

CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

Cancer is a disease resulting from the uncontrolled growth of cells, which causes malignant cellular tumors. Cancer is the most preventable and the most curable of the major chronic life-threatening diseases (American Cancer Society, 2004). Unfortunately, it is still increasing as a leading killer across the globe, especially in the developing world. In 2000, there were an estimated 10 million new cancer cases and 6 million cancer deaths throughout the world (ACS, 2004). Indonesia as a developing country with the fourth highest population in the world had an incidence rate of cancer cases of about 60 in 100,000 population in 1998 (WHO, 2002). In addition, there was an increase in the number of the cancer cases in Dr. Kariadi Hospital of Semarang, Central Java, Indonesia, from 1,818 in 2001 to 2,118 in 2002 (Medical Record Division of Dr. Kariadi Hospital, 2003).

The diagnosis of cancer is always a traumatic event to a person. Cancer is perceived by the public as an extremely painful disease, and pain is perhaps the most feared problem of complications of cancer. According to Spiegel and Bloom (1983), patients who attribute their pain to a warning of underlying cancer disease report greater pain than patients with tumor interpretations that do not produce harmful effects, despite comparable levels of disease progression. Many people believe, incorrectly, that cancer invariably means uncontrolled pain and suffering prior to an

inevitable death (Dudgeon, 1993). Pain continues to be a prevalent symptom experienced by cancer patients.

In approximately two thirds of patients with cancer, pain is directly related to the presence of primary or metastatic disease, one third of patients with cancer develop pain syndromes because of treatment (Bruera & Kim, 2003). Moreover, 10% to 15% of cancer patients experience significant pain with early, localized disease. With the development of metastases, the incidence of pain increases from 25 to 30%, and in advanced disease, 60 to 90% of patients report significant pain (Patt & Loughner, 1993). However, each individual who faces an illness responds differently according to personality, previous life experiences, and coping strategies (Gorman, Raines, & Sultan, 2002). These situations have to be understood by nurses to give the best quality of care for cancer patients with pain.

Pain can cause a person to experience emotional distress and anxiety, and the patient's internalized meaning of pain may intensify the pain experience in cancer patients (Breitbart, 1993). Cancer pain has a greater impact on a patient as it becomes more severe and interferes more with daily activities (Cleeland, 1991). Pain has been demonstrated to be associated with elevated psychological distress (Ahles, Blanchard, & Ruckdeschel, 1983). Psychological distress encompasses a series of negative emotion, such as anxiety, that are the end states of a maladaptive process. These emotional problems have to be faced, rationalized and coped with by the pain sufferer. Therefore, an understanding how pain-coping strategies relate to psychological distress is needed for cancer patients who experience pain to deal with their problems.

According to Smeltzer and Bare (2004), the way a person responds to pain is a result of many separate painful events during a lifetime. Hill (1993) proposes that individuals suffering from a variety of pain syndromes develop a number of the coping techniques to help them reduce, tolerate or deal with their pain and it has been found to be related to pain perception, psychological distress, and functional capacity. Pain and associated functional, vocational, and psychosocial disability can be viewed as stressors that may mobilize the use of coping strategies (Romano, Jensen, & Turner, 2003).

Coping strategies are behavioral and cognitive activities of patients to deal with or manage some specific stressors, such as pain. Furthermore, coping mechanisms are usually conscious methods that the individual uses to overcome a problem or stressor. Coping strategies are found to be useful in managing pain in cancer patients as well as in managing anxiety. Most individuals also deal with anxiety by using a number of behaviors or coping mechanisms to help them in decreasing discomfort (Valfre, 2001). They are learned adaptive or maladaptive responses to anxiety based on problem solving, and they may lead to changed behavior (Gorman et al., 2002).

