

CHAPTER 4

RESULTS AND DISCUSSION

This descriptive study was designed to identify the level of the pain and anxiety, and coping strategies of cancer patients in dealing with cancer-related pain, and to examine the magnitude of relationships among pain, anxiety, and coping strategies of cancer patients. Ninety-three subjects who were diagnosed with cancer and experienced pain during the past week and reported having pain during the past 24 hours were recruited from Dr. Kariadi Hospital in Semarang, Central Java, Indonesia.

Results

The results of this study are presented as follows:

1. Subject characteristics
2. Pain level of cancer patients
3. Anxiety level of cancer patients
4. Coping strategies of cancer patients
5. The magnitudes of relationships among pain, anxiety, and coping strategies of cancer patients

1. Subject Characteristics

Ninety-three cancer patients were recruited in this study from gynecological, radiology, surgery, and ENT (Ear, Nose, and Throat) wards of Dr. Kariadi Hospital.

Table 4-1 shows the frequency and percentage of the subjects' demographic characteristics. The average age of patients was 47.09 years ($SD = 9.55$) and ranged from 35 to 79 years old. More than two thirds of the subjects were female (66.7%), most of them were Muslim (90.3%), and married (93.5%). One third of the subjects had graduated from senior high school (34.4%) and a similar number had graduated from elementary school (33.3%). Most of subjects were unemployed (30.1%) or worked as private employees (30.1%). The monthly income of subjects was between 0 and 2,000,000 Rupiah and more than one-third of subjects (38.7%) earned from 1,000,000 to 1,500,000 Rupiah and around one-third of subjects (30.1%) had no income.

Table 4-1: Frequency and percentage of demographic characteristics of the subjects

Characteristic	Frequency (n) ($N = 93$)	Percentage (%)
1. Age (years)		
35-45	46	49.5
46-55	29	31.2
56-65	15	16.1
> 65	3	3.2
$M(SD) = 47.09 (9.55)$, min-max age = 35-79		
2. Gender		
Female	62	66.7
Male	31	33.3
3. Religion		
Islam	84	90.3
Christian	6	6.5
Catholic	3	3.2
4. Level of Education		
No formal education	7	7.5
Elementary School	31	33.3
Junior High School	22	23.7
Senior High School	32	34.4
College or above	1	1.1

Table 4-1 (Continued)

Characteristic	Frequency (n) (<i>N</i> = 93)	Percentage (%)
5. Marital Status		
Married	87	93.5
Widow	6	6.5
6. Occupation		
None	28	30.1
Private employee	28	30.1
Business person	18	19.3
Farmer	13	14.0
Retirement	5	5.4
Government employee	1	1.1
7. Family income/month (Rupiah)		
No income	28	30.1
< 1,000,000	16	17.2
1,000,000-1,500,000	36	38.7
> 1,500,000	13	14.0
<i>M</i> (<i>SD</i>) = 852,688.17 (666119.75), min-max income = 0-2,000,000		

The subjects in this study were diagnosed with cancer and experienced pain during the past week and reported having pain in the past 24 hours. Table 4-2 shows the frequency and percentage of disease-related characteristic of the subjects. Most of the subjects had cervical cancer (28%) and the second highest number was breast cancer (22.6%). More than half of the subjects were in stage III (63.4%) and almost a half of the subjects were given radiation therapy (49.5%). The subjects felt pain in the pubic region (30.1%), abdomen (22.6%), and breast (22.6%). The pain medication most commonly given to the subjects during the past 24 hours was ponstan or mefenamic acid (54.8%).

Table 4-2: Frequency and percentage of disease-related characteristics of the subjects

Characteristic	Frequency (n) (<i>N</i> = 93)	Percentage (%)
1. Diagnosis		
Cervical cancer	26	28.0
Breast cancer	21	22.6
Colon/rectal cancer	13	14.0
Nasal cavity/nasopharynx cancer	11	11.8
Ovarian/uterine cancer	7	7.5
Prostate cancer	4	4.3
Lymphoma	3	3.2
Skin cancer	3	3.2
Mandibula/bone/brain cancer	3	3.2
Soft tissue carcinoma	2	2.2
2. Stage of Disease		
Stage I	2	2.2
Stage II	29	31.2
Stage III	59	63.4
Stage IV	3	3.2
3. Treatments		
Radiation therapy	46	49.5
Surgery	29	31.2
Chemotherapy	14	15.0
Palliative care	4	4.3
4. Sites of pain		
Pubic region	28	30.1
Abdomen	21	22.6
Breast	21	22.6
Head and neck region	18	19.3
Lower back and gluteal region	3	3.2
Thigh	2	2.2
5. Pain medication in the past 24 hours (around the clock)		
Ponstan (mefenamic acid)	51	54.8
Antalgin (naproxen sodium)	18	19.4
Forgesic	11	11.8
Voltaren	7	7.5
Tramadol	5	5.4
Codeine	1	1.1

2. Pain level of Cancer Patients

By using a pain numeric rating scale, pain intensity was measured by the subjects' rating of his/her pain at its "average", "worst", "least", and "current". The pain intensity at its "average" and "worst" during the past 24 hours were used as the variable in the statistical analyses in this study. Table 4-3 shows the frequency and percentage of average pain level of the subjects. The highest number of pain experienced by subjects was mild pain (53.8%) and the second highest number was moderate pain (43.0%), and just 3.2% of the subjects experienced pain in severe level.

Table 4-3: Frequency and percentage of average pain level of the subjects

Item (range of score)	Frequency (n) (N = 93)	Percentage (%)
Mild pain (1-3)	50	53.8
Moderate pain (4-6)	40	43.0
Severe pain (7-10)	3	3.2

Table 4-4 shows the frequency and percentage of worst pain level experienced by subjects. We can see that the worst pain level is opposite percentages with the average pain level. The highest number of worst pain experienced by subjects was severe pain (52.7%) and the second highest number was moderate pain (40.9%), and just 6.4% of the subjects experienced pain in mild level.

