



**Effect of Zikr Meditation on Post Operative Pain Among Muslim Patients
Undergoing Abdominal Surgery, Medan, Indonesia**

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Thesis Title Effect of Zikr Meditation on Post Operative Pain among Muslim Patients Undergoing Abdominal Surgery, Medan, Indonesia

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ABSTRACT

This quasi experimental research aimed to study the effectiveness of Zikr meditation on post operative pain and physiological response, among Muslim patients who underwent abdominal surgery. The two- group pre and post test experimental design was used as the research design. This study was conducted at two surgical wards in Adam Malik Hospital and Pirngadi Hospital, Medan, Indonesia. A purposive sampling technique was used and 30 subjects were assigned to either an experimental or control group. The paired matching technique (age and sex) was used to match the subjects of the experimental and the control group: three age groups (18-30 years, 31-45 years, 46-60 years); and gender (female and male) were identified. The experimental group practiced Zikr meditation for 30 minutes each period over 2 days: day 1 (6-8 hours after surgery) and day 2 (24-30 hours after surgery). The researcher developed guidelines for practicing Zikr meditation, which was used as an intervention to reduce post operative pain. A Numeric Rating Scale (NRS) was used to measure the intensity of pain; “omron” digital blood pressure analyzer and a stop watch “body sculpture Int’l Europe” were used to measure physiological changes and pulse rates. Pain intensity and physiological response were measured before Zikr meditation practice, at the time of Zikr meditation practice, then 30 minutes, and 60 minutes after the practice. Chi - square tests, Fischer exact test, and the Monte Carlo techniques were used to compare the equivalence of the demographic data of the subjects in the experimental and control groups. An independent t-test was used to compare pain intensity, and the Mann - Whitney U test was used for physiological responses.

The findings revealed that the pain intensity in the experimental group showed a statistically significant difference compared to the control group in day 1 (6-8 hours after surgery) ($t_{14} = 5.29$, $p < .01$), and day 2 (24-30 hours after surgery) ($t_{14} = 4.79$, $p < .01$). However, there was no significant difference in the physiological responses (systolic and diastolic blood pressure, respiration, and heart rate) before Zikr meditation, at the time, or 30 minutes and 60 minutes after the practice of Zikr meditation between the experimental and control groups. The results of this study suggest that Zikr meditation could be used as one of non-pharmacological pain management technique for reducing pain after abdominal surgery.

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CHAPTER 1

INTRODUCTION

Background and Significance of the Problem

The number of patients undergoing abdominal surgery increases every year. In the Adam Malik Hospital in Indonesia, the number of patients underwent such operations in 2004 and 2005, including laparotomy and hysterectomy, was approximately 100 to 200 patients per year. The number kept on increasing by 10% each year. It was also observed that from the year 2004 to 2007 in the Pirngadi hospital in Indonesia, the number of patients who underwent post-operative abdominal surgery increased every year.

Surgery produces post-operative pain due to nerve disruption and tissue damage in the surgical region. Patients may suffer from acute post-operative pain for a few days. This is because the injured tissue will continuously release inflammatory mediators, such as bradykinin, prostaglandin, histamine, and chemical substances, until the completion of the healing processes (Carr & Goudas, 1999). Post-operative pain may induce both physiological and psychological consequences. Physiological consequences include avoiding any mobile activities that can induce more pain (Mokhuane & Queenie, 1997), such as deep breathing, turning the body from side to side and bodily movement (Voshar, Banierre, Hora, & Baldwin, 2006; Wang, Sand, Vario, Mullen, & Leung, 2007). Moreover, the physiological consequences can be measured by increases in blood pressure, respiratory rate and heart beat rate (Huang, Cunnhingham, & Laurito, 2001). Psychological consequences include depression, fear, impaired cognitive functions or emotional disturbance (Voshar et al., 2006). These psychological consequences also have physiological consequences such as decreased mobility and lack of sleep.

Basically, there are several ways that can be used to manage post-operative pain which includes preventing or minimizing the incidence of peripheral and central stimulation. Peripheral stimulation can be suppressed or minimized with local anesthesia and NSAIDs. Central stimulation can be suppressed or minimized by opioids (morphine, pethidine, fentanyl) or the combination of both NSAIDs and opioids (Lelo, Hidayat, & Ichwan, 2004; Rawal, 2007). However, there are several side effects of opioids, such as respiratory depression, nausea,

vomiting, constipation, addiction, and tolerance (Lelo et al., 2004; Rawal, 2007). In addition, pain medication may not effectively reduce the post-operative pain (Gatlin & Schulmeister, 2007).

Besides pharmacological therapies, there are also non-pharmacological therapy options available to control the pain. These methods can be combined with pharmacological methods and focused on better management and reduction of the pain (He, Ikki, Julkunen, & Pietela, 2006). Non-pharmacological pain reducing methods usually include very small risk (Stevensen, 1995). Even though the action is not a substitute for medication (Vallerand, Fouladbaksh, & Templin, 2003), it is needed to shorten the episode of pain. In this context, especially when pain occurs after having abdominal surgery, the combination of non-pharmacological and pharmacological techniques or methods is one of the most effective ways of eliminating the pain (Good, Anderson, Hicks, & Makii, 2002).

Non-pharmacological interventions are appropriate for the patient who needs to cope with a prolonged interval of post-operative pain. They need interventions for reducing pain that will help them to avoid or reduce the drug therapy needed for the pain they experience (Black & Jacob, 1997). Several studies have been done on non-pharmacological techniques used to overcome/minimize the pain. These include relaxation (Choorat, 2001), music (Good et al., 2002), transcutaneous electrical nerve stimulation (TENS) (Reeves, Graff, Radford, & Shipman, 2004), and meditation (Kakigi, Nakata, Hiroe, Inui, Nagata, & Honda, 2005). Skeletal muscle relaxation has been believed to be an effective method to minimize the pain by reducing the tension in the muscle which causes the pain. This is because the skeletal muscle is relatively small in post abdominal surgery, or there is need for the patient to follow relaxation techniques to make it effective (Good, Hicks, Anderson, Makii, & Geras, 2000).

One of non-pharmacological management methods is meditation. This focuses the attention of the patient and is easily practiced anywhere, and requires no special equipment. Meditation is one of the most important non-pharmacological practices that induce relaxation. This is because through meditation, relaxation can provide a response to integrated psychophysiological responses originating in the hypothalamus that lead to a generalized decrease in the arousal of the central nervous system.