To date studies of coping with chronic pain have yet to clarify which type of coping responses among the list of many are generally helpful (Jensen & Karoly, 1991). Coping has been found to account for some of the variance in adaptation to chronic pain (Richardson & Poole, 2001). Following Lazarus and Folkman (1984), coping is commonly defined as the effortful attempt to adapt to pain, or manage one's own negative response to pain.

However, many studies in patients with cancer-related pain related to anxiety (Chen, Chang, & Yeh, 2000; Zimmerman, Story, Gaston-Johansson, & Rowles, 1996) and/or coping strategies (Lin, 1998), or anxiety and coping in cancer patients (Dropkin, 2001; Manne et al., 1994; Zabalegui, 1999), have been done in the United States and other developed countries. Just a few studies have been conducted in Indonesia in the last few years, such as the perception of pain management conducted by Erniyati (2002) and pain experience related to culture conducted by Suza (2003). Suza found that there was a significant difference in pain experience between Javanese and Batak patients postoperatively, even though they both belong to Indonesia.

Culture also influences a person's health seeking behaviors, personal expectations for health and life, and healthcare outcome (Foster, 1992). In addition, each culture has rules governing the appropriate ways to express and deal with anxiety, and people from Asian cultures, such as Indonesia, often express anxiety through somatic symptoms (Videbeck, 2004). Although some literature has mentioned that culture influences the way in which health and illness are defined, the meaning attached to physical symptoms, and perceived health status (Andrews & Boyle, 1995; Leininger, 1991), there have been no studies in Indonesia showing that culture can influence pain, anxiety, and coping strategies.

Moreover, Suza's study (2003) highlights the fact that even in the acute postoperative pain situation, people experienced pain differently. This present study, therefore, further explored pain in chronic conditions, i.e., pain in cancer patients. This study proposed to investigate how Indonesian cancer patients perceive their cancer-related pain and anxiety, and how they cope with the pain. The findings of this

study will be beneficial for those who take care of patients in Indonesia. As a result, better nursing interventions in the clinical setting can be offered for those who are suffering from cancer-related pain by understanding the cancer pain phenomena that may help to manage cancer patients' problems.

Objectives of the Study

The objectives of this study were as follows:

1. To identify the pain level, the anxiety level, and coping strategies of cancer patients with pain.
2. To examine the magnitude of relationships among pain, anxiety, and coping strategies of cancer patients with pain.

Research Questions of the Study

This study answered the following questions:

1. What are the pain level, the anxiety level, and coping strategies of cancer patients with pain?
2. What is the magnitude of relationship between pain and anxiety of cancer patients with pain?
3. What is the magnitude of relationship between pain and coping strategies of cancer patients with pain?
4. What is the magnitude of relationship between anxiety and coping strategies of cancer patients with pain?

Conceptual Framework of the Study

The conceptual framework of this study was constructed based on the conceptualization of the gate control theory of pain introduced by Melzack and Wall in 1965, anxiety concepts by Spielberger in 1983, and coping strategies by Lazarus and Folkman in 1984. Concepts of pain, anxiety, coping and the theoretical framework explaining the relationships among those three concepts are presented as follows:

1. *The Gate Control Theory of Pain*

Many theories have been developed to describe the complex phenomena of pain. The gate control theory, developed by Melzack and Wall (1965), was the first theory to incorporate some aspects from other theories and to present the notion of pain modulation at the spinal cord and brain level. The gate control theory emphasizes the modulation of pain impulses in the spinal cord and the dynamic role of the brain in pain processes. According to this theory, pain phenomena are determined by interactions among three systems: (1) gate control system, (2) central control trigger, and (3) action system.

(1) Gate control system

Gate control system, in the spinal cord, modulates the amount of input transmitted from the peripheral fibers to the dorsal horn transmission or T cells which project nociceptive information to the anterolateral pathway (Melzack & Wall, 1965). In this system, the substantia gelatinosa inhibitory interneurons are thought to influence the central transmission cells by interrupting the balance between large and smaller diameter nerve fiber activity. The large fibers cause the gate to close and thus

block transmission of pain impulses to the brain. Conversely, the smaller fibers are believed to inhibit substantia gelatinosa interneurons, allowing transmission cells to remain active and the gate opens allowing nociceptive information to be sent to the brain.