Table 4-4: Frequency and percentage of worst pain level of the subjects

Item (range of score)	Frequency (n) (<i>N</i> = 93)	Percentage (%)
Mild pain (3)	6	6.4
Moderate pain (4-6)	38	40.9
Severe pain (7-10)	49	52.7

Table 4-5 presents the range, mean, and standard deviation of the average, worst, least, and current pain. The mean scores of the average, worst, least, and current pain were 3.67 (*SD* = 1.48), 6.35 (*SD* = 1.74), 1.68 (*SD* = 1.11), and 2.78 (*SD* = 1.60) respectively.

Table 4-5: Range, mean, and standard deviation of pain of the subjects (*N* = 93)

Item	Range of score		Mean	SD
	Possible score	Actual Score		
Average pain	0-10	1-7	3.67	1.48
Worst pain	0-10	3-10	6.35	1.74
Least pain	0-10	0-4	1.68	1.11
Current pain	0-10	1-8	2.78	1.60

3. Anxiety level of Cancer Patients

The state anxiety inventory was used to measure the level of the subjects' state anxiety. More than half of the subjects (51.6%) experienced moderate anxiety, whereas low anxiety and high anxiety were at almost similar percentage (24.7% and 23.7%, respectively). The mean score of state anxiety was 49.53 (*SD* = 11.04) and ranged from 32 to 71. Table 4-6 shows the frequency and percentage of the state anxiety level of the subjects.

Table 4-6: Frequency and percentage of state-anxiety level of the subjects ($N = 93$)

Item (range of score)	Frequency (n)	Percentage (%)
Low anxiety (20-39)	23	24.7
Moderate anxiety (40-59)	48	51.6
High anxiety (60-80)	22	23.7
$M (SD) = 49.53 (11.04)$, min-max score = 32-71		

The trait anxiety inventory was used to measure the level of the subjects' trait anxiety. Most of the subjects had moderate anxiety (54.8%) and around one third of the subjects had low anxiety (34.4%), and few subjects had low anxiety (10.8%). The mean score of trait anxiety was 45.45 ($SD = 9.49$) and ranged from 32 to 65. Table 4-7 shows the frequency and percentage of the anxiety-trait level of the subjects.

Table 4-7: Frequency and percentage of trait-anxiety level of the subjects ($N = 93$)

Item (range score)	Frequency (n)	Percentage (%)
Low anxiety (20-39)	32	34.4
Moderate anxiety (40-59)	51	54.8
High anxiety (60-80)	10	10.8
$M (SD) = 45.45 (9.49)$, min-max score = 32-65		

4. Coping Strategies of Cancer Patients

The cognitive coping strategies ranged from 54 to 185 with the mean score of 128.15 ($SD = 26.44$). Score of the behavioral coping strategies were from 18 to 63 with the mean score of 39.20 ($SD = 10.39$). Table 4-8 shows the range, mean, and

standard deviation of cognitive coping strategies and behavioral coping strategies of the subjects.

Table 4-8: Range, mean, and standard deviation of coping strategies of the subjects
($N = 93$)

Item	Range of score		Mean	SD
	Possible score	Actual score		
Cognitive coping strategies	0-216	54-185	128.15	26.44
Behavioral coping strategies	0-72	18-63	39.20	10.39

Table 4-9 shows the range, mean scores, standard deviation of each subscale of cognitive and behavioral coping strategies. The mean scores of diverting attention, re-interpreting pain sensation, ignoring pain sensation, coping self-statements, praying and hoping, and catastrophizing were 17.29 ($SD = 5.42$), 15.32 ($SD = 5.62$), 18.65 ($SD = 6.30$), 21.49 ($SD = 5.79$), 29.41 ($SD = 2.96$), and 10.01 ($SD = 7.07$), respectively. The mean scores of behavioral coping strategies: increasing pain coping behaviors and increasing behavioral activities were 18.86 ($SD = 5.13$) and 20.34 ($SD = 5.90$), respectively.

Table 4-9: Range, mean, and standard deviation of each subscale of coping strategies (possible score: 0-36) of the subjects ($N = 93$)

Item	Actual Score	Mean	SD
Cognitive coping strategies			
Diverting attention	6-30	17.29	5.42
Re-interpreting pain sensation	3-30	15.32	5.62
Ignoring pain sensation	3-31	18.65	6.30
Coping self-statements	8-33	21.49	5.79
Praying and hoping	21-36	29.41	2.96
Catastrophizing	1-31	10.01	7.07
Behavioral coping strategies			
Increasing pain coping behaviors	8-34	18.86	5.13
Increasing behavioral activities	6-30	20.34	5.90

Most of the subjects used coping strategies at a moderate level in almost all subscales: diverting attention, re-interpreting pain sensation, ignoring pain sensation, coping self-statement, increasing pain coping behaviors, and increasing behavioral activities, except “praying and hoping” and “catastrophizing”. Almost all subjects used high level of praying and hoping (95.7%). Meanwhile, catastrophizing, as negative coping strategies, was used by most of the subjects at low level (74.2%), one fifth of them (20.4%) used catastrophizing at moderate level, and just a few subject (5.4%) who used catastrophizing at high level. Table 4-10 demonstrates the frequencies and percentages of coping strategies of the cancer patients.