Meditation has physiological, mental, and spiritual benefits for the patients suffering from pain (Lee, Ahn, Lee, Choi, & Yook, 2006). In addition, meditation is an effective practice for pain management (Berman as cited in Monk, 2003) and also eases the symptom of aching muscles or joints. This can reduce the use of drugs and tranquilizers (Monk, 2003). Meditation is an activity undertaken to enter the state of unconsciousness and can strengthen soul, body, and mind and thus can reduce the sensation of pain. This is because when someone meditates, some kind of change occurs in the brain area, so that the perception of pain can be minimized (Kakigi, Nakata, Hiroe, Inui, Hiroe, Nagata et al., 2005).

Zikr is one form of meditation. It is a paradoxical situation, where a person is resting while from inside he/she is awake. It is similar to the condition where one takes a nap without really falling asleep (Purwanto & Zulekha, 2007). Zikr meditation is done for few minutes, but it can give more relaxation and alert the feelings of the person meditating. It can give a chance to one's mind to explore its full range, either inwardly or outwardly.

In addition, it also can also give the power to hypnotize the heart and mind. This is because hypnosis is something that can influence the mind by giving the impression in someone's mind that calmness will come. Zikr has psychological and spiritual benefits. Psychologically, it gives a feeling of comfort and spiritually it gives the feeling of being closer to God (Khan, 2000). Through Zikr meditation one can develop mindfulness by cultivating attention to objects in a particular field of awareness, such as the breath flowing, sensations of the body, sounds, thoughts, perception, and impulses (Sallum, 2006). It is exactly opposite to the stress responses which can influence the sensation of pain. The responses occur through the repetition of words or certain short phrases. The gentle return to this repetition brings the thoughts that trigger a series of physiological changes, including slowed breathing, heart rates, and blood pressure (Anwar as cited in Purwanto, 2007).

In Indonesia, a study has been conducted on Zikr meditation related to insomnia. Purwanto and Zulekha (2007) found that there is a significant correlation between Zikr meditation and insomnia. The results of this study included daily notes showing that there was an improvement in the subject's sleep quality. This means that the subject experienced much better sleep during the training. The results of this study show that the proposed hypothesis has been supported as training by religious way reduces insomnia disorders. In other words, Zikr has a

relaxing effect on body systems. According to Zohar (2000), the practice of Zikr meditation causes the brainwaves to become calm and the person meditating will become more relaxed. He/she will be brought to an empty awareness of the mind. This will increase the coherent brainwaves to a frequency of 40 Hz. The change in the brainwaves during the Zikr meditation process will be shown by a condition of quietness. The breathing will be slower, the body relaxed and this gives a deep calmness. In this way Zikr meditation can reduce the pains occurred during post-abdominal surgery.

Zikr has been reported to cause the brainwaves to become calm or relax thus bringing physiological changes to the body, and also comfort to the individual. However, there have been no studies conducted on the effects of Zikr Meditation on post-operative pain suffered by Muslim patients after undergoing abdominal surgery. Therefore, this present study was proposed to explore the use of Zikr meditation among Muslim patients after undergoing abdominal surgery in Indonesia.

Objectives of the Study

1. To compare post-operative pain and physiological responses in Muslim patients undergoing abdominal surgery before and after practicing of Zikr meditation.
2. To compare post-operative pain in Muslim patients practicing Zikr meditation undergoing abdominal surgery and those who receive routine care.

Research Questions

The following research questions were asked in this study:

1. Is pain after undertaking Zikr meditation practices of patient undergoing abdominal surgery lower than before undertaking Zikr meditation?
2. Is pain after undertaking Zikr meditation practices of patient undergoing abdominal surgery lower than those who receive routine care?
3. Are physiological responses after undertaking Zikr meditation practices of patient undergoing abdominal surgery different from those who receive routine care?

Research Hypotheses

1. There will be a difference in the post-operational pain intensity of patients who had undergone abdominal surgery between an experimental group that practiced Zikr meditation and a control group.
2. There will be a difference in the physiological responses in patients who undergo abdominal surgery between an experimental group that practiced Zikr meditation and a control group.

Conceptual Framework

The conceptual framework of this study is based on the gate control theory proposed by Melzack and Wall (1968). This theory explains both physical and psychological aspects of pain. It deals with the nerve impulses which are released from each part of the body and modified at the spinal cord before being transmitted to the brain. This involves a spinal gating mechanism, a central system, a central biasing system, and an action system. These correlative systems work together rapidly when pain is felt.

The theory proposes that the experience of pain is modulated by an integrated reaction of emotion, a relaxed state, and a meditative state in the higher brain centers; they modulate a noxious input, attenuate the perception of pain, and stimulate action to relieve it. The activation of the higher brain centers can cause the gates of the spinal cord to close. Closing the gate prevents the pain input to reach the higher brain centers, and is interpreted as the total pain experience. A patient's reaction to pain after abdominal surgery includes the perception of pain intensity and physiological changes as a result of complex activation of nervous system.

During practicing meditation, it was found that the brain produced large quantities of the pleasure-causing neuro-chemicals such as endorphins (as measured by EEG brainwave biofeedback machines) which made people a whole experience pleasurable, reduced pain, alleviated stress and gave an overall feeling of well-being (Kakigi et al., 2005). In addition, the alpha rhythm of the brain waves was recorded during practicing meditation which led the patient to relaxation state.

In Zikr meditation, a patient continuously repeats the names of Allah Subhanna Wa'Taa'la (SWT) several times. The word of Allah has a healing power. Signals generated through pressure from the tongue's movement involve the word being said at the "magic spot" (magic spots are located in the hard palate on the back gums of upper incisors). The voice connects to heart and mind and the words are transmitted to the centers in the brain. The involvement of this particular magic spot during the recital relates to some of the most important words in Islam (Khan, 2005). These include: "God is the holiest"(Subhanallah); "All praise to God" (Alhamdulillah); "God is the greatest" (Allahuakbar); and "There is no God but Allah" (Lailaha-illallah). While practicing of Zikr meditation, patient feels calmness and peaceful because they feel close to the God which, in turn, lead them to relax state. Thus, the regions of the brain get engage and become active which distracts patient's thoughts from pain to something else. This causes activation of the descending pathways which close the gates and prevents the further incoming pain signals from reaching the dorsal horn of the transmitted spinal cord to the brain stems. These activities result in less pain messages getting to the brain, thus reduce the feel of pain.

