

CHAPTER 2

LITERATURE REVIEW

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4.3 Anxiety and Coping in Cancer Patients

4.4 Pain, Anxiety, and Coping in Cancer Patients

1. *Pain in Cancer Patients*

1.1 Definition of Pain

International Association for the Study of Pain (IASP) defines pain as “an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage” (Merskey & Bogduk, 1994, p. 210). Melzack and Wall (1980, as cited in McGuire & Sheidler, 1993, p. 500) states that “pain is such a common experience that we rarely pause to define it in ordinary

conversation.” In other words, pain is a physical or emotional experience that is difficult to describe in our life. Melzack and Wall also view that pain was a category of experiences, signifying a multitude of different, unique experiences having different causes, and characterized by different qualities varying along a number of sensory and affective dimensions.

Pain is a multidimensional phenomenon. It is more than simply a physiologic or sensory experience. Ahles and colleagues (1983) view cancer pain as having five dimensions: physiologic, sensory, affective, cognitive, and behavioral dimensions. When people experience cancer pain, they not only experience its location, quality, and severity, but also an emotional reaction, often based on the personal meaning ascribed to pain. A person might respond with behavior that is based on one's individual history with pain. Pain can affect how people perceive themselves in relation to others. Cancer pain, like all pain, must be understood in relation to physiological mechanisms initiating tissue damage and the biobehavioural factors affecting the initial and long-term response to such damage (Dalton & Feuerstein, 1988).

Additionally, pain is a subjective experience that is often difficult for patients to describe and for nurses to understand. Each individual learns the application of the word through experiences related injury to in early life. However, many people report pain in the absence of tissue damage or any likely pathophysiological causes, usually this happens for psychological reasons. Psychological distress is, in broad terms, a characteristic of all pain but the nature of the emotional patterns including on episode of pain, an acute or chronic pain. The significance of the underlying condition that gives rise to pain, for example whether it is due to cancer or non-cancer condition, has

significant effects on emotion. Where pain is present, the extent of tissue damage is not necessarily proportional to the pain experience or the behavior associated with it (Bond, 2001).

1.2 Cancer Pain

Pain is the most common symptom associated with cancer. Cancer, as the underlying disease, leads to a number of diverse pain syndromes (Caraceni & Weinstein, 2001). Cancer-related pain may be acute or chronic. Acute pain is defined by a recent onset and a natural history characterized by transience. Meanwhile, chronic pain has been defined by persistence for one month or more beyond the usual course of an acute illness or injury, a pattern of recurrence at intervals over months or years, or by association with a chronic pathological process (Cherny & Portenoy, 1999).

The prevalence of pain with metastatic disease may vary across cancer diagnoses. Among patients with metastases, 75% of prostate cancer patients and 47% of colon-rectal cancer patients reported experiencing pain. The variability in the occurrence of pain within patients with metastases as well as across cancer diagnoses seems to suggest that disease progression is only one of the factors accounting for the pain experienced by cancer patients (Turk et al., 1998).

In general, cancer pain is believed to fundamentally differ from pain reported by non-cancer patients. Chronic pain of cancer is considered different from other types of non-cancer chronic pain because patients are suffering from a 'real' disease with demonstrable organic pathology. This pain can be contrasted with many of the most prevalent non-cancer chronic pain syndromes (e.g., chronic low back pain, migraine headache) in which the pathophysiological mechanisms are poorly

understood (Turk et al., 1998). In these disorders, pain complaints are viewed as being heavily influenced by psychological factors. Briefly, pain reported by cancer patients is viewed as primarily somatogenic, whereas pain reported by non-cancer chronic pain patients, in the absence of adequate objective physical pathology, tends to be regarded as psychogenic. This belief is reflected in the current practice of treating cancer pain, which is predominantly physical with pharmacological, medical, or surgical modalities, and psychological factors tend to be viewed as being of a secondary importance (Turk & Fernandez, 1990).

To recapitulate, pain of cancer patients cannot be generalized with other types of non-cancer pain patients. In cancer-related pain, psychological component can influence the expression and impact of pain. Therefore, Magill (2001) stated that pain associated with cancer is multifaceted and complex, and influenced by physiological, social, and spiritual factors.

1.3 Factors Influencing Cancer Pain

Pain is a complex experience entailing physiologic, sensory, affective, cognitive, and behavioral components. Cancer pain is caused by many factors, from the cancer itself and the bone metastases that frequently occur account for a great deal of cancer pain. Factors influencing the pain complaint include the severity of cancer disease, gender, and psychological factors. The final individual perception of pain is dependent on nociceptive input and psychological modifiers, such as, anxiety (Puntillo & Tesler, 1993).

1.3.1 The severity of cancer disease

Cancer pain syndromes are defined by the association of particular pain characteristics and physical signs with the specific consequences of the underlying

disease or its treatment (Cherny & Portenoy, 1999). The prevalence and severity of cancer pain vary depending on type of tumor, stage of disease, presence and location of metastases, and adequacy of pain treatment (Daut & Cleeland, 1982; Greenwald, Bonica, & Bergner, 1987). Cancer pain is influenced by variation in disease stage. Ger, Ho, Wang, and Cherng (1998) reported a significant correlation between pain severity and advancing stage of disease ($p < .01$) and declining performance status ($p < .01$) of cancer patients ($N = 296$) in Taiwan.

