The questionnaires will take approximately 45 minutes to complete. Your participation is voluntary. You are free to withdraw at any time without any loss of services to which you are otherwise entitled. I will be available over the phone or on an interview to answer any possible questions that you may have about this research.

You will be assured of complete confidentiality. The questionnaire booklet asks for no identifying name, only code numbers are used. When you have completed the questionnaire booklet, please return it in the postage-paid envelope. To know that you have completed the booklet, and so that your name can now be removed from the mailing list, I ask that you separately mail the enclosed stamped postcard as you return the questionnaire booklet. You may request a summary of the study results by printing your name and address in the space provided on the postcard. Please do not put this information on the questionnaire booklet itself.

If you have any questions, please feel free to call me at [redacted]

This study is intended to increase our knowledge of how adults adapt to cancer and contribute to our ability to assist patients in the adjustment process. I greatly appreciate your dedication of valuable time and effort and want to thank you for your contribution to the study.

Sincerely,

Adelaida Zabalegui, R.N., MSN

APPENDIX K

WAYS OF COPING INVENTORY--CANCER VERSION

ID # __________

Cancer is generally a difficult or troubling experience for those who have it. The following are some possible problems associated with cancer. Please indicate which one has been the most difficult or troubling for you in the past six months by circling the appropriate number.

1 Fear and uncertainty about the future due to cancer
2 Limitations in physical abilities, appearance, or lifestyle due to cancer
3 Pain, symptoms, or discomfort from illness or treatment
4 Problems with family or friends related to cancer
5 Others (please specify ________________________________)

How stressful has this problem been for you since the beginning of your current chemotherapy?

1 EXTREMELY STRESSFUL
2 STRESSFUL
3 SOMEWHAT STRESSFUL
4 SLIGHTLY STRESSFUL
5 NOT STRESSFUL

When we experience stress in our lives, we usually try to manage it by trying out different ways of thinking or behaving. These can be called ways of "coping." Sometimes our attempts are successful in helping us solve a problem or feel better and other times they are not. The next set of items is on the ways of coping you may have used in trying to manage the most stressful part of your cancer. Please read each item below and indicate how often you have tried this in the past six months in attempting to cope with the specific problem circled above. It is important that you answer every item as best as you can.

How often have you tried, since you started this chemotherapy regimen, to manage the problem circled above?

0 = Never
1 = Rarely
2 = Sometimes
3 = Often
4 = Very often

		Never	Rarely	Sometimes	Often	Very often
1.	Concentrated on what I had to do next -the next step-	0	1	2	3	4
2.	Felt that time would make a difference - the only thing to do was to wait	0	1	2	3	4

Circle only one number

		Never	Rarely	Sometimes	Often	Very often
3.	Did something which I didn't think would work, but at least I was doing something	0	1	2	3	4
4.	Talked to someone to find out more about the situation	0	1	2	3	4
5.	Criticized or lectured myself	0	1	2	3	4
6.	Tried not to close off my opinions, by leaving things open somewhat	0	1	2	3	4
7.	Hoped a miracle would happen	0	1	2	3	4
8.	Went along with fate: sometimes I just have bad luck	0	1	2	3	4
9.	Went on as if nothing were happening	0	1	2	3	4
10.	Tried to keep my feelings to myself	0	1	2	3	4
11.	Looked for the silver lining, so to speak; tried to look on the bright side of things	0	1	2	3	4
12.	Slept more than usual	0	1	2	3	4
13.	Looked for sympathy and understanding from someone	0	1	2	3	4
14.	Was inspired to do something creative	0	1	2	3	4
15.	Tried to forget the whole thing	0	1	2	3	4
16.	Tried to get professional help	0	1	2	3	4
17.	Changed or grew as a person in a good way	0	1	2	3	4

Circle only one number

		Never	Rarely	Sometimes	Often	Very often
18.	Waited to see what would happen before doing anything	0	1	2	3	4
19.	Made a plan of action and followed it	0	1	2	3	4
20.	Let my feelings out somehow	0	1	2	3	4
21.	Came out of the experience better than when I went in	0	1	2	3	4
22.	Talked to someone who could do something concrete about the problem	0	1	2	3	4
23.	Tried to make myself feel better by eating, drinking, smoking or using drugs	0	1	2	3	4
24.	Took a big chance or did something risky	0	1	2	3	4
25.	Tried not to act too hastily or follow my first hunch	0	1	2	3	4
26.	Found new faith	0	1	2	3	4
27.	Rediscovered what is important in life	0	1	2	3	4
28.	Changed something so things would turn out all right	0	1	2	3	4
29.	Avoided being with people in general	0	1	2	3	4
30.	Didn't let it get to me; refused to think about it too much	0	1	2	3	4
31.	Asked a relative or friend I respect for advice	0	1	2	3	4
32.	Kept others from knowing how bad things were	0	1	2	3	4
33.	Made light of the situation; refused to get too serious about it	0	1	2	3	4