In addition, the perception of pain intensity and physiological responses take place when pain impulses ascend from the spinal cord towards the brain stem and the hypothalamus. The autonomic nervous system is then stimulated as a part of the stress response. The stimulation of the sympathetic branch of the autonomic system results in increased respiratory rates, heart rates, and greater muscle relaxation. Once Zikr meditation practice is followed, the autonomic nervous system is stimulated less, and this in turn decreases physiological responses.

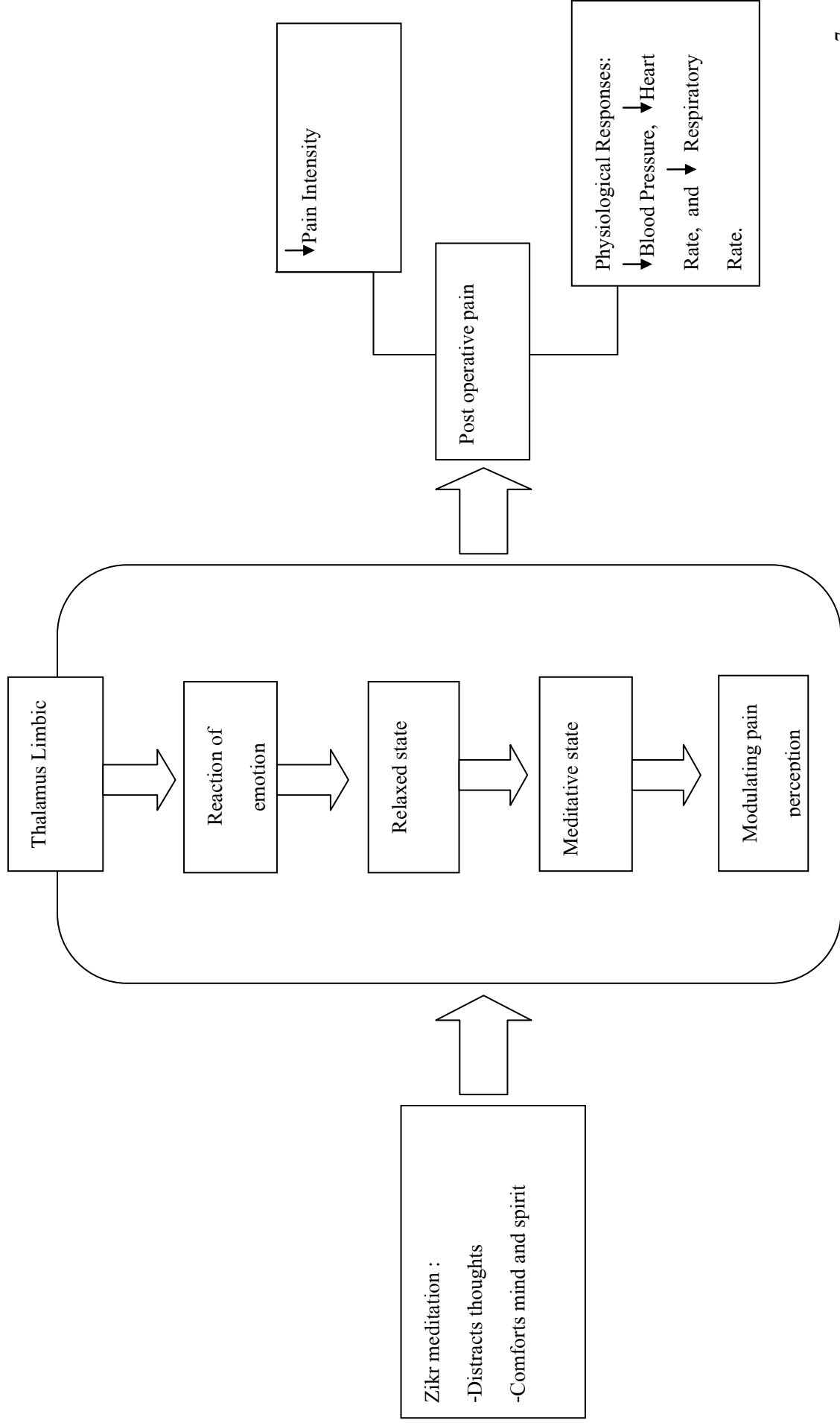


Figure 1. Study Framework Effect of Zikr Meditation on Post Operative Pain Among Muslim Patients Undergoing Abdominal Surgery

Definition of Terms

Zikr meditation is one of the Islamic ritual forms, and used to concentrate the mind in order to experience calm inner feelings. It is an activity performed by chanting the name of Allah SWT while counting a *tasbeih* (kind of rosary); A rosary is used in a religious exercise where a defined number of prayers are recited and a string of beads is used to keep the count. It is also pointing towards words such as: "God is the holiest" (Subhanallah); "All praise to God" (Alhamdulillah); "God is the greatest" (Allahuakbar); and "There is no God but Allah" (Lailaha-illallah). Each of these words is mentioned 33 times in 20-25 minutes and can be repeated as many times as needed.

Post-operative pains in this study comprises of pain intensity and physiological responses after the occurrences pain. Pain intensity is expressed by patients as an unpleasant sense of pain coming from the abdominal surgical wound as a result of the tissue damage caused by surgery. This pain intensity is measured by a numeric rating scale (NRS); scores ranged from 0 to 10, where "0" means "no pain" and "10" means "worst possible pain."

Physiological responses are the reactions of the body while facing crisis situation, such as suffering from surgical pain. Physiological responses are observed by measuring the heart rate, the respiratory rate, and blood pressure (BP). Digital blood pressure equipment is used to measure the BP and heart rate. Respiratory rate can be assessed by counting number of time of breathing per minute (pulse rate) using a stop watch.

Routine nursing care is a general post-operative care management provided by nurses in the surgical units. These include: care in response to individual need, wound care (dressing once a day); and care of the family. Pain medication is also provided as prescribed.

Scope of the Study

This study was conducted to assess the effects of Zikr meditation on the intensity of pain and the physiological responses of patients who had undergone abdominal surgery. These patients were admitted to the surgical department of the Adam Malik and Pirngadi Hospitals in Indonesia. Thirty subjects, who were in the departmental surgical wards, were divided into two groups, an experimental group, and a control group. The group session was held twice a day and each session took thirty minutes. The data for the study were collected from February to April 2009.

Significance of the Study

This study provides good empirical evidence and increases awareness among nurses and patients for the use of Zikr meditation as a complementary therapy to reduce post operative pain. In addition, the findings provide important suggestions for conducting further research on Zikr meditation, as no such studies have been conducted in Indonesia.