Most studies indicate significant pain as the most frequent symptom in cancer patients, observed in 60%-90% of patients in advanced stages of disease (as cited in Wenk, 1993). The prevalence of pain has been reported to be higher in patients with metastases than in patients with localized malignancy (Spiegel, Sands, & Koopman, 1994). One study in France stated that out of 340 cancer patients who reported pain, 65% (220) had metastatic disease. Pain was more common in patients with metastases than in patients without metastases (Larue, Colleau, Brasseur, & Cleeland, 1995). Another study in Taiwanese patients ($N = 296$) also showed that 38% ($n = 113$) of the patients had cancer-related pain. Of these 113 patients, 65% had "significant worst pain", and 31% had "significant average pain" (Ger et al., 1998). A study in Thai cancer patients ($N = 289$) also found that the stage of disease has a significant relationship ($r = .16, p < .01$) with pain intensity (Petpichetchian, 2001).

The location of neoplastic growths plays a key role in the pain experience of cancer patients (Sutton, Porter, & Keefe, 2002). Pain can be associated with both localized tumors and metastatic cancer. Although Daut and Cleeland (1982) reported only 15% of patients with nonmetastatic disease had pain associated with their tumor at the time of diagnosis, pain becomes more pervasive as disease progresses. With the

diagnosis of metastatic disease, the percentage of patients having pain increased to 74%. Besides, direct tumor involvement is the most common cause of pain, present in approximately two thirds of patients with pain from metastatic cancer (Patt, 1993). Mechanisms of pain due to tumor invasion include obstruction of lymphatic and vascular channels, distention of hollow viscus, edema, and tissue inflammation and necrosis, and tumor infiltration of bone is cited as the most common cause of cancer pain (Patt, 1993).

However, the relationship between pain severity and the extent of disease may not be as linear as commonly assumed. Research investigating the relationships between physical pathology and pain in cancer has shown conflicting results. First, not all patients with advanced cancer report pain. So, the role of psychological factors, which include a person's emotional and behavioral responses, must always be considered to be an important component in the perception and expression of pain. The psychological factors in cancer-related pain will be discussed in the next session.

1.3.2 Gender

Many studies have studied gender differences in pain levels and in responses to pain. In one study, women tended to report higher levels of pain than men and reported their highest intensity of pain during the day, while men reported the highest intensity at night (Morin et al., 2000). Riley et al. (2001) compared pain intensity, pain unpleasantness, and pain-related emotions in men and women who were asked to rate their experiences with chronic pain. Women had higher pain intensity, pain unpleasantness, frustration, and fear compared to men. Another study also mentioned that men and women are socialized to respond differently and differ in their expectations relative to pain perception (Robinson et al., 2001). However, Edwards,

Auguston, and Fillingim (2000) noted that there is no difference between genders regarding pain and depression.

1.3.3 Psychological factors in cancer pain

Cancer is an intimidating disease, and therefore a diagnosis of cancer is expected to induce fears that are provoked by the patients' unique perception of both the cancer disease and its manifestations. For many patients, cancer is associated with severe pain, suffering, and agonized painful death (Sela, Bruera, Conner-Spady, Cumming, & Walker, 2002). Pain may contribute profoundly to suffering, but numerous other factors, such as, the experience of other symptoms, progressive physical impairment or psychosocial disturbances, may be equally or more important (Ventafrida, DeConno, Ripamonti, Gamba, & Tamburini, 1990).

The cancer patient faces a wide range of psychological and physical stressors throughout the course of illness. These stressors include fears of a painful death, physical disability, disfigurement and growing dependency on others. Although such fears exist in most if not all cancer patients, the degree of psychological distress experienced varies greatly between individuals and depends in part on the patients' personality style' coping abilities, available social supports and medical factors (Holland & Rowland, 1990).

Psychological factors play an important role in exacerbating pain with clear origins of disease (Spiegel & Bloom, 1983). The relationship between pain and psychological distress among cancer patients has been demonstrated in a range of tumor types (Miaskowski & Dibble, 1995; Sela et al., 2002; Spiegel et al., 1994). Substantial evidence suggests that psychological factors play an important role in modulating pain experience even for cancer patients. For example, the belief that pain

signifies disease progression, a commonly held belief among cancer patients, has been shown to be associated with elevated pain intensity (Spiegel & Bloom, 1983). They also reported that the pain severity reported by cancer patients could be predicted by their affective states, belief that pain is an indicator for disease progression and medication use. Patients who attributed their pain to a warning of underlying disease reported greater pain than patients with more benign interpretations, despite comparable levels of disease progression.

Many studies mentioned that there is significant correlation between cancer-related pain and psychological factors. Miaskowski and Dibble (1995) studied the problem of pain in outpatients with breast cancer ($N = 97$). They found that patients with pain had significant depression, anger, mood disturbance, and lower quality of life for psychological well-being. According to Spiegel and colleagues (1994), the prevalence of the depression disorders of all cancer types was higher in a high pain group. They were more anxious and emotionally distressed. There were 33% in the high pain group versus 13% in the low pain group of 96 cancer patients. Sela et al. (2002) also found significant correlations ($r = .30-.73$) among the emotions associated with cancer pain in 100 advanced cancer pain patients.

In summary, the psychological factors impacting the pain experience need to be addressed as well as the physical factors, because a broader multidimensional focus contributes to better understanding of cancer patient's perception and interpretation of pain and suffering. It needs multidimensional solutions to allow patients in pain to achieve their optimal level of comfort.