(2) Central control trigger

The afferent patterns in the dorsal column system act as a central control trigger that activates selective brain processes. These processes (at the brain level) influence the modulating gate control system of the substantia gelatinosa by delivering descending inhibitory messages that modulate afferent conduction (Melzack & Wall, 1965). The brain is an active system that filters, selects and modulates inputs (Melzack, 1999). Melzack and Casey (1968) proposed that the selection and modulation of the sensory input during transmission through: 1) the neospinothalamic fibers provide the neural basis for the sensory-discriminative dimension of pain, and 2) medially coursing fibers to the limbic. The limbic system provides a neural basis for the aversive drive and affects that part which comprises the motivational and affective dimensions of pain. The attention, emotion, and memory of pain experience can influence pain by triggering the central activities that may open or close the gate. The information of pain is transmitted rapidly from the skin and all parts of the body to the brain via the medial lemniscus fibers that comprise a paramedical ascending system, directly into the thalamus and thence to the somatosensory cortex. Another pathway of the central control trigger is the dorsolateral path, which originates in the dorsal horn and projects information to the brain stem and thalamus. This system is extremely fast and it precedes the dorsal column-medial lemniscus. These systems carry precise information about the nature

and location of the stimulus to activate selective brain processes that influence information that is slowly arriving or being transmitted through the slowly conducting pathways.

(3) Action system

The transmission cells (T-cells) in the dorsal horn activate neural mechanisms, which comprise the action system responsible for pain response. This system has a function to respond to pain, such as a reflex, a startle response, vocalization, and other patterns of behavior in response to pain (Melzack & Wall, 1965). The number of impulses transmitted by T cells is determined by brain activities which influence the gate control system through central control efferent fibers. When it reaches or exceeds a critical intensity level, it triggers the action system. Cancer pain, as sensory inputs, can influence the cognitive interpretation of the situation that produces stress (Melzack, 1999). Cognitive functions also are able to act selectively on sensory processing or motivational mechanisms. Therefore, pain coping strategies are aimed at diminishing the sensory and affective components of the whole experience.

Pain coping strategies as cognitive activities can block and modulate the input before it can evoke the motivational-affective processes that are an integral part of the total pain experience (Melzack & Casey, 1968). Coping strategies, which are subserved by neocortical processes, may affect both sensory and affective experiences or they may modify primarily the affective-motivational dimension, and may modulate the motivational-affective dimension and leave the sensory-discriminative dimension relatively undisturbed (Melzack & Casey, 1968). Therefore, Melzack and Casey (1968) stated that pain can be treated not only by trying to cut down the

sensory input by anesthetic block but also by influencing the motivational-affective and cognitive factors as well.

Pain is a complex phenomenon, and can be defined in terms of its sensory, motivational, and central control determinants (Melzack & Casey, 1968). They also believe that pain is a function of the interactions of all three determinants, and cannot be ascribed to any one of them. These dimensions are interrelated and influence each another making pain a multidimensional experience to persons.

2. *Anxiety*

Anxiety is a fundamental emotion that people are familiar with because it occurs in daily life. Anxiety can be characterized as an inferential construct used to explain behaviors or as a categorical concept denoting the occurrence of designated behaviors in specific situations (Edelmann, 1992). The concepts of state anxiety and trait anxiety were first introduced by Cattell in 1966 and have been elaborated by Spielberger in 1966, 1972, 1976, and 1979 (as cited in Spielberger, 1983). In general, personality states may be regarded as temporal cross sections in the stream-of-life of a person, and emotional reactions as expressions of personality states. An emotional state exists at a given moment in time and at a particular level of intensity.