CHAPTER 2

LITERATURE REVIEW

The literature review for this study is concerned with the concept of pain, pain management, and the effect of Zikr meditation on the post-operative pain occurred in the patients that have undergone abdominal surgery. The outline of the literature review is as follows:

1. Concept of pain related to the patients that have undergone abdominal surgery.
 - 1.1. Definition of pain
 - 1.2. Abdominal surgical pain
 - 1.3. Gate control theory
 - 1.4 Pain mechanisms and pathways
2. Factors influencing post-operative pain
3. Assessment of pain
4. Management of post-operative pain
 - 4.1 Pharmacological management
 - 4.2 Non-pharmacological management
5. Meditation
 - 5.1 Concept of meditation
 - 5.2 Zikr meditation

Concept of pain related to the patients that have undergone abdominal surgery

Definition of pain

The experience of pain is the most common symptom in human life. It is experienced by everyone and must be evaluated carefully. Sternbach (1993, as cited in Black & Jacobs, 1997, p. 343), defined pain as “ an abstract concept which refers to the personal, private sensation of hurt, a harmful stimulus that signals current or impending tissue damage, and pattern of responses to protect the organism from harm.” McCaffery (1981, p. 7) defined pain as “whatever experiencing person says it is and existing whenever the person says it does.” This definition means that the client is the authority on pain; pain is highly subjective, and unique in nature.

From the above, it may be concluded that pain means a painful feeling that may be due to tissue damage from surgery. Pain is personal sensation that only individual person can define and feel. Thus, it can make a person suffer both physically and psychologically.

Abdominal surgical pain

Abdominal surgery means a surgical operation which cuts the passages in the abdominal tissue, muscles, and peritoneum for the treatment of abnormalities in abdominal organs or tissues. The abnormality may be a tumor or infection in the peritoneum area (peritonitis) in the abdominal organs. Abdominal surgery can cause acute pain derived from tissue injury and tissue damage during an operation (Raj, 2003). The tissue injury releases prostaglandin, bradykinin, histamine and other substances that stimulate free nerve endings which are pain receptors. The pain impulses are transmitted from the spinal cord to the brain for pain perception. Patients may suffer from pain at the time of operation and for several days during the post-operative period. This is because the tissue injury will continuously release chemical substance until the healing process has taken place in the surgical wound (Raj, 2003). An acute pain in the post-operative period can lead to chronic pain if the pain is not decreased for several days.

Gate control theory

The Gate Control Theory was developed by Ronald Melzack and Patrick Wall (1968). It is a theory which explains pain and covers the physical and psychological aspects of the pain. It also considers the nerve impulses which are conveyed from each part of the body and modified at the spinal cord before they are transmitted to the brain. This consists of the spinal gating mechanism, the central system, the central biasing system, and the action system. These correlative systems work together rapidly when pain occurs.

According to the theory, small diameter nerve fibers "C" carry the pain messages through the "gates". However, the larger diameter nerve fibers "A" going through the same gate can inhibit the transmission of the smaller nerves carrying the pain messages. The opening or closing of the gates also depends on the signals received from the higher brain centers via descending fibers. The higher brain centers are the reticular projections, thalamic and limbic projections, cortical projection, and the central control trigger.

The reticular projections transmit reticular formations and constitute the sensory discriminative system. The thalamic and limbic projections transmit emotional feelings and

constitute the motivational affective system. The cortical projection carries messages related to cognitive processes. After passing through the “gates”, the sensory messages reach the brain and are processed in the context of the individual’s state of attention and past experiences (Park, Fulton, & Senthuron, 2000).

The brain responds to this information and determines the extent of the pain experienced. The gate closes if the brain sends messages back via the descending fibers resulting in less pain messages to the brain. The gates open if the brain orders the gate to open wider, this result in higher pain messages and more intense pain experience (Urden, 2008).

Pain mechanism and pathways

Pain is an experience normally associated with damage or threat of damage to the tissues of the body. Its physiology involves two processes. The first is a peripheral process concerned with the detection and transmission of information concerning tissue damage. The second is a central process governing the cerebral response to this information.

The process of nociception describes the normal processing of pain and the responses to noxious stimuli that are damaging or potentially damaging to normal tissue. There are four basic processes involved in nociception. These are transduction, transmission, perception, and modulation (Urden, 2008).

Transduction

Transduction begins when the free nerve endings (nociceptors) of “C” fibers and “A” delta fibers of primary afferents responds to noxious stimuli. There are three categories of noxious stimuli: mechanical (pressure, swelling, abscess, incision, and tumor growth); thermal (burn, scald); and chemical (excitatory neurotransmitter, toxic substance, ischemia, and infection). The noxious stimulation causes a release of chemical mediators from the damaged cell such as prostaglandin, bradykinin, serotonin, substance *p*, potassium, and histamine. These chemical mediators actively sensitize the nociceptor to noxious stimuli.

In order for a pain impulse to be generated, an exchange of sodium and potassium ions (depolarization and repolarization) occurs at the cell’s membranes. This results in an action, which is the potential in generation of pain impulses. Nociceptors are exposed to noxious stimuli when tissue damage and inflammation occurs, for example through trauma, surgery, and inflammation (Black & Jacob, 1997). The nociceptors are distributed in the somatic structures

(skin, muscle, connective tissue, bones, and joints) and visceral structures (visceral organs such as liver, gastro intestinal tract). The “C” fiber and “A” delta fibers are associated with different qualities of pain.

Transmission

The transmission process occurs all along the nociceptor fibers to the dorsal horn in the spinal cord. The pain impulses are transmitted from the site of transduction along the nociceptor fibers to the dorsal horn in the spinal cord. The pain impulses are then transmitted from the spinal cord to the brain stem through connections between the thalamus, cortex, and higher levels of the brain. The “C” fiber and “A” delta fiber terminate in the dorsal horn of the spinal cord. There is a synaptic cleft between the terminal ends of the “C” fiber and “A” delta fiber and the nociceptive dorsal horn neurons.

In order for the pain impulses to be transmitted across the synaptic cleft to the nociceptive dorsal horn neurons, excitatory neurotransmitters are released. These bind to specific receptors in the nociceptive dorsal horn neuron. These neurotransmitters are adenosinetriphosphate, glutamate, calcitonin gene related peptide, bradykinin, nitrous oxide and substance P. The pain impulses are then transmitted from the spinal cord to the brain stem and thalamus via two main nociceptive ascending pathways. These are the spinothalamic pathway and the spinoparabrachial pathway. The brain does not have a discrete pain centre, so when impulses arrive in the thalamus they are directed to multiple areas in the brain where they are processed (Urden, 2008).