1.4 Treatments of Cancer Pain

1.4.1 Pharmacologic treatment

The World Health Organization (WHO) has published an “analgesic ladder” to aid practitioners in treating cancer-related pain states (Levy, 1996). This approach provides a framework from which to model practice. Step 1 of the WHO analgesic ladder recommends acetaminophen, nonsteroidal antiinflammatory drugs (NSAIDs), or adjuvants as first-line therapy for mild pain. Step 2 recommends “weak” opioids in combination with acetaminophen or NSAIDs, plus or minus adjuvants for the treatment of mild to moderate pain. Step 3 recommends “strong” opioids plus or minus acetaminophen, NSAIDs, or adjuvants. Acetaminophen and most traditional NSAIDs, and non-opioids analgesics, are not without dose-limiting side effects and toxicities. They may contribute to hepatic failure. Whereas, opioids possess very minimal unmanageable toxicities when utilized appropriately. Common adverse drug reactions to opioids are constipation, nausea, somnolence, and pruritus (Bruera & Neuman, 1999).

1.4.2 Non-pharmacologic treatment

There are many activities that nurses can teach the patient or family to do that aid in the reduction of pain. The interventions are most effective when the pain level is low, but it can also be used as an adjunct to medications when the pain is moderate. Most of the interventions are inexpensive and easy to perform. Most interventions have low risks and few side effects, and they provide the ability for the patient to have some control over this aspect of their pain management.

Noninvasive pain relief treatments can be useful alone or as adjuncts to the pain management. The mechanical techniques consist of cutaneous stimulation

(therapeutic touch, pressure, heat, cold, massage, and transcutaneous electrical nerve stimulation or TENS). Behavioral pain relief treatments include distraction, imagery/visualization, music, humor, prayer, education, play therapy, biofeedback, and hypnosis (Otto, 1999).

1.5 Measurement of Pain

The evaluation of the patient presenting with cancer-related pain serves multiple purposes. The initial assessment should be broadly based. Rather than limiting inquiry to the pain syndrome, the process should encompass evaluation of the person, his or her feelings and attitudes about pain and disease. Thorough review of the patient's records and a detailed pain history serve both to help delineate the source of pain and to distinguish the degree to which the patient's complaints are related to nociceptive mechanism versus psychological modulators (Rowlingson, Hamill, & Patt, 1993).

Multiple, diverse instruments have been developed to obtain the variety of types of information that is potential value in assessing patients with pain (Williams, 1988). Ideally, the tools used for assessment will help characterize the quality of the pain experienced by the patient and will help quantify it as well. It is also accepted that pain cannot be directly correlated with tissue injury (Ferrel et al., 1989). Pain is only one of many symptoms experienced by cancer patients. It is important to assess pain within the context of other symptoms for a number of reasons. Thus, the appropriate assessment of a patient with pain requires a multidimensional evaluation of the pain syndrome, the patient's clinical and psychological characteristics, and a number of specific prognosis factors that have a major impact on the treatment outcome and might help focus the care (Bruera & Neumann, 1999).

Furthermore, it has become clear that pain measurement has an important role in treatment settings (American Pain Society Quality of Care Committee, 1995). Because ratings of pain severity are observed to correlate poorly with patient perception and are generally an inadequate substitute for patient reporting (Grossman et al., 1991), patient self-report is the primary source of information for the measurement of pain. Therefore, the pain intensity has to be assessed and this may help characterize the pain mechanism and underlying syndrome (Cherny & Portenoy, 1999). The consistent measurement of pain intensity helps to assess patients' progress, provides outcome measures for research purposes, and may guide therapy.

The American Pain Society (American Pain Society Quality of Care Committee, 1995) has recommended the regular use of the pain rating scale, a numerical scale, to assess pain severity and relief in all patients who commence or change treatments. The suggestion also mentioned that this tool can promote the continuity of pain management in all setting. Besides, the Pain Numerical Rating Scale has clarity, ease of administration, and simplicity, and proven reliable (Ferraz et al., 1990 as cited in Fitzgibbon & Chapman, 2001).

According to Jensen and McFarland (1993), the average pain has adequate stability coefficients ($r = .90-.92$) for the scales obtained from ratings across multiple days and the internal consistencies of scale (range: $.94-.95$) created from measures obtained from ratings across days in a study of chronic pain patients ($N = 200$) for 2 weeks of hourly rating pain. Jensen, Turner, Turner, and Romano (1996) also conducted a study of the use of multiple-item scale for pain intensity measurement in chronic pain patients ($N = 40$) for 6-14 days, which showed that the actual average pain was predicted better in a series of correlational coefficients by ratings of least

pain ($r = .81$) and usual pain ($r = .78$) than by ratings of current pain ($r = .64$). While Lin (1995, as cited in Petpichetchian, 2001) found that the worst pain item was a reliable and valid measure of pain intensity with test-retest reliability of .93 over a 2-day period in 20 cancer patients. Therefore, this study used Pain Numeric Rating Scale to measure to what extent the patients' pain during the past 24 hours was at its "worst", "least", "average", and "current". However, just the "average" and "worst" pain scores were used in the correlational analysis in the present study.

2. *Anxiety in Cancer Patients*

2.1 Definition of Anxiety

Anxiety is a normal response to unfamiliar, uncertain or dangerous situations. Freud was the first person to propose a critical role of anxiety in personality theory and in the etiology of psychoneurotic and psychosomatic disorders. Freud in 1936 (as cited in Spielberger, 1983) describes anxiety as an experience of tension or dread arising from within the self that seems to have no purpose or object; the object of anxiety is an experience of the unconscious and relates to loss of self image. Wehmeier (2000) in Oxford Advanced Learner's Dictionary (OALD) defines anxiety as the state of feeling nervous or worried that something bad is going to happen. Spielberger (1983) mentioned that anxiety is a state in which the individual feels uneasiness, tenseness, insecurity, and apprehension manifested by activation or arousal of automatic nervous system. It is an unpleasant emotional state or condition. Spielberger and colleagues (1970, as cited in Edelman, 1992) explained that state anxiety is characterized by subjective, consciously perceived feelings of tension and

apprehension, and heightened autonomic nervous system activity, while trait anxiety has been defined as relatively stable individual differences in anxiety proneness.