Circle only one number

		Never	Rarely	Sometimes	Often	Very often
34.	Talked to someone about how I was feeling	0	1	2	3	4
35.	Took it out on other people	0	1	2	3	4
36.	Drew on my past experience; I was in a similar experience before	0	1	2	3	4
37.	Knew what had to be done, so redoubled my efforts to make things work	0	1	2	3	4
38.	Refused to believe it would happen	0	1	2	3	4
39.	Came up with a couple of different solutions to the problem	0	1	2	3	4
40.	Tried to keep my feelings from interfering with other things too much	0	1	2	3	4
41.	Changed something about myself	0	1	2	3	4
42.	Wished that the situation would go away or somehow be over with	0	1	2	3	4
43.	Had fantasies or wishes about how things might turn out	0	1	2	3	4
44.	Prayed	0	1	2	3	4
45.	Prepared myself for the worst	0	1	2	3	4
46.	Went over in my mind what I would say or do	0	1	2	3	4
47.	Thought of how a person I admire would handle this situation and used that as a model	0	1	2	3	4
48.	Reminded myself how much worse things could be	0	1	2	3	4

Circle only one number

		Never	Rarely	Sometimes	Often	Very often
49.	Tried to find out as much as I could about cancer and my own case	0	1	2	3	4
50.	Treated the illness as a challenge or battle to be won	0	1	2	3	4
51.	Depended mostly on others to handle things or tell me what to do	0	1	2	3	4
52.	Lived one day at a time or took one step at a time	0	1	2	3	4

53. Tried something entirely different from any of the above

____

____

____

APPENDIX L

PERSONAL RESOURCE QUESTIONNAIRE-PART II

ID # ________

Directions: Below are some statements with which some people agree and others disagree. Please read each statement and CIRCLE the response most appropriate to you. There is no right or wrong answer.

1 = STRONGLY DISAGREE
2 = DISAGREE
3 = SOMEWHAT DISAGREE
4 = NEUTRAL
5 = SOMEWHAT AGREE
6 = AGREE
7 = STRONGLY AGREE

1.	There is someone I feel close to who makes me feel secure	1	2	3	4	5	6	7
2.	I belong to a group in which I feel important	1	2	3	4	5	6	7
3.	People let me know that I do well at my work (job, homemaking)	1	2	3	4	5	6	7
4.	I can't count on my relatives and friends to help me with my problems	1	2	3	4	5	6	7
5.	I have enough contact with the person who makes me feel special	1	2	3	4	5	6	7
6.	I spend time with others who have the same interests I do	1	2	3	4	5	6	7
7.	There is little opportunity in my life to be giving and caring to another person	1	2	3	4	5	6	7
8.	Others let me know that they enjoy working with me (job, committees, projects)	1	2	3	4	5	6	7
9.	There are people who are available if I needed help over an extended period of time	1	2	3	4	5	6	7
10.	There is no one to talk to about how I am feeling	1	2	3	4	5	6	7
11.	Among my group of friends we do favors for each other	1	2	3	4	5	6	7

1 = STRONGLY DISAGREE
2 = DISAGREE
3 = SOMEWHAT DISAGREE
4 = NEUTRAL
5 = SOMEWHAT AGREE
6 = AGREE
7 = STRONGLY AGREE

Circle only one number

12.	I have the opportunity to encourage others to develop their interests and skills	1	2	3	4	5	6	7
13.	My family lets me know that I am important for keeping the family running	1	2	3	4	5	6	7
14.	I have relatives or friends who will help me out even if I can't pay them back	1	2	3	4	5	6	7
15.	When I am upset there is someone I can be with who lets me be myself	1	2	3	4	5	6	7
16.	I feel no one has the same problem as I do	1	2	3	4	5	6	7
17.	I enjoy doing little "extra" things that make another person's life more pleasant	1	2	3	4	5	6	7
18.	I know that others appreciate me as a person	1	2	3	4	5	6	7
19.	There is someone who loves me and cares about me	1	2	3	4	5	6	7
20.	I have people to share social events and fun activities with	1	2	3	4	5	6	7
21.	I am responsible for helping provide for another person's needs	1	2	3	4	5	6	7
22.	If I need advice there is someone who would assist me to work out a plan for dealing with the situation	1	2	3	4	5	6	7
23.	I have a sense of being needed by another person	1	2	3	4	5	6	7

1 = STRONGLY DISAGREE
2 = DISAGREE
3 = SOMEWHAT DISAGREE
4 = NEUTRAL
5 = SOMEWHAT AGREE
6 = AGREE
7 = STRONGLY AGREE

Circle only one number

24.	People think that I'm not as good a friend as I should be	1	2	3	4	5	6	7
25.	If I got sick, there is someone to give me advice about caring for myself	1	2	3	4	5	6	7

APPENDIX M

DEMOGRAPHIC INFORMATION SHEET

ID # ________

Please respond to the following questions about yourself for us to know the characteristics of the individuals participating in the study. Your answers will be strictly confidential.

1. Your present age: _______ years.

2. Your present marital status: (Circle the number)
   1 Never married
   2 Married
   3 Divorced
   4 Separated
   5 Widowed

3. What is the length of your present marital status? ____________

4. In what country were you born? ____________________

5. Which of the following best describes your racial or ethnic background?
   1 Black
   2 White
   3 Hispanic
   4 Native American (American Indian)
   5 Asian
   6 Other (specify): ______________

6. Are you a parent?
   1 No (Skip to Q8)
   2 Yes

7. If you are a parent, how many children do you have in each age group?
   _______ Under 5 years of age
   _______ 6-12
   _______ 13-25
   _______ 26 and over

8. How do you rate your current health?
   1 Excellent
   2 Very good
   3 Moderately good
   4 Moderately poor
   5 Very poor

9. What is your religious preference?
   1 Protestant (specify: ____________________)
   2 Roman Catholic
   3 Jewish
   4 Other (specify: ________________________)
   5 I am not religious