Perception

The perception of pain is the end result of the neuronal activity of pain transmission where pain becomes a conscious multidimensional experience. The multidimensional experience of pain has affective motivational and sensory, discriminative, emotional and behavioral components. When the painful stimuli are transmitted to the brain stem and thalamus, multiple cortical areas become active and responses are elicited. These areas are the reticular system, the somatosensory cortex and the limbic system (Urden, 2008).

The reticular system is responsible for autonomic and motor responses to pain which give warnings to the individual if something wrong occurs, such as when a source of heat is touched or the hand is automatically removed. It also has a role in the affective/motivational response to

pain, such as looking at and assessing the injury to the hand once it has been removed from the hot source.

The somatosensory cortex is involved with the perception and interpretation of sensation. It identifies the intensity, type and location of the pain sensation and relates the sensation to past experiences, memory and cognitive activities. It identifies the nature of the stimulus before it triggers a response; for example, where the pain occurs, how strong it is, and what it feels like.

The limbic system is the area responsible for the emotional and behavioral response to pain. This includes, for example, attention, mood, and motivation, and it also deals with processing past pain experiences (Wall & Melzack, 1999).

Modulation

The modulation of pain involves changing or inhibiting the transmission of pain impulses in the spinal cord. The multiple and complex pathways involved in the modulation are referred to as the descending modulatory pain pathways. These can lead to either an increase in the transmission of pain impulses (excitatory) or a decrease in transmission (inhibition). Descending inhibition involves the release of inhibitory neurotransmitters that block or partially block the transmission of pain impulses, and therefore produce analgesia. Inhibitory neurotransmitters involved with the modulation of pain include: endogenous opioids (enkephalins and endorphin), serotonin (5-HT), norepinephrine (noradrenaline), gamma aminobutyric acid (GABA), neurotensin, acetylcholine, and endoxytocin.

Endogenous pain modulation helps to explain the wide variations in the perception of pain in different people as the individuals produce different amounts of inhibitory neurotransmitter. Endogenous opioids are found throughout the central nervous system (CNS) and prevent the release of some excitatory neurotransmitters, such as substance *p*, therefore inhibiting the transmission of pain impulses (Wall & Melzack, 1999).

Factors influencing post-operative pain

Psychological Factors

Interaction between pain and various psychological factors, such as fear, anxiety and past pain experience may have an influence in post-operative pain management. However, traditional theories of pain that focus on nociceptive input do not adequately account for the observed range of responses to pain. Moreover, there has been considerable research on emotional factors, as well as behavioral and cognitive factors in the etiology and maintenance of acute and chronic pain. Thibault (2008) proposed that the factors in post-operative pain can influence the activities of a patient such as movement. Movement of the body is important since it can bring about easier blood circulation in the body and can accelerate the healing process.

Fear causes avoiding of mobility in post-operative situations and affects the wound healing processes. However, anxiety is associated with more diffuse reaction patterns, and responses such as worry that require less visceral organization and activity. The interactions between fear and anxiety in relation to pain are of primary concern as psychological factors. Pain related to fear is an important element and a variable to be considered in an individual's pain experience.

The gate control theory suggests that the perception of pain is modified by the central nervous system (CNS). Negative emotional states, like fear, can serve as a catalyst causing greater difficulty in the experience of pain. A parallel processing theory of pain distress incorporates gate control theory, and adds separate pathways, for example emotional states, that contribute to the experience of pain. Cousins and Power's (2003) perceptual defensive recuperative theory postulates that fear and pain are competing motivational systems that can inhibit the expression of one system to other systems in the body.

Anxiety has been defined as the amount of emotional tension, apprehension, nervousness, and worry experienced by post-operative patients (Black & Jacobs, 1997). Anxiety relates to feelings of fear, dread, worry, and concern among the post-operative patients. Pain and anxiety are related as pain can cause anxiety. Anxious patients had significantly higher pain scores than less anxious patients and changes in anxiety were significantly related to changes in pain.

Pre-operative anxiety and depression can predict post-operative pain experiences that can make a patient enter hospital with feelings of anxiety and depression and continue to feel the same after surgery (Carr, 1997). Anxiety and depression were predictive of all outcome variables with surgical patients: pain, mood, and analgesic requirements (Taezner *et al.*, 2003). Depression also influenced pain on the third post-operative day in a sample of adolescent patients (Gillies & Jones, 1999).

Past pain experience

Pain is a personal experience and unique to each individual. Each person's experience of pain is different. It is important to remember that, given the same set of circumstances, the pain felt will differ from person to person. Although people may be diagnosed with the same disease or condition, any associated pain will differ from person to person. Each individual has a different ability to tolerate pain and uses different approaches to cope up with the pain. Individuals will respond in their own way to treatment offered for pain relief (Park, Fulton, & Senthuron, 2000).

Pain after post-surgery is human experience that can be felt directly after several experiences of surgery. In post-operative pain, etiology from incision surgery can make a patient suffer and feel the flowing of pain. This situation can be the cause of experiencing greater emotional disturbance and self impairment, and feeling more concern about their surgical status (Black & Jacobs, 1997).

Age

There are few items related to age that influences pain, such as age differences in pain attribution, differences in pain language, and differences in the qualities but not in the intensity of pain. All these items can contribute to post-surgery pain.

Auburn (2007) found that the pain in elderly patients can be complex because it is related to pharmacodynamic and pharmacokinetic factors. Pharmacodynamic interactions may occur with synergistic effects when taking more than one sedative, or anticholinergic agents. These may result in delirium, deep sedation, urinary retention, or constipation.

Gender

Gender may govern reports of pain and distress in different ways and may be in line with interdisciplinary pain management that can indicate different results for the intensity of pain. Women reported more pain in more bodily areas with greater frequency and for longer duration

as compared with men (Robinson & Tamres, 2002 as cited in Keogh, 2005; McCracken & Eccleston, 2004).

Logan and Rose (2004) studied a sample of 100 patients. A multivariate linear regression was used in this study to determine gender differences in coping up with anticipated emotional distress. The results indicated that girls and boys differed on their lowest daily pain ratings and average daily pain ratings, with girls reporting more pain in both cases. Gender was found to moderate the relationship between the anticipatory distress and post-operative pain. Greater and higher anticipatory distress about post-operative pain before surgery was predicted for girls, but not for boys.