Table 4-10: Frequency and percentage of coping strategies level in each subscale of the subjects

Item	Score	Frequency (n) (N = 93)	Percentage (%)
Cognitive coping strategies			
Diverting attention			
- Low	0-12	17	18.3
- Moderate	13-24	69	74.2*
- High	25-36	7	7.5
Re-interpreting pain sensation			
- Low	0-12	23	24.7
- Moderate	13-24	65	69.9*
- High	25-36	5	5.4
Ignoring pain sensation			
- Low	0-12	16	17.2
- Moderate	13-24	63	67.7*
- High	25-36	14	15.1
Coping self-statements			
- Low	0-12	8	8.6
- Moderate	13-24	56	60.2*
- High	25-36	29	31.2
Praying and hoping			
- Low	0-12	-	-
- Moderate	13-24	4	4.3
- High	25-36	89	95.7*
Catastrophizing			
- Low	0-12	69	74.2*
- Moderate	13-24	19	20.4
- High	25-36	5	5.4
Behavioral coping strategies			
Increasing pain coping behaviors			
- Low	0-12	9	9.7
- Moderate	13-24	72	77.4*
- High	25-36	12	12.9
Increasing behavioral activities			
- Low	0-12	10	10.8
- Moderate	13-24	59	63.4*
- High	25-36	24	25.8

* The highest percentage

In general, the subjects used the moderate level of cognitive coping strategies (71%) and the moderate level of behavioral coping strategies (73.1%), whereas, just a few subjects used low level of cognitive and behavioral coping strategies, with percentages of 2.1% and 8.6%, respectively. Table 4-11 presents the frequencies and percentages of cognitive and behavioral coping strategies of the subjects.

Table 4-11: Frequency and percentage of coping strategies level of the subjects

Item	Score	Frequency (n) (N = 93)	Percentage (%)
Cognitive coping strategies			
Low	0-72	2	2.1
Moderate	73-144	66	71.0
High	145-216	25	26.9
Behavioral coping strategies			
Low	0-24	8	8.6
Moderate	25-48	68	73.1
High	49-72	17	18.3

5. The Magnitude of Relationships among Pain, Anxiety, and Coping Strategies of Cancer Patients

Before proceeding with the correlational analysis using Pearson correlation coefficients, steps of correlational analysis were conducted initially to test for normality and linearity to make sure that the assumptions were met. In this study, the assumptions for correlational analysis were met.

The results of the correlational analysis partially controlling for trait anxiety using Pearson correlation coefficients are presented in Table 4-12. In general, the pain

score was positively correlated with state anxiety and coping strategies. There was a significant relationship between anxiety and worst pain ($r = .34; p < .01$), while there was no significant relationship with the average pain. There were also no significant relationships between pain (average and worst) and total coping strategies, or between pain and cognitive coping strategies. However, there was a positive relationship between behavioral coping strategies and average pain ($r = .36; p < .01$) and worst pain ($r = .23; p < .05$). Furthermore, the anxiety was significantly negative correlated with coping strategies ($r = -.27; p < .05$). There was a significant negative relationship between state anxiety and cognitive coping strategies ($r = -.28; p < .01$), but state anxiety score was not significantly correlated with behavioral coping.

Furthermore, there were no significant relationships between average pain and three subscales of cognitive coping strategies: re-interpreting pain sensation, ignoring pain sensation, coping self-statements, or between average pain and one subscale of behavioral coping strategies: increasing behavioral activities. The worst pain was not significantly correlated with any subscales of cognitive coping strategies, except catastrophizing and one subscale of behavioral coping strategies: increasing behavioral activities. There was also no significant relationship between anxiety and two subscales of cognitive coping strategies: re-interpreting pain sensation and coping self-statement, or between anxiety and each subscale of behavioral coping strategies: increasing pain coping behaviors and increasing behavioral activities.

On the other hand, there were significant relationships between average pain and three subscales of cognitive coping strategies: diverting attention ($r = .24, p < .05$), praying and hoping ($r = .24, p < .05$) and catastrophizing ($r = .26, p < .05$), and a subscale of behavioral coping strategies: increasing pain coping behaviors ($r = .49, p$

< .01). The worst pain was significantly correlated with just one subscale of cognitive coping strategies: catastrophizing ($r = .27, p < .01$), and a subscale of behavioral coping strategies: increasing pain coping behaviors ($r = .35, p < .01$). The anxiety scores were negatively correlated with four subscales of cognitive coping strategies: diverting attention ($r = -.22, p < .05$), ignoring pain sensation ($r = -.25, p < .05$), praying and hoping ($r = -.21, p < .05$), and positively correlated with catastrophizing ($r = .23, p < .05$).

Table 4-12: The correlation coefficient among pain, anxiety, and coping strategies controlling for trait anxiety ($N = 93$)

Variable	Correlations		
	Average pain (r)	Worst pain (r)	Anxiety (r)
Anxiety	.14	.34**	
Coping	.19	.08	-.27*
1. Cognitive coping strategies	.10	.01	-.28**
Diverting attention	.24*	.17	-.22*
Re-interpreting pain sensation	.20	.16	-.19
Ignoring pain sensation	.13	.05	-.25*
Coping self-statements	-.003	-.11	-.17
Praying and hoping	.24*	.13	-.21*
Catastrophizing	.26*	.27**	.23*
2. Behavioral coping strategies	.36**	.23*	-.18
Increasing pain coping behaviors	.49**	.35**	-.19
Increasing behavioral activities	.20	.08	-.16

* $p < .05$ (2-tailed), ** $p < .01$ (2-tailed)

Additional Information: The Meaning of Pain and the Responses to Pain of Cancer Patients

In addition to the quantitative pain measure, the meanings of pain and the responses to pain were revealed by ninety-three cancer patients in Dr. Kariadi Hospital. The researcher obtained these statements mentioned below directly from the subjects by using interview guide as mentioned in Appendix C.