10. What is your present employment status?
    1 Employed full-time
    2 Employed part-time
    3 Retired
    4 Homemaker (not employed outside home)
    5 Unemployed
    6 Social security disability

11. If employed, list current occupation: _____________________
    If retired, list last occupation: _________________

12. What is your educational level (Check highest level completed):
    1 Less than 8th grade
    2 Completed 8th grade
    3 Completed some high school
    4 Graduated from high school
    5 Completed some college
    6 Completed baccalaureate degree
    7 Completed graduate or professional degree

13. What is your family income?
    1 Below $20,000
    2 $20,000 to $39,999
    3 $40,000 to $59,999
    4 $60,000 and above

14. What are your living arrangements?
    1 Living alone
    2 Living with parents
    3 Living with spouse
    4 Living with spouse and children
    5 Living with children
    6 Living with friends
    7 Living with attendant

15. Do you have any physically disabling disease other than cancer?
    1 No
    2 Yes (specify: ______________________)

16. Please circle the statement that most closely indicates how you have been feeling about the following symptoms since you started your current chemotherapy treatment:

1 I do not have this symptom
2 I have this symptom but it does not bother me
3 I have this symptom and it occasionally bothers me
4 I have this symptom and it continuously bothers me

		Do not have	Does not bother	Occasionally bothers	Continuously bothers
A.	Nausea	1	2	3	4
B.	Loss of appetite	1	2	3	4
C.	Vomiting	1	2	3	4
D.	Insomnia	1	2	3	4
E.	Fatigue	1	2	3	4
F.	Constipation	1	2	3	4
G.	Diarrhea	1	2	3	4
H.	Worsening of physical appearance	1	2	3	4
I.	Loss of weight	1	2	3	4
J.	Gain of weight	1	2	3	4
K.	Difficulty swallowing	1	2	3	4
L.	Mouth sores	1	2	3	4
M.	Taste and smell change	1	2	3	4
N.	Loss of hair	1	2	3	4
O.	Pain	1	2	3	4
P.	Shortness of breath	1	2	3	4
Q	Eye tearing	1	2	3	4
R	Tingling or numbness of extremities	1	2	3	4
S.	Other:	1	2	3	4

APPENDIX N

POSTCARD TO CONFIRM PARTICIPATION

ID # ______________ DATE________________

( ) I have completed and returned the questionnaire booklet for your study. I request that a summary of the study results be sent to:

Name:________________________________

Address:______________________________

____

____

Thank you very much for your time and assistance. If you have any questions, please call Adelaida Zabalegui at [redacted]

APPENDIX O

FOLLOW-UP POSTCARD TO PARTICIPANTS

Date (Two weeks after first mailing)

Recently you received a questionnaire booklet seeking your responses to questions that relate to the adaptation of adult cancer patients to their disease.

If you have already completed and returned the questionnaire booklet to me, please accept my sincere thanks and appreciation. If not, please do so today. As an important member of this group of cancer patients, your responses are vital to the success of this study.

If by some chance you did not receive the questionnaire or it has been misplaced, please call me, immediately, collect [redacted] I will mail a questionnaire to you today.

Thank you for your support and cooperation.

Sincerely,

Adelaida Zabalegui, R.N., MSN
Doctoral Candidate
New York University
Division of Nursing

APPENDIX P

FOLLOW-UP LETTER TO PARTICIPANTS

NYU Letterhead

Date (Three weeks after first mailing)

Participant's Full Name
Address

Dear_____________,

About two weeks ago you received a questionnaire booklet seeking your responses to questions regarding how adult cancer patients adapt to their disease. As of today, I have not yet received your completed booklet questionnaire.

This study has been undertaken to understand the process involved in the experience of coping with cancer. As cancer increases, health professionals face more challenges in providing effective and compassionate care. Your participation is very important and will help nurses and other health care professionals understand your experience, feelings, and needs so they can offer better health care to cancer patients.

I am writing to you again as a person who can provide insight into the experience of coping with cancer. For the results to be truly representative, your participation is essential. Your responses will be completely confidential.

In the event that your questionnaire has been misplaced, please call me, immediately, collect [redacted]). I will mail a questionnaire to you today.

Your cooperation is greatly appreciated.

Cordially,

Adelaida Zabalegui, R.N., MSN
Doctoral Candidate
New York University
Division of Nursing

APPENDIX Q

MEDICAL DATA FORM

ID # __________

Diagnosis: ______________________________________

Primary tumor site: __________________and date of the diagnosis __________________

Stage: ______________________

Lymph node involvement:
1 NO
2 YES __________________ (number of positive nodes)

Metastasis:
1 NO
2 YES __________________ (location)

Previous chemotherapy treatment:
1 NO
2 YES __________________ (number of cycles)

Previous radiotherapy treatment
1 NO
2 YES

Previous surgery:
1 NO
2 YES __________________(type). Date ______________

Previous hormonal therapy:
1 NO
2 YES ________________________(type)

Chemotherapy agents and dose and frequency receiving: ____________________________

____

____

Date of the last chemotherapy treatment: _______________

APPENDIX R

UNIVERSITY OF CALIFORNIA, LOS ANGELES UCLA

BERKELEY • DAVIS • IRVINE • LOS ANGELES • RIVERSIDE • SAN DIEGO • SAN FRANCISCO SANTA BARBARA • SANTA CRUZ

DEPARTMENT OF PSYCHOLOGY
1252A FRANZ HALL
BOX 951563
LOS ANGELES, CALIFORNIA 90095-1563

July 14, 1995

To Avelaida Zabalegui
New York University Medical Center
[redacted]
New York, NY [redacted]