Anxiety-State (A-State) is characterized by subjective feelings of tension, apprehension, nervousness, and worry, and by activation or arousal of the autonomic nervous system (Spielberger, 1983). This theory explained anxiety states as a result of the anticipation of danger of incidence. The differences of the anticipation occur in accordance with the perception and evaluation process of an individual. Some people may think that a given situation is dangerous and violent, and their response will be as

violent as the perception. If the violent response is beyond control, the person will feel helpless and hopeless. In the same situation, other people may feel that it is not violent because they assess the situation as being less violent for them.

Meanwhile, Anxiety-Trait (A-Trait) reflects individual differences in the frequency and intensity in which anxiety states have been manifested in the past, and in the probability that Anxiety-State (A-State) will be experienced in the future. Anxiety is perhaps most often used to describe an unpleasant emotional state, and anxiety is also used to describe relatively stable individual differences in anxiety-proneness as a personality trait. Spielberger (1983) also mentioned that whether or not people who differ in A-Trait will show corresponding differences in A-State depends on the extent to which each of them perceives a specific situation as psychologically dangerous or threatening, and this is greatly influenced by each individual's past experience.

In addition, a complicating factor is that A-Trait and A-State tend to correlate quite highly with each other. Spielberger and colleagues in 1984 (as cited in Edelman, 1992) states that persons who are high in A-Trait are more vulnerable to stress and respond to a wider range of situations as dangerous or threatening. Since individuals who are high in A-Trait are more disposed to see the world as dangerous or threatening, they experience A-State reactions more frequently, and often with greater intensity than do people with low A-Trait.

3. Coping

Coping has been described in the literature in a variety of ways. Lazarus and Folkman (1984) described coping as 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. This coping theory focuses on the person-environment transaction and the cognitive appraisal of demand and coping options. According to Lazarus and Folkman (1984), coping has two major functions: (a) regulating distressing emotions (affective-oriented coping), and (b) altering the troubling person-environment relationship causing the distress (problem-oriented coping). Coping strategies are different, depending on the situation appraised by the individual as well as the accessible resources, which are available to him/her at that time.

Furthermore, coping strategies are behavioral and cognitive activities intended to deal with or manage specific stressors, such as, pain. Research has shown that patients who are faced with chronic pain develop certain cognitive and behavioral strategies to help them cope, tolerate, and deal with their pain (Keefe et al., 1987). These coping strategies include involving oneself in diverting attention, re-interpreting pain sensations, ignoring pain sensations, coping self-statements, praying and hoping, catastrophizing, increasing pain coping behavior, and increasing behavioral activities (Rosensteil & Keefe, 1983, as cited in Swartzman, Gwadyr, Shapiro, & Teasell, 1994). Pain coping strategies that are adopted and used over prolonged time periods may significantly affect physical and psychological functioning. The evaluation of specific coping strategies may provide more information about complex relationships between coping and pain severity (Jensen, Turner, & Romano, 1992), as well as provide guidance in treating patients dealing with chronic pain. Therefore, pain-related coping strategies will be important in managing the pain situation and useful in managing anxiety in cancer patients.

4. *Theoretical Framework to Study the Relationships among Pain, Anxiety, and Coping in Cancer Patients.*

Synthesizing the concept of pain, anxiety, and coping mentioned above, the conceptual framework of this study was constructed. Figure 1 reflects that the three variables (pain, anxiety, and coping) are interrelated. Cancer patients may experience pain differently.

How pain is perceived and to what degree depends on the interaction between the body's analgesia system and nervous system's transmission and interpretation of stimuli. Pain is a complex experience entailing physiologic, sensory, affective, cognitive, and behavioral components. With this complexity, the individual perception of pain is dependent on nociceptive inputs and psychological modifiers, which play an important role in exacerbating pain with clear origins of disease (Loeser, 2001).