1. *The meaning of pain experience*

As a result of the interview, the meaning of pain was revealed from 93 subjects. Some subjects reported the meanings of pain more than one meaning. Table 4-13 presents the frequency and percentage of the meaning of pain described by the subjects. They ascribed the meaning to their pain quite similar and related to religious beliefs, or related to their daily life. Around two third of the subjects (65.6%) described that pain was as a “cobaan” or spiritual test from God. Almost a half of them (47.3%) stated that pain was suffering. Some subjects (46.2%) said that pain was because of the disease process, and fourteen subjects (15.1%) indicated that pain was disturbing their activities.

Table 4-13: The frequency and percentage of the meaning of pain of the subjects

($N = 93$) (some subjects reported more than one meanings)

Meanings of Pain	Frequency (n)	Percentage (%)
“Cobaan” or spiritual test	61	65.6
Suffering	44	47.3
Disease process	43	46.2
Disturbing	14	15.1

The cancer patients perceived pain in several meanings. Twenty five subjects stated that pain is “cobaan” (spiritual test) from the God and disease process. As one subject stated:

“This pain is because of my disease process and the God is testing me by giving this disease. I believe that Allah has never given to his religious members more than their ability”.

(Cervical cancer patient)

Fourteen subjects stated that the meaning of pain was suffering and disturbing.

One subject stated:

“Pain is very suffering and disturbing. So, when I had pain, I could not sleep, disturbed my activities and made me tired”.

(Bone cancer patient)

Another meaning of pain was spiritual test from the God (Allah). Twelve subjects believed that although this disease was very suffering, they believed that Allah was testing them. One subject stated:

“I believe that this is a “cobaan” (test) from the God (Allah), everything what happen to me is from Allah. Even though this is very suffering and disturbing my life, I believe that the God is testing me to be more patient by giving this situation”.

(Colon cancer patient)

2. *The responses to pain*

The results of interview of responses to pain from 93 subjects were revealed. Some subjects responded to pain more than one action. Table 4-14 presents the frequency and percentage of the responses to pain of the subjects. All subjects (100%) responded to pain by taking pain medications to relieve with pain. Almost three fourth of the subjects (71%) prayed when they were in pain. Some subjects (9.7%) used warm compress or balm to relieve with their pain, and seven subjects (7.5%)

responded to pain by looking for some activities, such as doing household and talking with others.

Table 4-14: The frequency and percentage of the responses to pain of the subjects
($N = 93$) (some subjects responded to pain more than one action)

Responses to pain	Frequency (n)	Percentage (%)
Took pain medication	93	100
Praying	66	71.0
Compressed with warm water or balm	9	9.7
Did some activities	7	7.5

The cancer patients responded to pain in different ways. Sixty-six subjects responded to pain by taking pain medication prescribed by the physician and praying more frequent. One subject stated:

“When I felt pain, I took drugs from the doctor to reduce my pain and I prayed more than usual situation. By praying I felt more calm and I believe that the God will help me to solve my problems”.

(Cervical cancer patient)

Another response to pain from nine subjects was by taking pain drugs and giving warm compress or balm in the pain site to reduce pain. One subject stated:

“I always take pain drugs and sometime I use warm compress or balm, because it can reduce my pain”.

(Nasal cavity cancer patient)

Seven subjects responded to pain by taking pain drugs and looking for many activities to ignore their pain. One subject stated:

“Usually I take pain drugs to reduce pain and I try to ignore my pain by watching television and to be around my family or friends”.

(Breast cancer patient)

Discussion

This study proposed to identify the pain level, anxiety level, and coping strategies in dealing with cancer-related pain, and to examine the magnitude of relationships among pain, anxiety, and coping strategies of cancer patients. Ninety-three cancer patients were conveniently recruited from Dr. Kariadi Hospital in Semarang, Central Java Province of Indonesia to participate in this study.

1. *Subject Characteristics*

Regarding the results of the data collection of this study, the age of cancer patients ranged from 35 to 79 years with a mean age of 47.09 years ($SD = 9.55$). Most of the subjects were between 35-45 years old and were diagnosed of having cervical and breast cancer. The cervical and breast cancer were dominant in this sample because of the higher distribution of female subjects as compared to male subjects to whom nasopharynx cancer, colon cancer, and rectal cancer were more prevalent. This finding is consistent with Indonesian situation that most patients with cancer are women (65.4%). It is the fact that cervical and breast cancers are the highest number and the second highest number of cancer incidence in Indonesia (Smith, 1998). The finding is also congruent with the age distribution of cervical cancer that is most common among women between the age 35 and 50 years (Otto, 1999), and a previous study of Chinese women with breast cancer found a mean age of 46.59 years and most subjects were between 40-49 years old (Zhang, 1997).

The majority of the subjects (84%) was Muslim and married, which is consistent with the distribution of Muslim around the world in which Indonesia is the largest Muslim population with a Muslim segment of 88% of the population or over

200 million people. Among the subjects' characteristics, the level of education was mostly senior high school or elementary school, and most of the subjects had no work or worked in private companies. More than one third of the subjects had a monthly income level from 1,000,000-1,500,000 Rupiah (equal to US \$ 120.48-180.72) with the average monthly income of 852,688 Rupiah.

The conditions above are representative of the middle class of socioeconomics in the Indonesian population, which means they could not afford to pay for the cancer treatment in the long term. Cancer treatments requires periodic medical visits to monitor patients' condition and may require prolonged use of medications, medical supplies, durable medical equipment, and life style alteration to manage the symptoms and side effects (e.g., pain) of cancer and treatment (Bradley, Given, Given, & Kozachik, 2000).