You may have my permission to use the Ways of Coping with Cancer in your research Please keep me informed of the results of your work Thank you

[redacted]

Christine Dunkel-Schetter
Associate Professor

Date: Fri, 30 Jun 1995 12:27 -0700 (PDT)
From: [redacted]
To: [redacted]
Subject: Re: HELP WITH WOC-CA

I am sorry but I cant help with everything in your long email. The defs of the scales seem okay to me but should be stated as your summaries of the work as published. The regression idea using total WOC-Ca scores does not make sense to me, but maybe I misunderstood. As far as I am concerned, a total score would only indicate crudely the amount of different behaviors used, across strategies I would go about it differently if you want to address issues of mediation but I cannot advise you further. Finally, please call my assistant Vivian Chern at [redacted] and ask for a letter of permission to use WOC CA. Such a form letter is in our files, and she can send it. She is new and might need to ask me. If you called recently, I seem to nremember I asked her to look for it already, so you don't need to call again. Best of luck in your work. Chris Dunkel-Schetter

> Date: Sun, 25 Jun 1995 19:40:53 -0400 (EDT)
> From: [redacted]

APPENDIX S

UNIVERSITY OF WASHINGTON
SCHOOL OF NURSING

DEPARTMENT OF PARENT AND CHILD NURSING

March 6, 1995

Adelaida Zabalegui, RN, MS
New York University Medical Center
[redacted]
New York, NY

Dear Ms. Zabalegui:

Thank you for your request. Enclosed you will find a copy of the PRQ-85. You have my permission to use it and reproduce as many copies as you will require. In this packet you will find a copy of the PRQ85, the directions for scoring, the suggested demographic information, and some additional results from the continued psychometric evaluation of the PRQ. Our article entitled "Social Support: Assessment of Validity", is in the July/August 1990 issue of *Nursing Research*.

As we continue with the refinement of the PRQ, we collate data sets provided by the researchers who have used the PRQ. One specific aim is to have a systematized data base that would provide a source of comparison across studies, populations, situations, etc. If you are willing to share your data set we would be most happy to include it in this growing data base. I have included the list of demographic variables that should be sent with the data.

The PRQ has been designed with two distinct parts. Part 1 can address some aspects of the network structure and provides descriptive data regarding situational support. Part 2 is a scale developed to measure the level of perceived social support based on the work of Robert Weiss. While Part 1 can be used without Part 2 or Part 2 without Part 1, we ask that no items or questions be changed/deleted, or the item sequence altered in any way. If you feel you need to change specific items to meet the aims of your research, I would ask that you submit them to me for review. I would be happy to discuss any questions or concerns you have in relation to your specific research.

If you decide to use the PRQ85 in your research please send us a letter with a brief description of your study. Students are to include the name of their research advisor. The tool must be identified, in you questionnaire, as the Personal Resource Questionnaire and authorship of the tool acknowledged in any publication or communication regarding the tool. Thank you for your interest in the PRQ.

[redacted]
Patricia Brandt, ARNP, PhD
Associate Professor

Enclosure

University of Washington School of Nursing SC 74 Seattle Washington 98195 206 543 8775 Fax 206 543 6656