Culture

Pain is an individual experience and is influenced by cultural heritage. Pain may be expressed behaviorally and verbally, and differently in different cultures according to the personality and individual situation. Suza (2003) found that the Javanese and Batakese patients in Indonesia responded to pain differently.

Javanese patients tried to ignore pain and just kept silent, showing stoicism, and tried to divert the pain through religious activities. On the other hand, Batakese patients responded to pain by yelling, crying, or getting angry in order to get attention from others, thus showing expressiveness. Tan *et al.*, (2008) studied the ethnicity groups of Chinese, Malay, and Asian Indians. They found that ethnicity influences the perception of pain and consequent self administration of morphine. Ethnic groups differ in self reports on pain level, and the amount of analgesic self administered has implication for the optimal management of acute post-operative pain (Tan *et al.*, 2008). Black and Jacob (1997) stated that a young girl in a stoic culture may be allowed to cry because of pain, but boys may have more constraints on their behavior than girls.

In conclusion, there are factors which influence patients' pain intensity such as psychology, age, gender, culture, and experiences of past pain. Some patients, depending on these factors, may feel severe or mild pain after surgery. If patients have good coping strategies with pain, they will feel mild or less pain after surgery.

Assessment of pain

Pain is a subjective psychological state and can be assessed through a patient's verbal or non-verbal reports. Assessment and documentation of pain scores in a systematic and consistent manner is an important mechanism for promoting the identification of unrelieved pain at the individual patient care level. The availability of pain scores will provide an important index for monitoring improvement in pain management (Wall & Melzack, 1999).

Assessment of the acute post abdominal surgery pain is important. This is because it can give nurses an idea about what kind of pain management will be required, such as non-pharmacological treatment for the relief of the pain. If nurses can assess the pain correctly they can make an effective nursing intervention. The nurse can categorize this assessment into three categories: (1) self report; (2) behavioral and observational; and (3) physiological measures.

Self report

There are several self reporting tools used to measure an acute and chronic pain. Some of the measures are a single aspect of the pain assessment, for example the assessment of pain intensity. Others are more comprehensive or multi-dimensional tools that takes into account the effect of pain on quality of life through changes in sleep, appetite, and mood (Black & Jacob, 1997). Self-report measures of pain intensity may not be appropriate for patients who have problems in communicating verbally (such as patients in comas, or using an ETT tube).

In these cases, the clinicians should rely on behavioral observations (for example, facial grimacing, clenched teeth, or distorted expressions) and physiological indices (for example, increases in respiratory rates, or significant increases in heart rates or blood pressure).

A Numeric Rating Scale is a common self report tool used to quantify pain intensity. It is a scale ranging from 0-5 or 0-10. A Numeric Rating Scale (NRS) is a line marked with numbers from 0–10 at equal intervals, where 0 is 'no pain' and 10 is 'worst pain possible'. Pain is measured using an eleven point numerical scale scoring 0 (no pain) through 10 (worst possible pain). One question can be asked to patients to indicate their current pain intensity, whereas the other requested information is concerning their usual intensity of pain over the past week. These items were derived from those found on a number of standard pain measures and are valid reliable methods of measuring pain intensity (Ware, Epps, Herr, & Packard, 2006).

Behavioral observation measures

This is a multi-dimensional tool or a check list that guides the health care professionals/nurses in examining the patient's behavior in response to their pain. The check list was developed for pain measurement in children, but can also be used for adult patients, depending on the post-operative conditions that relate to the activity of the patient. This measurement can be used after surgery or when experiencing a sharp, acute pain during a procedure. Behavior examples may cover faces, legs, activities, cries and consolability. These measures rely on behavioral indicators to assess pain scores and scores are produced for interpretation (Wall & Melzack, 1999).

This tool was chosen over others because its structure makes it easy to use in the clinical setting. Nurses assigned pain scores independently using the modified, individualized FLACC (face, legs, activity, cry, and consolability) tools for half of the segments, and NAPI (Nursing Assessment of Pain Intensity) for the other half. In order to confirm its content validity for measuring behavioral observation several physicians and advanced practice nurses assessed it. These were experts in pain assessment and treatment. Most dealt with the assessment of children with cognitive impairment in their daily clinical duties and/or work in the pediatric services (Willis *et al.*, 2003).

Physiological Measures

The assessment of physiological influence is an important part of the initial evaluation of the pain in patients. It is necessary for the effective management of post-operative pain. The assessment of blood pressure is a common clinical examination and is an important measure of health.

Changes in physiological states may be an indication for the need of initial or additional analgesia and for adverse effects from systemic or neuraxial analgesia. Acute pain can join with neurohumoral responses that can lead to significant increases in the heart beat rate, blood pressure, and the respiratory rate. The increasing of blood pressure, heart beat, and respiratory rates may be a sign of overmedication, such as too many sedatives or opioids (Mace *et al.*, 2006). This can be assessed by frequent assessment in nursing care. Frequent assessments of physiological measures are necessary which include: patterns of blood pressure, such as hypertension or hypotension; patterns of heart rates, such as bradycardia or tachycardia; and

patterns of respiratory rates, such as rate, depth, and regularity of breathing. Overall, changes in physiological states may be the first sign of a complications directly related to post-operative (Black & Jacob, 1997)

In summary, there are numerous instruments available for assessing and measuring the pain intensity after surgery. All of the assessments can be predictive of the intensity of pain in patients during post-surgery period that can help the nurses to manage the pain.

Management of post-operative pain

There are two types of pain management - pharmacological and non-pharmacological management.

Pharmacological management

The pharmacological management of post-operative pain is fairly broad. Pharmacological management of post-operative pain involves relieving pain, shortening the hospital stay, and reducing stress (Nielsen *et al.*, 2007; Heim & Oci, 1993 as cited in Berry & Dahl, 2002). Pharmacological management is clustered into three categories: non-opioids, opioids, and anesthetic agents (Gutierrez, 1999).

Non-opioids

The non-opioids analgesics mostly used are the non steroidal anti-inflammatory drugs. They do not demonstrate tolerance and are often more effective at controlling certain pain conditions with fewer side effects than the opioids (Gutierrez, 1999). The non-opioids consist of NSAIDs and acetaminophen. NSAID encompasses action mechanisms, side effects or adverse effects, and management of side effects.