In addition, while socioeconomics is not a cause of cancer, it is a proxy measure for lifestyle characteristics that differ for different cancer types. For example, cervical cancer has been associated with the lower socioeconomic status. In this case, socioeconomic status may be a proxy for the number of the influencing factors of cancer, the greater the chance of the female partner's having human papillomavirus (HPV)-positive, which has been implicated as a cause of cervical dysplasia. Alternatively, socioeconomic status may be a proxy for frequent Pap test (Reid, 2000). There are the possible causes for most of the subjects in this study, who were diagnosed as cervical cancer and detected more at stage III than at other stages.

Moreover, the researcher observed directly from the subjects that most of the subjects came to the hospital in the late stage at diagnosis, mostly in stage III as mentioned before. The common symptoms of the subjects, given as the reason to seek

medical treatment, were the heavy bleeding and difficulties of urination. It is congruent with the literature that cervical cancer is usually asymptomatic in the preinvasive and early stages, although women may notice a watery vaginal discharge, whereas massive vaginal hemorrhage and development of renal failure, other late symptoms, may result from local invasion of blood vessels and bilateral ureteral obstruction by tumor (Klemm, 2000). Meanwhile, the subjects diagnosed with other cancers, such as nasal cavity cancer, already went to “Puskesmas (pusat kesehatan masyarakat)” or (public health centre) in the subdistricts because of their symptoms, but the health providers just gave drugs to relieve the symptoms. This is because of the limitation of facilities in the public health centre, which has only general practitioners and no facility for cancer screening.

2. Pain

Pain intensity in this study was described in terms of the “average” and “worst” pain of the subjects during the past 24 hours. Most of the subjects in this study were experiencing low pain (53.8%) or moderate pain (43%) with the mean average pain score of 3.67. When asked about worst pain, most subjects reported pain at severe (52.7%) or moderate level (40.9%) with the mean score of 6.35. In most subjects in this study the disease was detected at advanced stages, which can be a painful disease. Ger and colleagues (1998) reported a significant correlation between pain severity and advancing stage of disease. However, 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). The worst pain among that subjects is consistent with the

World Health Organization (WHO) estimate that approximately 50% of patients with cancer undergoing active treatment experience moderate to severe pain, and this percentage increases to 80% of patients in the terminal phases of the disease (WHO, as cited in Wills & Wootton, 1999).

As demonstrated, there were different results between average and worst pain level. It could be some contributing factors that caused the decreasing of average pain level, such as pain medications taken by patients, in which all subjects (100%) revealed that they took pain medication to respond their pain. McGuire and Sheidler (1993) mentioned that although pain intensity depends primarily on etiology of pain, individual threshold may be affected by a variety of factors, such as physical comfort, mood, medications, and social environment, thus causing perceived intensity of pain to increase or decrease. Of course, most of the subjects in this study took non-steroidal anti-inflammatory drugs (NSAIDs) during the past 24 hours. Most of the subjects (54.8%) took ponstan or mefenamic acid, which has a function for short-term relief of mild to moderate pain (Wilson, Shannon, & Stang, 2002).

Additionally, from observation, the researcher found that some subjects said that they had no pain. When the researcher confirmed this with the nurses, they mentioned that the subjects had high pain level and they received pain medication. The researcher, then, returned to the subjects and tried to assess them again. It was found that they had pain at low level because of pain medication taken during the past 24 hours. They said that at the moment it was just little pain with the mean of current pain was 2.78 (Table 4-5), because they had experienced severe pain, in which they could not deal with without drugs.

More than half of the subjects (52.7%) had severe pain at its worst and they experienced average pain at mild (53.8%) and moderate level (40%) during the past 24 hours. Actually, almost all subjects already took non-opioid drugs to relieve pain, and a few subjects took opioids. As a result, most of them reported pain at its average at mild to moderate level. However, since the worst pain scores were still at the high level, it indicates that the subjects may not receive an adequate pain medication. In addition, based on the researcher's personal observation, there was no practice of standard pain assessment at the settings under this study. Ineffective pain assessment may contribute to adequate pain management (Fitzgibbon & Chapman, 2001). Therefore, an adequate pain assessment requires a comprehensive evaluation of all factors that plays a significant role in to plan the treatment appropriately.

3. *Anxiety*

This study measured both the state anxiety as a main variable and trait anxiety as a confounding factor. According to Edelman (1992), a complicating factor is that trait and state anxiety tend to correlate quite highly with each other. Trait anxiety strongly influenced state anxiety, whereas state anxiety is an emotional state that exists at a given moment in time and at a particular level of pressure.

This study showed that cancer patients experienced generally moderate levels of state anxiety (51.6%) and trait anxiety (54.8%). Anxiety is a universal human experience and it is a normal response to unfamiliar, uncertain or dangerous situations. 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 (Edelman, 1992). The subjects of this study showed that they

experienced at moderate level of anxiety to respond with their pain, which may be as an unfamiliar situation for them. The findings of this present study are consistent with the literature that mentioned persons who are high in trait anxiety are more vulnerable to stress and respond to a wider range of situations as dangerous or threatening. Since individuals who are high in trait anxiety are more disposed to see the world as dangerous or threatening, they experience state anxiety reactions more frequently and often with greater intensity than do people lower in trait anxiety (Spielberger, Pollands, & Worden, 1984, as cited in Edelman, 1992). However, the findings are inconsistent with previous research that reported moderate to high levels of anxiety among breast cancer patients awaiting surgical treatment (Lehto & Cimprich, 1999). There are some contributing factors that influence the anxiety level, such as, treatments, sex and age, financial status, and disease stages as mentioned in the literature review. It might be only some subjects (31.2%) of this study were receiving surgery, which may influence the anxiety level of the subjects. Based on these findings, one might assume that if patients receiving surgery are more anxious than patients receiving other treatments, they might perceive that greater mental effort is required to overcome anxiety to perform required cognitive tasks. From this perspective, anxiety may function as an internal distraction that increases the demands for the use of directed attention during purposeful mental activity.