According to the gate control theory, peripheral nerve fibers carrying pain to the spinal cord can have their input modified at the spinal cord level before transmission to the brain (Melzack and Wall, 1965). To address this situation, the use of coping strategy techniques, which influence pain through the medium of an individual thought and then control the acts of the substantia gelatinosa from peripheral fibers to central cells, can help the individual endeavoring to deal with the pain.

In addition, pain is associated not only with sensory-discriminative components, but also with emotional feelings, such as, anxiety that can increase pain intensity by altering descending and central pain modulation systems (Melzack,

1999). Patients in pain may feel anxious to different degrees depending on the nature of the appraisals and the time frame toward which they are directed.

Anxiety may affect patient's response to pain and it may be the psychological variable associated with high intensity levels of pain. The patient who anticipates pain may become increasingly anxious. So, anxiety can be the one that has been described as a response to and a mediator of pain. Moreover, anxiety may derive from an individual's perception and Spielberger (1983) mentioned that whether or not people who differ in A-Trait will show corresponding differences in A-state depends on the extent to which each of them perceived a specific situation as psychologically dangerous or threatening, and this is greatly influenced by each individual's past experience.

Finally, pain problems can be perceived as threatening by cancer patients and can cause anxiety, and this situation will influence persons to experience increasing pain intensity. To overcome this problem, coping strategies are needed to deal with pain problems in cancer patients. This conceptual framework was proposed to guide the design of this study, which primarily focused on the pain intensity in relation to anxiety and the processes of accommodative coping in cancer patients with pain.

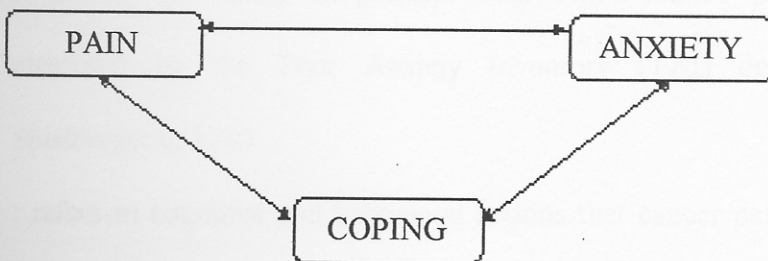


Figure 1 Theoretical framework to study the relationships between pain, anxiety, and coping in cancer patients with pain.

Hypotheses

The hypotheses of this study were as follows:

1. There is a significant relationship between pain and anxiety in cancer patients with pain.
2. There is a significant relationship between pain and coping in cancer patients with pain.
3. There is a significant relationship between anxiety and coping in cancer patients with pain.

Definition of Terms

Pain : refers to the level of pain intensity related to cancer and its treatments measured by Pain Numeric Rating Scale.

State Anxiety : refers to the present feelings of tension and apprehension, and heightened autonomic nervous system activity in patients with cancer-related pain. It was measured by the State Anxiety Inventory (SAI) developed by Spielberger in 1983.

Trait Anxiety : refers to the general feelings or relatively stable individual differences in anxiety proneness in patients with cancer-related pain. It was measured by the Trait Anxiety Inventory (TAI) developed by Spielberger in 1983.

Coping : refers to cognitive and behavioral actions that cancer patients use to manage the cancer-related pain, which was measured using the Coping Strategies Questionnaire (CSQ) developed by Rosensteel and Keefe in 1983.

Significance of the Study

Findings of this study describe the cancer pain in relation to anxiety and pain-related coping strategies used to deal with cancer-related pain. These findings are useful for clinicians in understanding the pain phenomenon of cancer patients and eventually it may help to manage pain in cancer patients who do not have only physical problems, but also psychological and sociocultural problems. In addition, the research findings provide information for future research regarding cancer pain (and its correlation with anxiety and pain-related coping strategies), since few studies about pain have been conducted in Indonesia. It also provides information for academic purposes in teaching nursing students and nurses, so that they can better understand the phenomena of pain and apply this knowledge in the clinical setting.