Anxiety is a universal human experience. It can be experienced on four levels: mild, moderate, severe, and panic anxiety. Anxiety can be broken down into normal, acute, and chronic. The patients who experience moderate to severe anxiety may have difficulty in concentrating and be easily distracted or may focus exclusively on one detail (Vancarolis, 1998). Moreover, anxiety has been conceptualized along a continuum from normal reactions to stress to maladaptive reactions to stress. The experience of anxiety under normal circumstances may be adaptive, preparing the individual to cope, whereas chronic anxiety is maladaptive and may lead to psychopathology in the form of anxiety disorders. Anxiety can be especially detrimental when it leads to feelings of helplessness and inadequacy, and perpetuates expectancies of negative outcomes and an inability to cope (Edelmann, 1992).

2.2 Anxiety in Cancer Patients

A diagnosis of cancer often leads to a rather characteristic set of responses, such as emotional responses that consists of an initial period of shock, denial, and disbelief, followed by a period of anxiety and depression. These stress responses tend to occur at predictable points in the course of cancer and its treatment at the time of diagnosis. The cancer patient encounters many stressors during the course of cancer illness, including fears of painful death, disability, disfigurement, and dependency. Although fears are universal, corresponding levels of psychological distress are quite variable, depending on personality, coping ability, social support, and medical factors (Breitbart, 1993).

The degree of psychological distress observed in cancer patient varies considerably between individuals. Some patients experience persistently high levels of anxiety and depression for weeks or months (Breitbart, Passik, & Rosenfeld, 1994). A number of different types of anxiety syndrome commonly appear in cancer patients with pain. Cancer patients with pain are exposed to multiple potential organic causes of anxiety, including medications, uncontrolled pain, infection, and metabolic derangements. Therefore, the focal point of psychosocial interventions designed to facilitate optimal anxiety management should identify specific coping strategies for interventions among cancer-related pain in cancer patients.

2.3 Factors Influencing Anxiety in Cancer Patients

According to Lazarus and Folkman (1984), anxiety expresses something different about the situations the person is facing. Some degree of anxiety among patients with cancer is common and understandable. Whether appropriate or excessive, anxiety is an unpleasant feeling, but there are a number of reasonably simple ways to help with its prevention and management in the cancer-related pain patients. Nevertheless, stress is appraised differently among individual cancer patients. The individuals' personal and environmental stressors are cognitively appraised whether these demands as threats exceed resources available to them.

2.3.1 The chronic disease impact

Cancer is a chronic disease, which can affect psychological, emotional, and cognitive states. Chronic pain is one of a source of human suffering for cancer patients. Chronic pain is the most common pattern observed in patients with ongoing cancer pain (Patt, 1993). The emotional mechanisms of cancer pain, and not its sensory features, are the reasons that generate suffering (Loeser, 2001). The

association between cancer diagnoses and pain is so pronounced that the sense of dread experienced by most patients when diagnosed with cancer usually compounded by an anticipatory fear of pain and suffering (Levin, Cleeland, & Dar, 1985). Suffering may occur when threatening and dire meanings are attributed to the physical pain. Patients experience symptoms of suffering, such as anxiety, especially when there is impending loss, increases dependency, and diminution of participation in life activities (Magill, 2001).

2.3.2 Sex and age

Sex and age may be factors that influence in how individual responds emotionally and psychologically to cancer pain. Women who are diagnosed with cancer are at high risk for experiencing affective distress (Nelson, Friedman, Baer, Lane, & Smith, 1994); however previous research suggests that older women may be less likely than younger women to experience extreme distress (Yanick, Ries, & Yates, 1989). Edlund and Sneed (1989) studied the emotional responses of 133 cancer patients. They found that the young patients experienced the most distress in their diagnosis, while the older patients experienced significantly less psychological distress. Compas and colleagues (1999) proposed that age is a salient factor to consider in the psychological adjustment of women with cancer, with younger women exhibiting greater affective distress and a tendency to engage in less adaptive ways of coping.

2.3.3 Financial status

The financial burden of cancer treatment is a major source of anxiety for patients and families. Anxiety about managing the financial costs of cancer is equaled only by fear of the disease itself. In addition to the rising cost of medical care,

nonmedical costs contribute a large share of the financial burden. Significance costs are incurred in the areas of food, family care, clothing, transportation, lodging and other miscellaneous items, and loss of wages (Lansky, 1987).

2.3.4 The treatment of cancer patients

Cancer diagnosis and its treatments often are associated with negative side effects, such as, increased anxiety (Bottomely, 1998). Many patients experience some anxiety at critical moments during the evaluation and treatment of cancer that may disrupt a patient's ability to function normally, interfere with interpersonal relationships and even impact upon the ability to understand or comply with cancer treatments (Breitbart, Passik, & Rosenfeld, 1999). Edelman (1992) illustrated that anxiety pervades everyday life in relation to medical procedures and illness. In clinical psychology and dispositional anxiety, anxiety sensitivity and trait anxiety can serve as a vulnerability factor, which determines the individual's reaction to external events or internal reactions.

Most patients normally become anxious at critical moments during the work-up and treatment of cancer (Breitbart, 1993). The period of active treatment carries a considerable impact for the patient's psychosocial adjustment. It has side effects, which can be so difficult to live with that patients regard them as worse than the disease itself (Lerman et al., 1990). Psychiatric problems are common in the cancer population (Dudgeon, 1993). The prevalence of psychiatric disorders in a group of 215 patients receiving cancer treatments in three collaborating cancer centers was 47%. Sixty-eight percent of the diagnosis consisted of adjustment disorders, such as anxiety, which are often responsive to psychological interventions (Petit, 1992). Dudgeon (1993) states that anxiety in the cancer patient can be an acute response to

the diagnosis or treatment of the disease. The degree of psychological distress encountered in cancer patients can be quite variable, however, and some patients continue to have high levels of depression and anxiety, which interfere with their ability to function or even comply with cancer treatment (Breitbart, 1993).