Moreover, this present study, with the average age of the subjects was 47 years old and they experienced lower anxiety than subjects' anxiety from other studies, is also not consistent with some studies that found older women (≥ 55) are less likely than younger women to experience anxiety (Lehto & Cimprich, 1999; Yanick et al., 1989). Another source of anxiety for the patients is the financial burden

of cancer treatments. As mentioned earlier, the financial status of the subjects in this study were in the middle socioeconomics class of the Indonesian population, which means they could not afford to pay for the cancer treatment in the long term. However, this condition might not be strong enough to influence their anxiety level. It can be seen that the subjects of this study just experienced anxiety at moderate level. This is inconsistent with the Lansky's study (1987) about the high cost of cancer and this study found that anxiety about managing the financial cost of cancer is equaled by fear of the disease. Holland (1987) found that patients at advanced stages reported higher psychological distress than patients at early stages. As mentioned in Table 4-2 that two third of the subjects were diagnosed at advanced stages. Patients with advanced disease have a high prevalence of pain, fatigue, generalized weakness, depression, and anxiety (Curtis, Krech, & Walsh, 1995). In these patients inadequate symptom control and disability can have a major functional and psychological impact, causing significant distress. In which, advanced cancer has been defined as the phase of the disease at which no cure is possible and only supportive or palliative treatment can be administered (Holland, 1990).

From an explanation above, treatments, sex and age, financial status, and disease stages were not quite strong to influence the anxiety level of the subjects in this study. Kaasa and colleagues (1993) reported that 70% of patients with advanced cancer had a high level of psychological distress and those patients with more pain were the most distressed. Pain intensity could be a contributing factor of the anxiety level of the subjects. All subjects (100%), as mentioned in Table 4-14, responded to pain by taking pain medications and the subjects (71%) prayed to respond their pain. The decreasing of the pain intensity and praying could be the one of the contributing

factors that helps them to be more calm, thus, most subjects of the study experienced anxiety only at moderate level.

4. *Coping Strategies*

The utility of analyzing the coping strategies used by patients with cancer can be clearly seen from the result of this study. Overall use of pain coping strategies was at moderate level; it was not similar to what was found by other researchers investigating other chronic pain syndromes (Spinhoven, Ter Kuile, Linssen, & Gazendam, 1989). The way a person copes with a stressful situation depends on his view of situation (Lazarus & Folkman, 1984). Most of the subjects in this present study used generally moderate level in both *cognitive and behavioral coping* strategies, except “praying and hoping” and “catastrophizing”, as cognitive coping strategies.

According to Lazarus (1993), individuals use coping as a primary mechanism to adapt to their illness, which neutralizes the threatening situation effectively. Lazarus and Folkman (1984) proposed two modes of coping strategies used by individual when they encounter stressful situations: problem-focused coping and emotion-focused coping. Because coping is a multidimensional concept on which individual perception can be affected by the person’s individual belief and values (Lazarus & Folkman, 1984), the effect of cultural context on the coping strategy use of individuals may not be wholly excluded. Based on the subjects’ belief, praying and hoping was used the most (95.7% of the subjects reported high frequently used) among cognitive coping strategies, with the mean score of 29.41 ($SD = 2.96$). From the quantitative results and the qualitative interview in this study, it may be most

subjects accepted their condition because of the beliefs that their pain was a “cobaan” or “spiritual test” (Table 4-13) from Allah (God) and that praying and hoping may help them to be more calm for patients to face their conditions. One study mentioned that prayer was used for specific medical conditions and the use of praying was associated with illnesses characterized by painful symptoms (McCaffrey, Etsenberg, Legedza, Davis, & Phillips, 2004).

Muslims believed that sickness was as a test from God, as stated by an Islamic scholar (Dr. Mahmud Es’ad, as cited in Mills, 1996). Additionally, God talks in the Qur’an that “O mankind! There has come to you a direction from your Lord and healing for the disease in your hearts, and for those who believe, a guidance and a mercy” (Qur’an: X, 57, as cited in Abu-Saud, 2004). Muslim people practice “sholat” (praying) at least five times a day, and they will practice more when they have some problems and hopes. As a result, most of the subjects (95.7%) in this study used more praying and hoping, as coping strategies, to deal with their pain. According to Lazarus and Folkman (1984), coping is determined by constraints that mitigate the use of resources. Personal constraints refer to internalized cultural values and beliefs that prescribe certain types of action or feeling, and psychological deficits that are a product of person’s unique development. The finding and the interview of this study support the cultural and value notions about praying and trust in God in Islamic belief.

Catastrophizing, a method of cognitive coping with pain, characterized by negative self-statements and overly negative thoughts and ideas (Gross, 1986), was the least used by the subjects. This means that most of the subjects in this study were more realistic to assume the current situation and they did not think that the worst possible outcome would occur. It could be that 90.3% of the subjects were Muslim

who believes that everything happens to them is a “cobaan” or “spiritual test” from God, and they believe that every sickness can be cured. There is no doubt that genuine belief in God can be the best cure for most of psychological disturbances. It brings peace to our hearts as one reckons to his Creator and resigns in Him. God says that “But He guides to Himself for those who turn to Him in patience, those who believe, and whose hearths find peace and satisfaction in the remembrance of God: for without doubt in the remembrance of God do hearts find satisfaction and peace” (Qur’an: XIII, 27-28, as cited in Abu-Saud, 2004). This belief may contribute to the fact that less catastrophizing, as negative coping strategies, was used as compared to praying and hoping. The finding of this study may differ from others. As demonstrated from this finding, the subjects used less catastrophizing to cope with their pain, as referred to Appendix A4 that four subscales of catastrophizing are in the rank of the ten lowest of coping strategies used by the subjects.