APPENDIX T

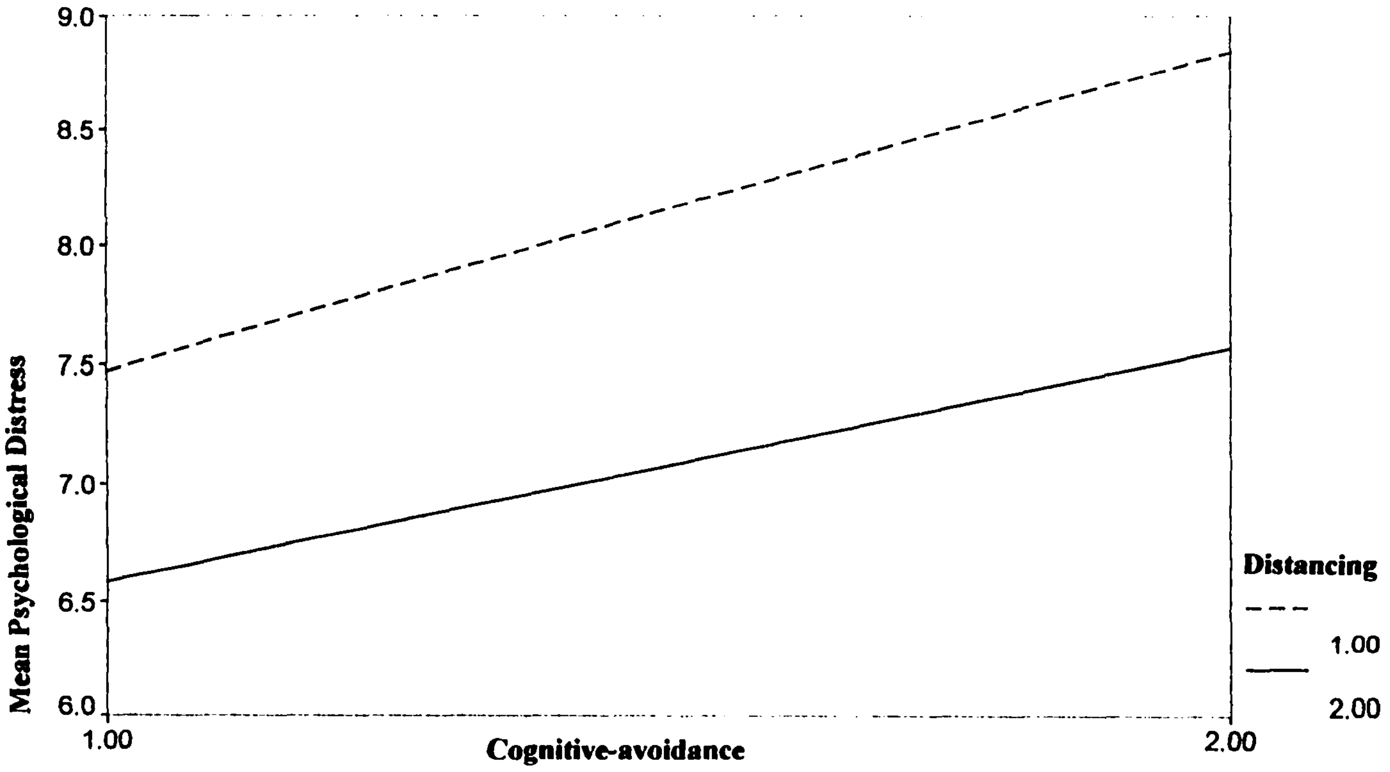

Figure 3. Interaction effect of cognitive avoidance and distancing (CA x DIS) on psychological distress

APPENDIX U

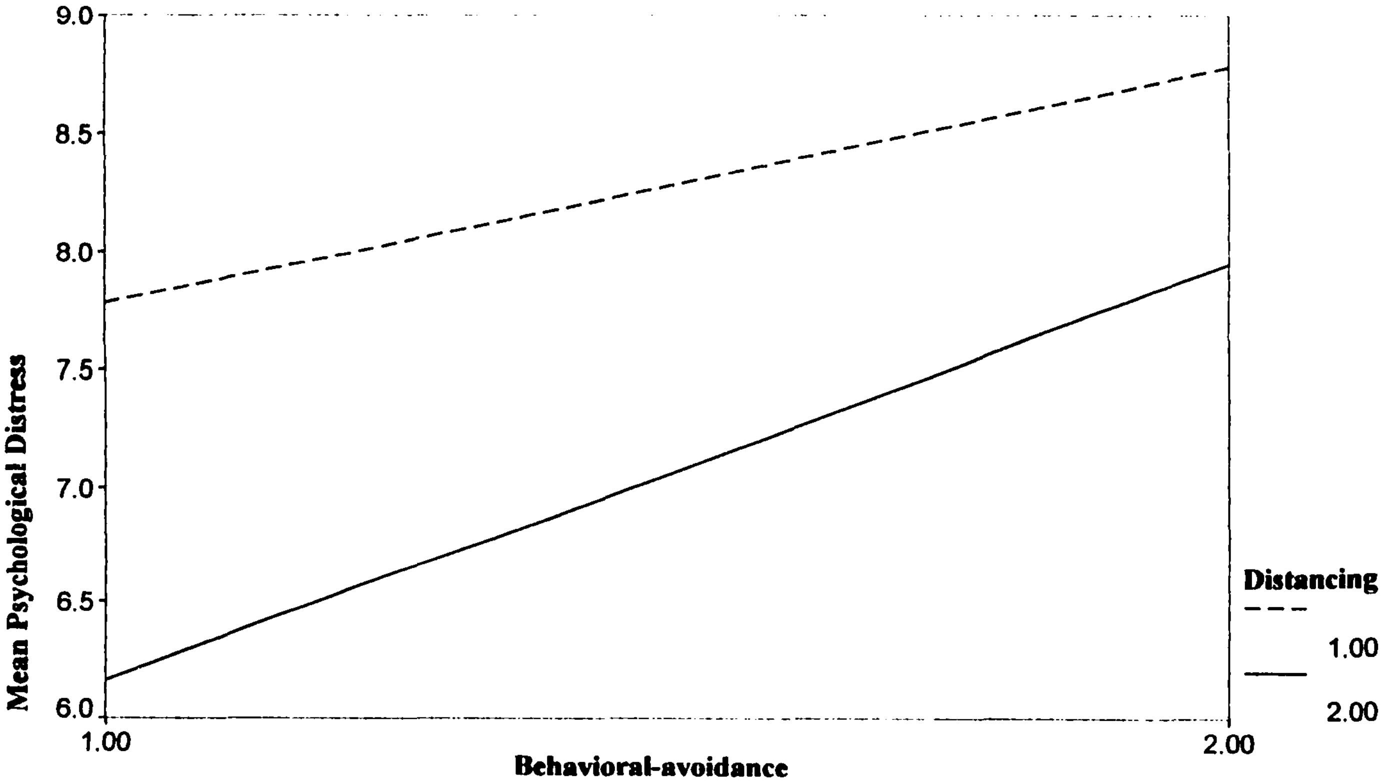

Figure 4. Interaction effect of behavioral avoidance and distancing (BA x DIS) on psychological distress