To sum up, anxiety is a common response for people who face critical situations, such as, in cancer-related pain patients. Many factors influence anxiety, such as, the suffering of chronic disease, sex and age, financial status, and cancer treatments. Cancer pain may pose a serious emotional challenge to the patient beyond the physical and medical problems that present.

2.4 Measurement of Anxiety

Anxiety has been described, with depression, as the most common psychological reaction experienced by persons with cancer pain. The instrument used most commonly to measure anxiety among persons with cancer is State-Trait Anxiety Inventory (STAI) (Spielberger, 1983). The STAI consists of two scales, the A-trait and A-state. The trait inventory is designed to measure general level of arousal and predict anxiety proneness. Meanwhile, an emotional state exists at a given moment in time and at a particular level of intensity. Anxiety states are characterized by subjective feelings of tensions, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system (Spielberger, 1983).

The STAI has been used extensively in some research and comprises separate self-report scales for measuring state (20 statements) and trait (20 statements) anxiety. The STAI is one of the anxiety instruments, which has been used extensively to measure anxiety. The scale is widely used and has been found to have high internal consistency as well as high test-retest reliability and expected correlations with

personality based measures of anxiety. Spielberger and colleagues in 1970 (as cited in Buckelew et al., 1992) reported test-retest reliability coefficients of .73-.86 and .86-.92 for the trait subscale and coefficients .16-.54 and .83-.92 for the state subscale. Alpha coefficients estimating internal consistency ranged from .83-.92, and for state anxiety instrument and .86-.92 and .86-.92 for trait anxiety. Based on these conditions, this measurement was used in this study to measure the anxiety in cancer patients with pain.

3. *Coping in Cancer Patients*

3.1 **Definition of Coping**

Coping has been conceptualized as 'the person's cognitive and behavioral efforts to manage (reduce, minimize, master or tolerate) the internal and external demands of the person-environment transaction that is appraised as taxing or exceeding the person's resources (Folkman et al., 1986a). According to Lazarus and Folkman (1984), the way a person copes with a stressful situation depends on his view of the situation. This cognitive evaluation, referred to appraisal, is a dynamic process that changes according to the persons' perception of the consequences of an event, its importance to their well-being, and the resources they have to cope with the threat. The appraisal process also changes as events change (Folkman et al., 1986b).

Coping has been classified according to the mode of action used (direct action, action inhibition, information search, intrapsychic processes) as well as the function it serves: problem-focused coping or palliative regulation of the emotional response (emotion-focused coping). Problem-focused coping is associated with lower levels of distress in situations perceived as controllable, and higher distress in situations

perceived as uncontrollable, and the emotion-focused coping is the opposite of problem-focused coping. Most individuals use both modes of coping at various times. However, there are circumstances where one or the other mode is preferable (Weisenberg, 1999).

3.2 Coping Strategies in Cancer Pain Patients

According to Lazarus and Folkman (1984), coping may be defined as the purposeful use of cognitive and behavioral techniques to manage demands that are perceived as stressful or taxing the resources of individual. Lazarus and Folkman (1984) also described a practical model of coping that can help in classifying how patients appraise or think about pain. The most upsetting appraisals of pain seem to involve fear or perceptions that it is uncontrollable. Coping responses can be classified as emotional (blaming self, avoidance, wishful thinking), or may be focused on identifying resolutions.

The cognitive and/or behavioral activities undertaken by individuals endeavoring to 'deal' with their pain, or their emotional reaction to pain, are collectively described under the rubric of 'coping strategies'. Cognitive coping strategies refer to the use of techniques that influence pain through the medium of an individual's thought, for example, through distracting attention, re-interpreting pain sensations, coping self-statements, ignoring pain sensations, praying and hoping, and catastrophizing. Catastrophizing is the degree to which patients worry and display the negativistic thinking in response to pain. It may make a significant contribution to the maintenance of depressive symptoms (Jensen & Karoly, 1991). Behavioral coping strategies refer to the techniques that modify overt behavior, such as going for a walk or meeting with friends (Fernandez & Turk, 1989).

Research has shown that individuals suffering from a variety of chronic pain syndromes develop a number of the cognitive and behavioral techniques to help them reduce, tolerate or deal with their pain (Turk & Fernandez, 1990). Additionally, a number of studies have found that patients with chronic pain use cognitive and behavioral coping techniques and the frequency in which they use them, significantly predict pain report, functional capacity and psychological distress (Keefe, Crisson, Bruno, & Williams, 1990). One study mentioned that coping responses have been shown to be associated with physical and psychological functioning in patients with pain (Romano et al., 2003).

Furthermore, coping is considered an intentional and effortful process that can be differentiated from more automatic and reactive emotions and behaviors in response to a situation (Schwarzer & Schwarzer, 1996). Coping strategies used by chronic pain patients have been associated with psychological adjustment as well as treatment outcomes (Nicholas, Wilson, & Goyen, 1992; Spinhoven & Linssen, 1991). Jensen and Karoly (1991) stated that patients used a wide range of cognitive and behavioral strategies in their attempt to cope with chronic pain, and cancer patients, generally, use the same strategies to cope with their pain as patients with noncancer chronic pain (Lin, 1998). However, the efficacy of specific coping strategies are often dependent upon the individual patient, the nature and chronicity of the pain and the specific situation being confronted (Lazarus & Folkman, 1984).