Other coping strategies used moderately by the subjects were the subscales of cognitive coping strategies: diverting attention, re-interpreting pain sensation, ignoring pain sensation, and coping self-statements and both subscales of behavioral coping strategies: increasing pain coping behavior and increasing behavioral activities. Coping strategies are different, depending on the situation appraised by the individual as well as the accessible resources that are available to him/her at that time. 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 the person (Lazarus & Folkman, 1984). Most of the subjects of this study used a combination of cognitive and behavioral strategies to manage on their cancer-related

pain at moderate level. This condition reflects that the moderate level of coping strategies could deal with their pain effectively.

Furthermore, behavioral coping strategies used by subjects were at a moderate level that was almost similar in both increasing pain coping behavior and increasing behavioral activities with the mean scores of 18.6 ($SD = 5.13$) and 20.30 ($SD = 5.90$), respectively. Behavioral coping strategies are the techniques that modify overt behavior, such as taking medication ($n = 93.6\%$), lying down ($n = 58.1\%$), and relaxing ($n = 50.5\%$), which were commonly used by more than half of the subjects to deal with pain, as presented in Appendix A4. Fernandez and Turk (1990) found that individuals suffering from a variety of chronic pain syndromes develop a number of cognitive and behavioral techniques to help them reduce, tolerate or deal with their pain. The results of this study show that the subjects used behavioral coping strategies or increased their activities moderately to deal with their pain. A person might respond with behavior that is based on one's individual history with pain. Because 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 (Ahles et al., 1983). Following Lazarus and Folkman (1984), coping is commonly defined as the effortful (i.e. non-automatic) attempt to adapt to pain, or manage one's own negative response to pain. According to this definition, it may direct attention toward behavior the pain sufferer or caregiver judges to be purposeful and goal-directed.

Cognitive-behavioral therapies for pain management are focused on changing the way a person thinks about and interprets pain including its cause, meaning, and effects of treatment (Kwekkeboom, 1999). One study found that individuals with

chronic pain used a number of cognitive and behavioral coping strategies that were reported to be effective in reducing and controlling their pain (Hill, 1993). Therefore, the patients who believe their pain is likely to persist may be quite passive in their coping efforts and fail to make use of cognitive strategies (e.g., distraction or calming self-statements) or behavioral strategies to cope with the pain (e.g., increasing or decreasing activity level) (William & Keefe, 1991).

5. Relationships among Pain, Anxiety, and Coping Strategies

In general, the findings of this study demonstrated that both average and worst pain intensity were positively correlated with anxiety level and coping strategies, except for a subscale of cognitive coping strategies: coping self-statements that presented a negative correlation with anxiety (Table 4-12). These findings showed that even though average pain was positively correlated with anxiety level, it may not be enough to become significant as similar to the moderate correlation of worst pain and anxiety ($r = .34, p < .01$). These results show that when the subjects had higher the pain intensity, they had higher the level of anxiety. Anxiety expresses something different about the situations the person is facing (Lazarus & Folkman, 1984). State anxiety 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 describes anxiety states as a result of anticipation of danger of incidence. Therefore, the subjects expressed differently in anticipating the level of pain, as a threatening situation. When the subjects might think that a situation is a threat, their response to pain was as threat as the perception. Similarly, Spiegel and colleagues (1994) found that higher level of pain intensity in women with metastatic

breast cancer was significantly correlated with greater mood disturbance. Ahles et al. (1983) stated that the psychological factors, such as anxiety influenced the experience of pain and the meaning of pain.

This study, commonly, found that both average and worst pain intensity were correlated with total and subscales of coping strategies, and the worst pain was less correlated with coping strategies than was average pain level. These findings show that the subjects would use more coping strategies at lower pain intensity. Lazarus and Folkman (1984) 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. A stressor, such as pain, and appraisals of threat influence an individual's coping responses (Lazarus, 1993). Coping responses can be classified as emotional (blaming self, avoidance, wishful thinking), or may be focused on identifying resolutions. It might be that the subjects of this study could not control themselves when having severe pain or they could not find the resolution to deal with their pain. Therefore, the subjects used less coping strategies when they had more severe pain, in which they might take pain medication.

Furthermore, there were significant relationships between pain intensity (average and worst pain) and some subscales of coping strategies, even though the correlation between pain intensity and total coping strategies was not high enough to be statistically significant. Pain intensity (average and worst pain) was significantly correlated with increasing pain coping behaviors and catastrophizing. As stated previously, pain is a complex experience entailing physiologic, sensory, affective, cognitive, and behavioral components. Chronic pain can disrupt virtually all life areas and produce marked emotional and behavioral changes. Most subjects (71%) of this

study increased their behaviors to cope with their pain by taking pain medications and a few subjects (1.1%) were awful and feel that pain overwhelms them, which is as a negative self-statement or catastrophizing (Appendix A3). Catastrophizing has been found consistently to be associated with increased pain and physical and psychosocial dysfunction in various chronic pain problems (Hill, Niven, & Knussen, 1995; Keefe et al., 1987; Martin et al., 1996). There was evident that pain is positively associated with catastrophizing (Zautra et al., 1995). Similarly, Buckelew and colleagues (1992) found in their study of coping strategies to manage pain and anxiety that catastrophizing was correlated with the levels of pain intensity.