The mechanism action of NSAIDs is the inhibition of the enzyme cyclooxygenase, which catalyzes arachidonic acid to prostaglandins and leukotrienes. In addition, the leukotrienes are involved in affecting pain transmission; leukotriene B₄ produces thermal hyperalgesia in humans. The cyclooxygenase system produces prostaglandins, which can sensitize nociceptor to respond to normally non-noxious stimuli by altering the sodium channel permeability. Prostacyclin (PGI₂), prostaglandin (PGE₁), and prostaglandin (PGE₂) are most likely to be used for inflammatory pain through the promotion of the response of nociceptors to other inflammatory mediators. This mechanism is different for each patient (Clayton & Stock, 2004).

The side effects of NSAIDs are impaired gastrointestinal effects and states of confusion. Gastrointestinal bleeding can be observed from the development of dark tarry stools, bright red or “coffee ground” emesis. Hepatotoxicity can be observed from the symptoms which may be anorexia, nausea, jaundice, hepatomegaly and abnormal liver functions. Confusion is usually assessed from the patient’s alertness and orientation in terms of name, place and time.

The management of the side effects of NSAIDs involves the use of preventive measures. This is especially so true in populations at high risk such as elderly patients. It may require giving titrate doses slowly, considering switching to other NSAIDs and adding another drug that counteracts the effects.

Continuing Acetaminophen is the active ingredient in tylenol and many other over-the-counter and prescription painkillers and fever reducers. Acetaminophen is so widely used and many wrongly believe it to be completely harmless. Acetaminophen inhibits the synthesis of prostaglandins in the central nervous system thus increasing the pain threshold by inhibiting both of isoform of cyclooxygenase, COX -1 and COX -2. These enzymes are involved in prostaglandin (PG) synthesis but acetaminophen does not inhibit cyclooxygenase in peripheral tissues thus there is no peripheral anti-inflammatory effects. In addition, acetaminophen produces antipyretics from the inhibition of the hypothalamic heat regulating center (Clayton & Stock, 2004).

Acetaminophen becomes a toxin when taken in large doses or if, over the long term, large amounts are ingested or under other specific conditions. Condition like these may enhance hepatotoxicity. Overdose due to acute and chronic ingestion has risen dramatically. The following conditions show side effects and allergic reactions which include: swelling, difficulty in breathing, closing of the throat, abdominal pain, nausea, unusual bleeding or bruising, and even death (Clayton & Stock, 2004).

Overdoses of acetaminophen can be effectively managed by focusing on basic principles in pharmacological management. As in all cases of poisoning, nurses should obtain a careful history of the case, and be highly suspicious. When acetaminophen overdose is a possibility, a plasma acetaminophen level should be obtained and antidotal therapy should be initiated. When acetylcysteine, the antidote, is administered following the recommendations, morbidity is significantly reduced and mortality virtually eliminated. The prognosis for patients with

acetaminophen overdose is excellent, provided treatment is given expeditiously and appropriately (Gutierrez, 2005).

Opioids

Opioids are morphine-like substances and contain two alkaloid types. These are the penantherene series (from which morphine and codeine are derived) and the benzyloquinoline series (from which papaverin, a completely non-analgesic drug is derived). Opioids have a mechanism for action in the body. Opioids can produce its effects in many areas, such as in the spinal cord. In the peripheral nervous system, the actions of opioids, in both the mesenteric plexus and sub-mucous plexus in the wall of the gut are responsible for the powerful constipating effect of opioids. In peripheral tissues, such as joints, opioids act to reduce inflammation (Clayton & Stock, 2004).

Practically all drugs have side effects that are they cause effects other than those that are desired. Some side effects are common, but trivial; others are more serious and can even be life threatening. As is the case with opioids, they are often related to drug dosage or more correctly to the concentration of opioids in the circulation. Opioids often cause constipation, nausea, and vomiting, and affect the breathing. Some individuals seem to be more susceptible to nausea than others particularly after surgery. In labor, women often feel better once they have 'brought it up'. If it remains a nuisance, however, nausea usually responds to an antiemetic drug, given as a simple intramuscular or intravenous injection (Gutierrez, 2005).

The management of side effects includes the initial choice of the analgesic. This must be based on the pain mechanism, such as nociceptive, visceral, myofascial or neuropathic. Doses can be given to the maximum for non-opioids, if the side effects permit. Opioids should be considered after all other reasonable attempts at analgesia have failed. Drugs should be administered orally whenever possible. Intramuscular injections should be avoided and analgesics administered "around the clock" rather than in the day. Pain, pain relief, and side effects should be assessed frequently and the dose adjusted accordingly. If the side effects are unmanageable, another drug should be administered (Gutierrez, 2005).

Anesthetic agents

Anesthetic agents include three types of anesthesia: regional and local anesthesia, sedation, and general anesthesia. Regional and local anesthesia allows patients to be awake during a surgical procedure. Sedation is for patients who do not need to be anesthetized completely during a procedure. Surgery requires immobility, and most patients prefer amnesia for the surgical experience. Other clinically useful effects of general anesthetic agents include unconsciousness, analgesia, suppression of autonomic reflexes (for example, the increases in blood pressure and heart rate that can occur during surgery) and muscle relaxation (Clayton & Stock, 2004).

In summary, pharmacological medication has three categories: non-opioids, opioids, and anesthetic agents. All medication management is used to relieve pain during an operation and must be allocated in accordance with the condition of the patients. Every pharmacological treatment has many side effects that can influence patient during and after surgery. Therefore, there is need for management to manage the side effects.

Non-pharmacological management

Besides pharmacological medications, there are also non-pharmacological options to control the post-operative pain. This method utilizes ways to alter thoughts and focus concentration for better management and thus reduces the pain. Many non-pharmacological therapies reduce the perception and reception of pain (Stevensen, 1995). This is especially applicable when there is severe pain that lasts for hours or days, where combination of non-pharmacological technique with medication may be the most effective way to relieve pain (Gatlin, 2007). There are many methods used in non-pharmacological therapies such as: coetaneous stimulation and massage (Pongcharoen, 2001); ice and heat therapies (Walter, 2003); TENS (Reeves *et al.*, 2004); relaxation techniques (Choorat, 2001); guided imagery and hypnosis (Smeltzer & Bare, 2004); and relaxation (Good, 2002).

Relaxation is one of the methods to decrease pain which has many variations including: relaxation with music intervention (Good, 2002), relaxation with jaw relaxation, music and combinations of these (Good *et al.*, 1999). Several studies found that the intervention for post-surgery only reduces the effective component of pain at rest (Mogan *et al.*, 1985). Relaxation can decrease blood pressure, heart rate, and respiratory rate (Good *et al.*, 1999). Ikedo *et al.* (2007)

studied the effects of praying and relaxation techniques during general anesthesia on the recovery outcomes of cardiac surgery. This study compared relaxation and praying and found positive relationship between the two. The study found significant findings in that the experimental group was less likely to believe that praying would assist conventional medical treatments (n = 78).