In conclusion, cancer-related pain is individuals' suffering from chronic pain. Patients usually use some strategies to deal with their pain. The cognitive and behavioral coping strategies can serve either problem-focused or emotion-focused function, and explain some of differences in adjustment to pain. Cognitive approaches

are concerned with the way the people perceive, interpret and relate to their pain rather than with the elimination of the pain itself.

3.3 Factors Influencing Coping Strategies

The effectiveness of coping in reducing stress depends on a balance between the demands, coping resources, constraints, and strategies of each individual. The way a person copes is determined in part by his or her resources. According to Lazarus and Folkman (1984), coping is determined by constraints that mitigate the use of resources. Personal constraints include internalized cultural values and beliefs that proscribe certain ways of behaving and psychological deficits. Environmental constraints include demands that compete for the same resources and agencies or institutions that thwart coping efforts. High levels of threat can also prevent a person from using coping resources effectively. Factors influencing coping strategies used by cancer patients include the following aspects.

3.3.1 Personal constraints

According to Lazarus and Folkman (1984), personal constraints refer to internalized cultural values and beliefs that proscribe certain types of action or feeling, and psychological deficits that are a product of the person's unique development. Culturally derived values and beliefs serve as norms that determine when certain behaviors and feelings are appropriate and serve as an effective device for reducing tension in an escalating argument, but it would be in appropriate and indeed tension-provoking at a funeral.

In cancer patients, cancer pain has characteristics of both acute and chronic pain. Acute pain in cancer is directly associated with tissue damage. When cancer pain persists and worsens, it can serve as a sign of the progression of disease

(Fishman, 1992), and can produce feelings of hopelessness, emotional distress, and might have a negative impact on coping techniques. Cancer pain is best described by a complex, multidimensional model. Pain, and especially cancer pain, is not only a nociceptive, physical experience, but also involves affective, cognitive, behavioral, and sociocultural dimensions (Wit, Dam, & Litjens, 2001).

Culture influences the meaning of symptoms and the ways in which health problems are treated (Ferrell & Dean, 1995). One qualitative study in Thai people ($N = 20$) found that cancer pain was perceived as: (a) a progression of disease, (b) a part of one's life, and (c) a warning sign. This study also stated that pain was represented by most patients as the progression of cancer (Petpichetchian, 1998). Another study that was conducted by Kodiath and Kodiath (1995) in 20 patients with chronic malignant pain in Indian patients ($n = 10$) and the US patients ($n = 10$) showed that different cultural groups express pain and suffering differently.

Moreover, beliefs about pain are assumed to play an important role in the process of coping by influencing both the initiation of coping strategies and a person's level of adjustment. The way a patient copes with pain is influenced by the thoughts about their pain and what the pain means for them. Although the role of cognitions in clinical pain experience is not fully understood, pain cognitions may partly be responsible for dysfunction, and may influence the outcome of treatment. Judgments of self efficacy, perceived pain control, and catastrophizing with respect to pain seem to constitute pain appraisals that are important in the adjustment to chronic pain (Wit et al., 2001).

3.3.2 Environmental constraints

Constraints exist as much in the environment as they do in the person (Lazarus & Folkman, 1984). Dill et al. (1980, as cited in Lazarus & Folkman, 1984) stated that environments may differ in the nature and frequency of threats posed to the individual and in the breadth of options available for addressing threatening situations, and that environment may respond to people's coping efforts in ways which negate their strategies.

Coping is the problem-solving strategy to meet the challenges of psychological and environmental demands in an effective way to prevent negative consequences (Lazarus & Folkman, 1984). The presence of cancer pain can disturb normal processes of coping and adjustment, which are fundamental to the patient's reactions to the stresses imposed by the cancer and its treatment (Syrjala & Chapko, 1995). Haythornthwaite, Menefee, Heinberg, and Clark (1998) mentioned that the belief that the individual has the ability and resources to manage pain appears to be one of the most important appraisal dimensions determining adjustment.

3.3.3 Level of threat

Lazarus and Folkman (1984) mentioned that threat appraisals can range from minimal, where little stress is experienced, to extreme, characterized by intense negative emotions, such as fear. Along with resources and constraints, the level of threat the person experiences plays a role in determining coping. The extent to which a person feels threatened is in part a function of his or her evaluation of coping resources. Lazarus and Folkman (1984) argued that adaptation refers to the circumstance where the response to a stressor has been conditioned into the individual, meaning that the stressor is no longer innately stressful.

Coping has been defined as purposeful efforts to manage or vitiate the negative impact of stress (Lazarus & Folkman, 1984). In a study of women with metastatic breast cancer, Spiegel and Bloom (1983) found the level of mood disturbance and beliefs about the meaning of pain in relation to illness were significant predictors. The act of ascribing meaning is a cognitive process that can have a profound impact on coping and adjustment. One study in cancer pain explored significantly positive direct effects of perceived meaning on pain intensity, pain interference, and mood disturbance (Petpichetchian, 2001). Barkwell (1991) also stated that the meaning of pain related to cancer pain was associated with significant differences in pain intensity and depression.

Eventually, coping strategies are influenced by personal constraints, environmental constraints, and the level of threat. The value and belief about pain, threatening situations, and the level of threat are important in determining coping strategies, and in influencing how people from different culture respond to pain differently from one to another. Coping will be effective in reducing stress depending on a balance between coping resources and constraints as well as strategies.