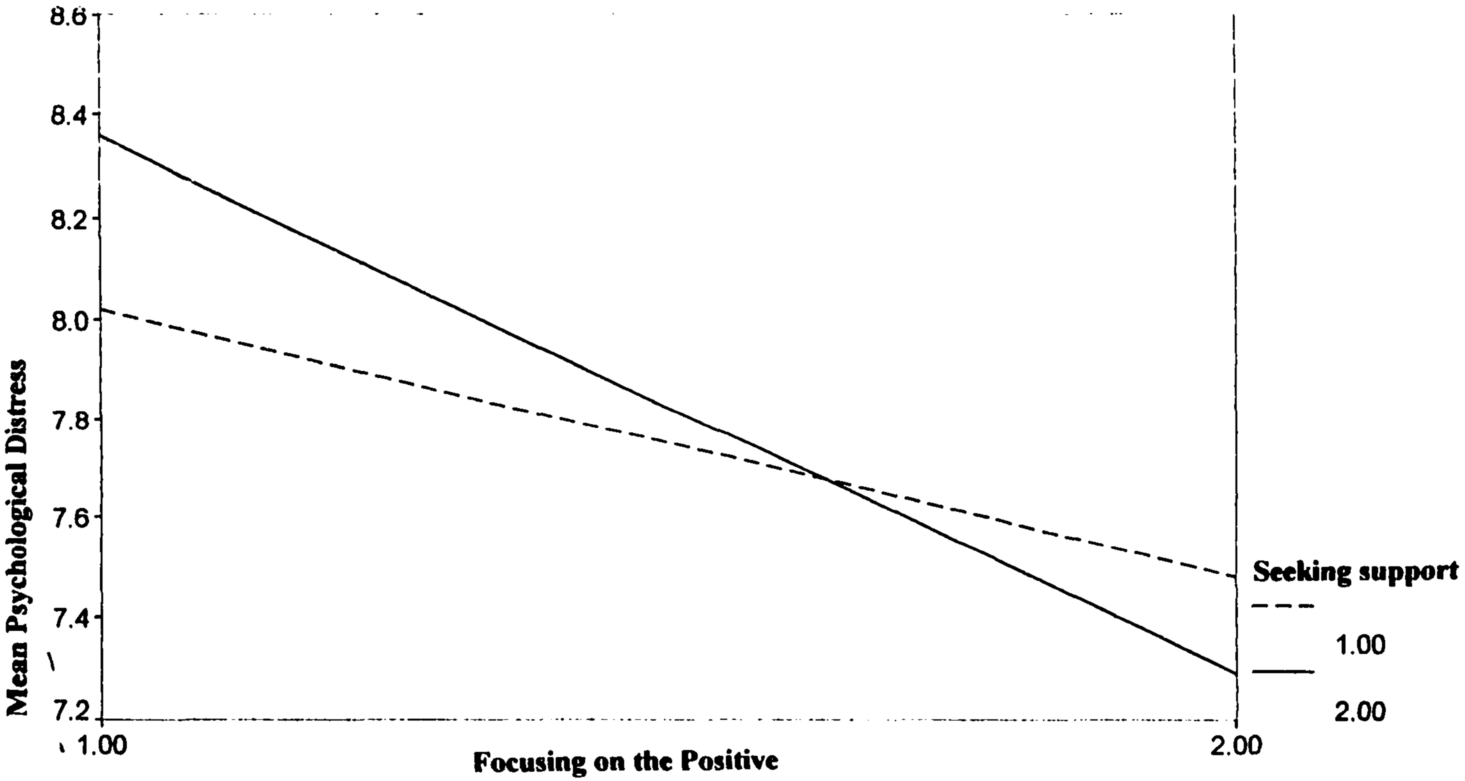

Figure 5. Interaction effect of focusing on the positive and seeking social support (FOP x SS) on psychological distress