The average pain was also significantly correlated with diverting attention and praying and hoping. Diverting attentions and praying and hoping are as cognitive coping strategies, in which cognitive coping strategies refer to the use of techniques that influence pain through the medium of an individual's thought (Jensen & Karoly, 1991). The efficacy of specific coping strategies is often dependent upon the individual patient, the nature and chronicity of the pain and the specific situation being (Lazarus & Folkman, 1984). With the mean score of pain of 3.67 at its average, the subjects dealt with their pain using more the diverting attention and praying and hoping. As referred to Appendix A3, more than half of the subjects often or almost always tried to think something pleasant and around ninety percent subjects always used two items of praying and hoping to deal with the pain. The finding of this study was supported by one study that found diverting attention and praying and hoping were consistently associated with pain (McCracken & Eccleston, 2003). Something pleasant and praying and hoping as cognitive activities, which were frequently used by subjects can block and modulate the input, such as cancer pain, before it can evoke

the motivational-affective processes that are an integral part of the total pain experience. In which the limbic system provide a neural basis for the aversive drive and affects that part which comprises the motivational and affective dimension of pain (Melzack & Casey, 1968).

This study also found significantly positive relationships between both average and worst pain and behavioral coping strategies, although the worst pain was less correlated with the behavioral coping strategies. One subscale of behavioral coping strategies: increasing pain coping behaviors was significantly correlated with pain intensity, but another one: increasing behavioral activities was not significantly correlated with pain intensity to be statistically significant. Behavioral coping strategies refer the techniques that modify overt behavior. Pain is associated not only with sensory-discriminative components, but also with emotional feelings that can increase pain intensity by altering descending and central pain modulation system (Melzack, 1991). Moreover, Cleeland (1991) mentioned that most persons face mild pain periodically with little interference with their daily life. As pain becomes more severe, it contaminates more domains of the patient's daily functioning. Therefore, the subjects used less behavioral coping strategies when they had more severe pain.

On the other hand, there was no significant relationship between pain intensity and cognitive coping strategies. 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 mechanism. From this perspective, this finding explained that the pain level did not much affect the subjects to use their thought to deal with their pain. As explained previously, the subjects responded to pain by taking pain medications. This

might be the possible cause of the subjects did not really need cognitive coping strategies to deal with their cancer-related pain.

Catastrophizing was the only subscale correlated significantly with both average ($r = .26, p < .05$) and worst ($r = .27, p < .01$) pain intensity, and anxiety level ($r = .23, p < .05$). Catastrophizing is a method of cognitive coping with pain characterized by negative self-statements and overly negative thoughts and ideas about the future (Keefe et al., 1989). Catastrophizing is related to personality characteristics, such as low dispositional optimism (Turner, Jensen, & Romano, 2000). Some studies found a significant correlation between catastrophizing and pain intensity (Keefe et al., 1989; Wilkie & Keefe, 1991). The items in this factor appear to measure judgments of an inability to persist in coping efforts, excessive worry about the future, and the tendency to view pain and the life situation as overwhelming.

This study showed that the subjects used more negative self-statements or catastrophizing when they had higher pain intensity. Pain, a very distressing symptom, can be an almost continuous problem (Salmon & Cassady, 1997). One study mentioned, unrelieved cancer pain can have negative consequences on a patient's mood. As pain severity increases, it becomes more destructive and interferes with many aspects of an individual's life (Serlin, Mendoza, Nakamura, Edwards, & Cleeland, 1995). Therefore, as demonstrated from the findings of this study, the subjects would distract their attention from the pain and prayed to deal with pain when they had lower pain. It can be concluded that pain intensity influenced the psychological state of the subjects and they could not control their thoughts.

Coping strategies are efforts to manage stressors by establishing personal interaction, dealing objectively with the problem, and approaching the situation with a

constructive attitude or by using physical (behavioral) or mental (cognitive) efforts to avoid confronting the stressor (Zabalegui, 1999). Wilkie and Keefe (1991) stated that cognitive and behavioral coping strategies are known to help patients manage pain. The findings present that patients with cancer-related pain in this study used a combination of these strategies to deal with the stressors associated with their pain. In conclusion, the finding of this study was that the higher the level of pain, the greater the coping strategies used by patients to deal with their cancer-related pain. It might be assumed that the coping strategies did not work well in patients who experienced severe pain. Therefore, they needed more pain medications to relieve their pain, as proved in Table 4-14 that all subjects responded to pain by taking pain medications.

Furthermore, a significant and negative relationship existed between total coping strategies and anxiety level. This study also found a significant relationship between subscales of cognitive coping strategies and anxiety levels, except reinterpreting pain sensation and coping self-statements that were not significantly correlated with anxiety levels. In addition, there was no significant correlation between either subscale of behavioral strategies: increasing pain coping behaviors or increasing behavioral activities and anxiety level. Coping strategies are intended to manage with specific stressors. When subjects used the coping strategies in over prolonged time, it may significantly affect physical and psychological functioning. Coping is considered an intentional and effortful process that can be differentiated from more automatic and reactive emotions and behaviors in response a situation (Schwarzer & Schwarzer, 1996). The finding of this study is consistent with several studies that found significant correlations between coping strategies and anxiety in chronic pain patients (Manne et al., 1994; McCracken & Gross, 1993). Specifically,

the findings showed that the more profound the coping strategies, the lesser the degree of anxiety. Based on these findings, one might assume that if cancer patients using coping strategies they would be less anxious, and may feel that greater coping strategies are required to overcome anxiety to perform required cognitive and behavioral tasks.

Finally, most of the subjects in this study experienced anxiety at a moderate level and they used moderate cognitive and behavioral coping strategies to deal with their pain. The higher pain intensity of the subjects was the higher anxiety level, the higher pain intensity was the more in using coping strategies, and the higher coping strategies used by the subjects was the lesser of anxiety level.