3.4 Measurement of Coping Strategies

Coping has traditionally been classified according to the focus of strategies: emotion-focused and problem-focused coping (Lazarus & Folkman, 1984). Some fortunate patients can learn to cope with their ongoing pain. Coping is an active process directed at everything other than the pain itself (Wall, 1999). Positive coping strategies refer to the internal thoughts and behaviors people use to manage the pain and emotional reactions to the pain and to reduce emotional distress. Coping

behaviors may include ability to control pain, use of positive coping statements, and catastrophizing (Keefe, Brown, Wallston, & Caldwell, 1989).

The Coping Strategies Questionnaire (CSQ), which measures the extent to which patients use a variety of cognitive and behavioral coping strategies, was developed by Rosensteil and Keefe (1983 as cited in Lawson, Reesor, Keefe, & Turner, 1990). Three factors of functionally related coping strategies were identified by Rosensteil and Keefe, each reflecting a different dimension of coping. The first factor reflected conscious, cognitive coping attempts, the second factor reflected helplessness, and the third factor was characterized by patients' use of distraction techniques and praying or hoping that their pain diminish.

Many studies have used CSQ to measure pain coping strategies. It consists of 8 coping strategy subscales, which are appropriate to deal with cancer pain. Each factor of this measurement, which is described by Rosensteil and Keefe, was found to be associated with measures of behavioral and emotional adjustment to pain, functional disability and pain ratings (Lawson et al., 1990). First of all, Hill (1993) conducted a study using the CSQ to determine whether coping strategies used in 60 patients with phantom limb pain was similar to that found in studies of other chronic pain. Another previous study, in breast cancer patients ($N = 83$), found that the coping strategies (as measured by the CSQ) used most frequently to deal with pain included positive coping statements, diverting attention, praying and hoping, increasing activity level, and ability to control and decrease pain (Gaston-Johansson et al., 1999).

The CSQ was developed by Rosensteil and Keefe (1983, as cited in Swartzman et al., 1994) on a sample of chronic low-back pain patients referred for behavioral treatment and has been used with other pain patient populations (Keefe et

al., 1989; Lawson et al., 1990). The CSQ has an adequate internal reliability and test-retest correlations (Main & Caldwell, 1991). The CSQ reliability has been demonstrated with an alpha ranging from .71 to .85, and Cronbach's alpha ranging from .71 to .88 in cancer patients. Based on these conditions, this study used CSQ to identify the coping strategies patients use in dealing with cancer pain.

4. Relationships among Pain, Anxiety, and Coping in Cancer Patients

4.1 Pain and Anxiety in Cancer Patients

One of the most feared consequences of cancer is the potential for pain. Pain has a profound impact on a patient's level of emotional distress and psychological factors. The psychological factors that influence the experience of pain include anxiety, depression, and the meaning of significance of the pain (Ahles et al., 1983). Relationships between duration of pain, pain report and psychological distress are commonly found in studies of chronic pain syndromes. One study stated that the interaction between pain and anxiety in the setting of somatic illness is a widely recognized association (Velikova, Selby, Snaith, & Kirby, 1995).

Moreover, a number of recent studies have documented the association between pain and emotional distress in other patient populations. Patients with multiple myeloma demonstrated significant associations between pain intensity and mood disturbance (Poulos et al., 2001). Among 111 patients with advanced cancer high levels of pain intensity were associated with significantly higher levels of frustration, anger, and exhaustion. Sela and colleagues (2002) stated that female patients were particularly vulnerable to feelings of helplessness in association with higher levels of pain, and significant correlations between pain and feelings of

helplessness and hopelessness were also obtained in a study of women experiencing a recurrence of breast cancer (Okana et al., 2001). A study comparing Taiwanese cancer patients with or without pain also found that anxiety and depression were much more prevalent in patients with pain (Chen et al., 2000).

Additionally, many researchers have examined the relationship between psychological distress and pain in cancer patients (Breitbart, 1989; Spiegel et al., 1994). Zimmerman et al. (1996) assessed 60 cancer patients (30 with pain and 30 without pain) and found that mean scores of anxiety and depression for patients with pain were higher than for patients without pain. A series of cross-sectional studies by Spiegel and colleagues (1994) had examined psychological correlates of pain in women with metastatic breast cancer. Higher levels of pain intensity in this population were significantly correlated with greater mood disturbance.

On the other hand, not only does pain have a profound impact on psychological distress in cancer patients, but also psychological factors appear to influence the experience and intensity of cancer pain. Psychological variables, such as perceived control, meaning attributed to the pain experience, fear of death, hopelessness and anxious or depressed mood, all appear to contribute to the experience of cancer pain and suffering (Loeser, 2001).

In conclusion, the relationship between pain and psychological well-being is complex and reciprocal; mood disturbance and beliefs about the meaning of pain in relation to illness can exacerbate perceived pain intensity (Barkwell, 1991) and the presence of pain is a major determinant of function and mood (Ferrell, 1995; Cleeland et al., 1996). Some studies mentioned that the presence of pain can provoke or

exacerbate existential distress (Strang, 1997), and disturb normal processes of coping and adjustment (Syrjala & Chapko, 1995).

4.2 Pain and Coping in Cancer Patients

Coping responses can be classified as emotional (blaming self, avoidance, wishful thinking), or may be focused on identifying resolutions. A practical model of coping can help in classifying how patients appraise or think about pain (Lazarus and Folkman, 1984). Attempt to identify specific, pain-related coping strategies that are consistently associated with adjustment to chronic pain have been somewhat disappointing. The most robust findings typically confound the constructs of coping and appraisal by including measures of pain control, such as coping strategies (Jensen & Karoly, 1991).