APPENDIX W

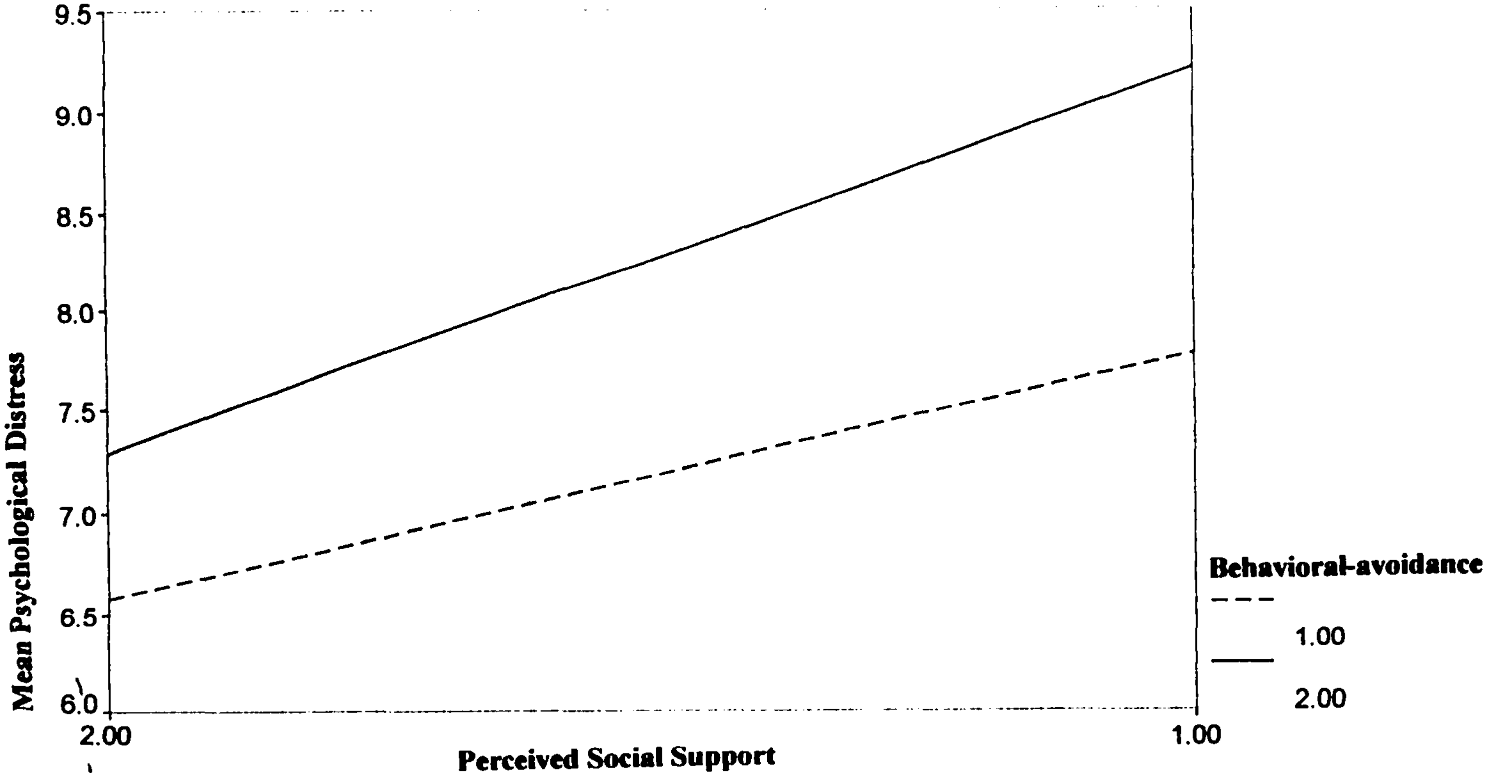

Figure 6. Interaction effect of perceived social support and behavioral avoidance (PSS x BA) on psychological distress