Cognitive-behavioral coping strategies are techniques intended to alter the experience of pain by changing one's thoughts through attentional processes, images, and self statements (Fernandez & Turk, 1989). It might help patients alter their conceptualization of pain, increase tolerance to pain, regulate emotional response, and divert attention from pain. A change in cognitive response to pain that diminishes psychological distress can result in pain relief (Kwekkeboom, 1999). Turk and associates (1998) found that patients with cancer-related pain reported significantly higher levels of cognitive and behavioral fear-responses to pain than did patients with non-cancer pain.

One study mentioned that there were several significant linear relationships between the cognitive and affective pain subscale and coping behaviors used by advanced cancer patients ($N = 80$) to deal with pain (Arathuzik, 1991). William and Keefe (1991) also found relationships between pain beliefs and the use of cognitive-

behavioral coping strategies in 120 chronic pain patients. Lastly, a study of how pain coping strategies predict perceived control over pain in patients ($N = 195$) with chronic pain, found that coping strategies and greater flexibility in coping are associated with greater perception of control in pain (Haythornthwaite, 1998). Lin (1998) also found that patients ($N = 88$) with cancer pain used reinterpreting pain sensation, catastrophizing, cold, exercise, total cognitive, and total behavior to deal with pain.

In summary, pain is not purely a physiological experience in which the psychological reactions to pain also affect pain perceptions. Cognitive-behavioral coping strategies are needed to provide patients with a sense of personal control over pain.

4.3 Anxiety and Coping in Cancer Patients

A cancer diagnosis poses a significant threat to life and well-being. Clinical reports have indicated that the pretreatment and initial phases of illness are particularly stressful and anxious times for patients (Payne, Sullivan, & Massie, 1996). The psychological factors contributing to the quality of life in patients suffering from cancer reveals the complexity of the topic, and coping strategies have been associated with adjustment to cancer. Coping with cancer has been described as emotionally and physically challenging for cancer patients (Yates, 1999). The concept of coping has been linked closely with stress, in that coping involves a process by which a person attempts to restore equilibrium in response to a stressful life event (Henderson, Gore, Davis, & Condon, 2003).

Some coping strategies appear to be associated consistently with psychological distress. A study in chronic pain patients ($N = 165$) mentioned that

anxiety has significant correlations with coping strategies (McCracken & Gross, 1993). This association also has been reported in patients ($N = 43$) with breast cancer undergoing adjuvant chemotherapy (Manne et al., 1994). Moreover, Mishel and Sorenson (1991) found that the various stages of gynecologic cancer patients ($N = 231$) during treatments had low psychological distress associated with coping strategies.

To sum up, pain has a profound impact on emotional distress and psychological factors. An understanding of how coping strategies relate to psychological distress in patients with cancer-related pain may lead to the design of nursing interventions that can help patients manage their disease experience.

4.4 Pain, Anxiety, and Coping in Cancer Patients

Cancer patients face many stresses, including painful death, disability, and dependency. A significant number of patients with advanced cancer have physical limitations as a consequence of cancer progression and its treatments. They have a high prevalence of pain, depression, anxiety, and other symptoms (Santiago-Palma & Payne, 2001). Anxiety related to pain would lead to the allocation of attention to the pain stimulus, which would increase subjective pain, while the presence of other objects of fear would decrease pain by distracting attention from pain (Eysenck, 1988). Breitbart (1989) stated that the level of psychological distress is quite different, depending on personality, coping ability, social support, and medical factors.

Some studies stated that coping-skill training, which increases the use of adaptive coping strategies and decreases use of maladaptive strategies, leads to reductions in the pain perception, psychological distress and functional disability of patient experiencing chronic pain (Spinhoven & Linssen, 1991; Williams & Keefe,

1991). Coping strategies used by chronic pain patients have been associated with psychological adjustment as well as treatment outcome (Spinhoven & Linssen, 1991; Nicholas, Wilson, & Goyen, 1992). Wilkie and Keefe (1991), who studied coping strategies of patients ($N = 45$) with lung cancer-related pain, found that state anxiety demonstrated positive correlation with catastrophizing coping strategies ($r = .48$) and negative correlation with ability to control pain ($r = -.50$) and decrease pain ($r = -.50$), whereas pain sites were correlated with coping self-statement ($r = .34$). Pain intensity and state anxiety demonstrated similar relationships with catastrophizing ($r = .46$ and $.48$, respectively). Moreover, Buckelew and colleagues (1992) studied patients ($N = 50$) with pain and found that patients were most likely to use coping self-statements, praying and hoping, ignoring pain sensations, and behavioral techniques to manage anxiety and pain. Another study in chronic pain patients ($N = 230$) mentioned that there were two correlations showing a possible positive influence on coping, a negative correlation between coping self-statements and depression and a negative correlation between ignoring pain and pain-related anxiety (McCracken & Eccleston, 2003).

Furthermore, teaching the patient about the nature of the impending painful experience and the ways to reduce pain often decreases anxiety; a person who is experiencing pain will use previously learned strategies to reduce pain and anxiety. Anxiety resulting from anticipation of pain or the pain experience itself may often be managed effectively by establishing a relationship with the patient and by patient teaching. A patient who is anxious about pain may be less tolerant of the pain, which in turn may increase the anxiety level (Smeltzer & Bare, 2004). So, it means that

appropriate management of cancer pain requires the application of a multidimensional concept of pain in understanding patients' needs.

From the literature review, it can be concluded that cancer patients with pain suffer from many stressors and exhibit stress responses; they use the cognitive-behavioral treatments of chronic pain to cope with their pain. Finally, the purposes of this study of cancer patients were to identify the level of cancer-related pain, the level of cancer-related anxiety, coping strategies in dealing with cancer pain, and their relationships.