APPENDIX X

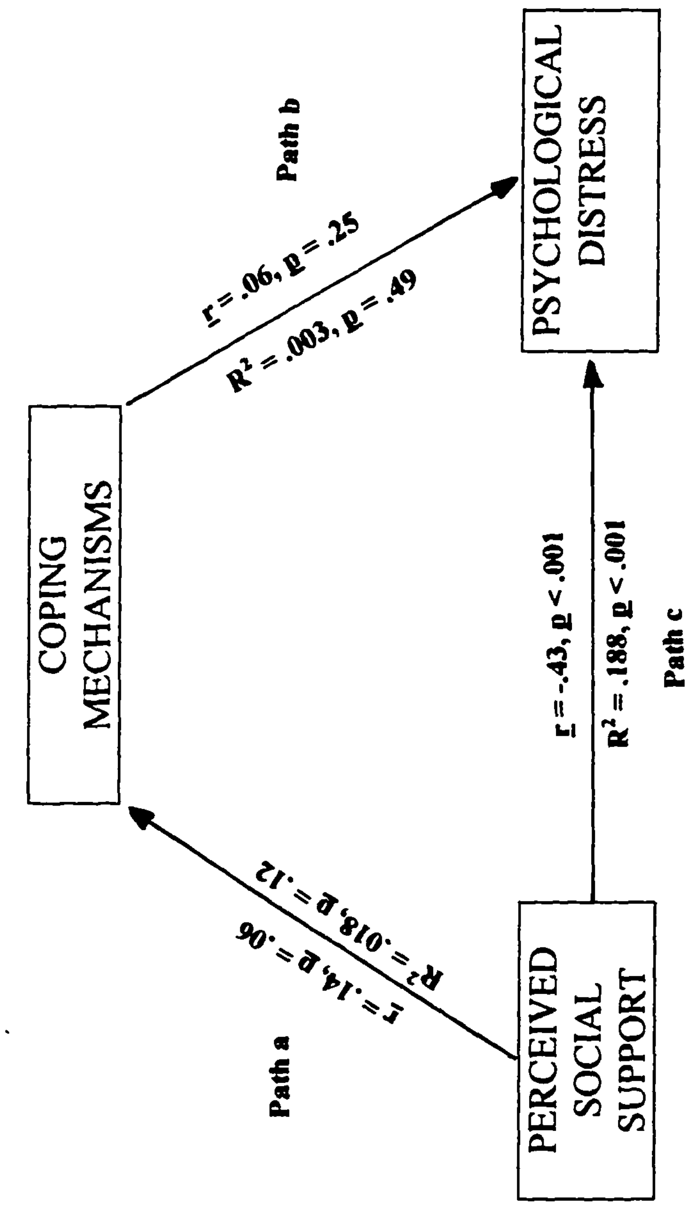

Figure 7. Mediator model

APPENDIX Y

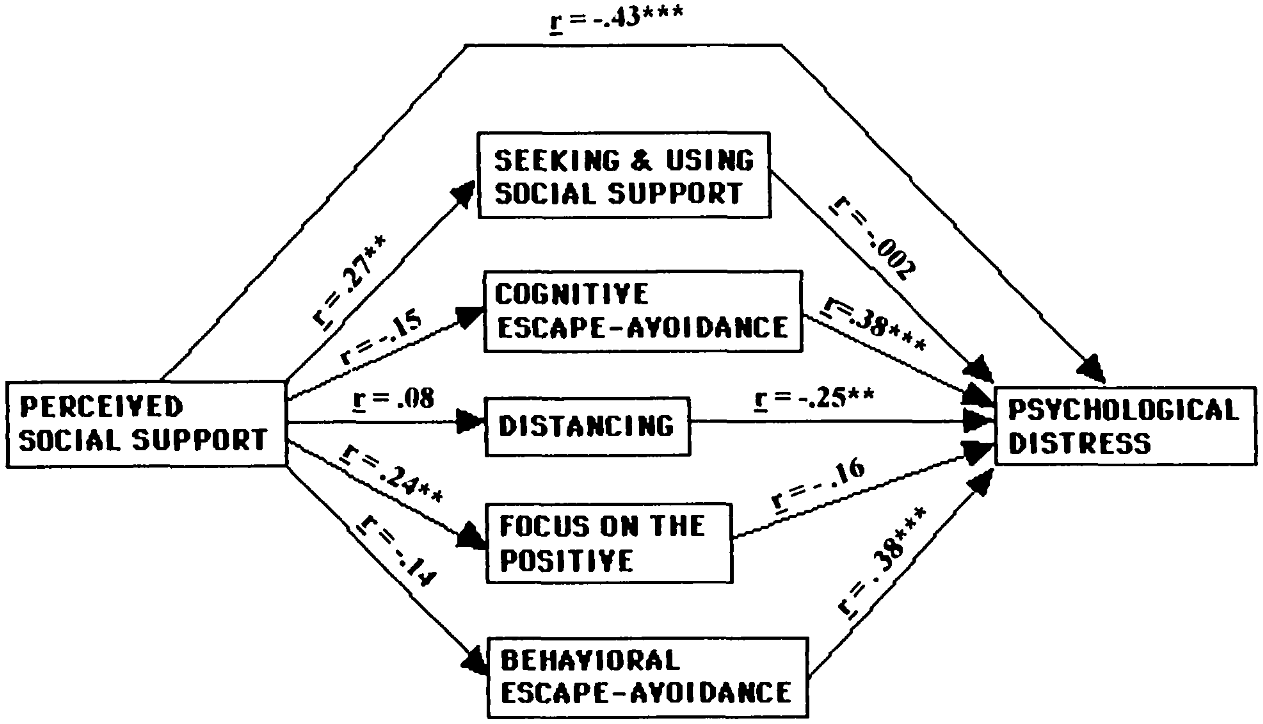

Figure 8. Diagram of obtained relationships among the study variables

APPENDIX Z

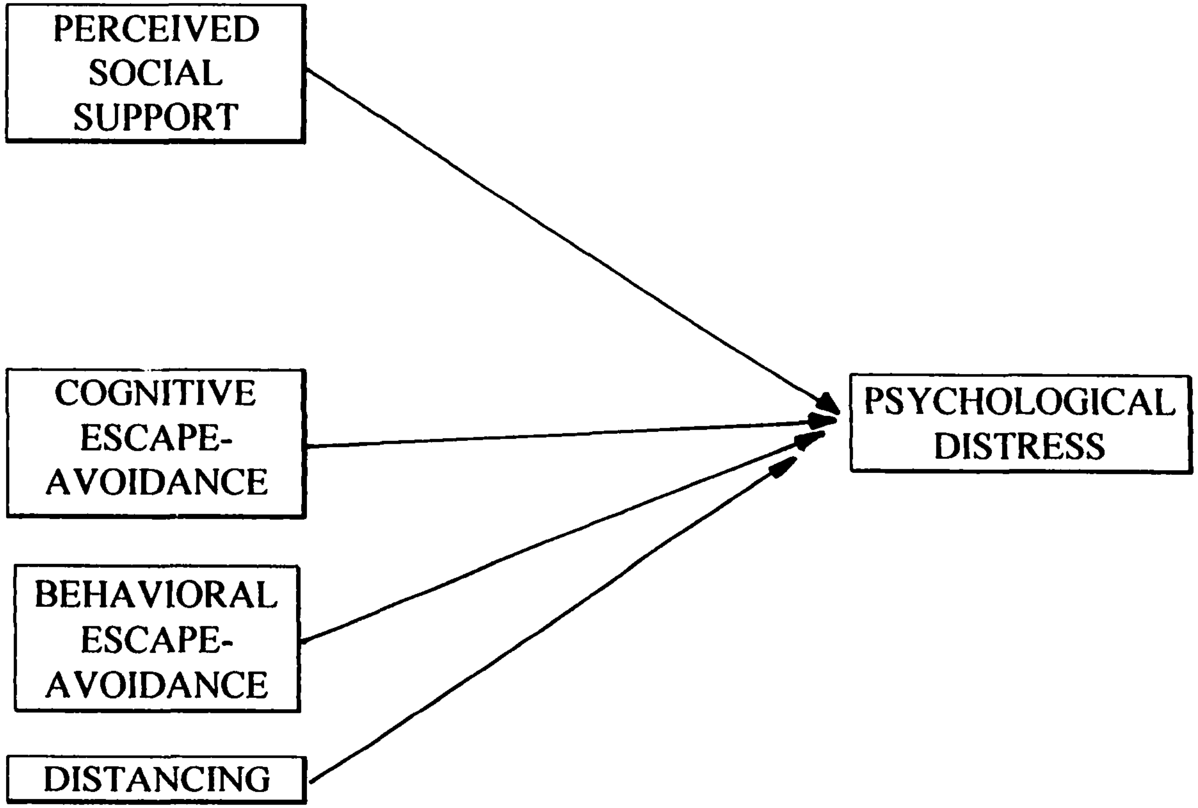

Figure 9. Alternative Model