Meditation

This section explains the concept of meditation, Zikr meditation, and the outcomes of Zikr meditation.

Concept of Meditation

This section of concept meditation includes the concept of meditation, the definition of meditation, and the procedure of meditation. Craven (1989) states that the definition of meditation is something which involve five components in the body including relaxation, concentration, altered states of consciousness, logic relaxation, and self observation attitudes. Another author defines meditation as a practice of concentrated focus upon a sound, object, visualization, the breath, movement, or attention itself. This is done in order to increase awareness of the present moment, reduce stress, promote relaxation, and enhance personal and spiritual growth (Fontaine, 2000).

General procedure of meditation

Each soul is potentially divine. Meditation helps to acquire purity of mind to manifest this divinity within. Realization of our true divine nature is the goal of human birth. The term meditation is used in relation to controlling and disciplining the mind by yoga practices. Before meditation comes concentration, and after it is the final transcendental state of Samadhi.

Other injunctions that are to be followed are: a) to lead an ethical and simple life; b) to undertake some breathing exercises and c) to withdraw sense organs from their objects. The states of concentration, meditation, and Samadhi are the source of all knowledge and bliss. Knowledge in every field of activity has been initially revealed (Fontaine, 2000).

Guided Meditation

The following are general guidelines for meditation. The procedure and effort is harmless, but requires honesty, sincerity, sustenance, and prolonged practice over many months and years for any results to become visible. The procedures are as follows:

- The first step is the rhythmic breathing. Breathe in slowly, easily, evenly, and deeply. Within three minutes we should be able to breathe in and out for about ten minutes.

- Second step is the detached observation. In this step, as an observer, we must watch the movements of the mind. We must detach ourselves from the mind, and observe the mind without any judgment and criticism.

- The third step is the serenity, the step of peace. In this step, we can imagine ourselves as a rock in the midst of an ocean. Waves arise; the rock is unaffected, calm, tranquil, peaceful and serene.

- Fourth step. This is the step where we realize our oneness with all that is all creatures, all things, and all conditions. We are not apart from others. The others and you are parts of the one great whole. This type of meditation will fill our heart with love, kindness and a spirit of compassion, so that a stage may come when we will not snuff out the life even of the smallest insect.

- Gradually think and imagine that the light is spreading all around and occupying the inside of the thoracic cavity. It is filling the chest inside. Continue to see this effulgence spreading to the abdominal c, reaching towards thighs, legs, and feet.

- Think of a similar spreading to the shoulders, arms, hands, head, neck, and face.

- Now your whole is filled with radiant blissful light.

- Next, imagine this effulgence spreading outside the body

- Continue as long as you can. Initially the mind will rebel. Various unthinkable thoughts will crowd your mind.

- Continue to sit in a relaxed frame of mind for five to ten minutes before you finish your meditation (Vaswani, 2008).

Meditation is one of the proven alternative therapies. It can be broadly classified under mind/body medicine. Cardoso (2004) proposed that meditation or contemplation involves focusing the mind upon a sound, phrase, prayer, object, visualized image, the breath, ritualized

movements or consciousness. This is done in order to increase awareness of the present moment, promote relaxation, reduce stress, and enhance personal or spiritual growth. Meditation is grouped into basic approaches such as concentrative meditation and mindfulness meditation.

Concentrative meditation focuses the attention on the breath, an image, or a sound (mantra), in order to still the mind and allow a greater awareness and clarity to emerge. This is like a zoom lens in a camera by which we narrow our focus to a selected field. Mindfulness meditation involves opening the attention to become aware of the continuously passing parade of sensations and feelings, images, thoughts, sound, smells and so forth without becoming involved in thinking about God. There are various types of meditation such as prayer, transcendental meditation (TM), and mindfulness meditation. The types of Eastern meditation are Zen, Buddhist, Taoist, and Islamic meditation such as Zikr meditation.

Meditation is one of the non-pharmacological strategies that can improve physical health, reduce pain, enhance immune responses, improve emotional well-being, and foster spiritual growth (Ikedo *et al.*, 2007). Meditation is an exercise, which usually involves training the individual to focus the attention or consciousness on one object, sound or word (Cardoso *et al.*, 2004). It has five basic components such as relaxation, concentration, altered state of consciousness, logic relaxation, and attitude to self observation (Craven, 1989). A study by Danucalov, Simoes, Kozasa, & Leite (2008) found that Kundalini yoga meditation can change during yoga session. The result of this study found that heart rate was reduced in six beats per minute on average when compared with rest or even pranayama. But the blood pressure did not show significant differences. Another study conducted by using Buddhist meditation techniques designed for patients with burns (Setakasiron, 1998). The results showed that the experimental group experienced significantly reduced pain, anxiety, respiration, systolic blood pressure, and skin temperature after practising the meditation ($P < 0.05$). However, the diastolic blood pressure and pulse did not change.

Meditation can reduce arousal states and may ameliorate anxiety symptoms in various anxiety conditions. Meditation has the benefit for the patients experiencing fewer symptoms of aching muscles or joints as well as in using drugs or tranquilizers (Monk, 2003). In Japan, intracerebral pain processes during meditation have been studied. In this study Kakigi *et al.*, (2005) found that those who practiced meditation could not feel pain in the body during

treatment. They argued that meditation will affect activity in the thalamus, mainly in the insula, and cingulate cortex. Meditation will influence the condition of brain in perceiving the existing pain.

Maclean (1996) found that the meditation can influence the hormone levels in response to stress. In this experiment, Maclean studied the Transcendental Meditation (TM) technique as a possible means of counteracting the effects of stress. They reported altered levels of several hormones, both during the practice and longitudinally, after regular practice in this technique. In this prospective, random assignment study, changes in baseline levels and acute responses to laboratory stressors were examined for four hormones including cortisol, growth hormone, thyroid-stimulating hormone, and testosterone. This was done before and after four months of either the TM technique or education to control a stress condition. The results showed significantly different changes for the two groups or trends toward significance, for each hormone. In the TM group, basal cortisol level and average cortisol across the stress session decreased from pre- to post-test. Overall, the cortisol and testosterone results appear to support previous data suggesting that repeated practice of the TM technique reverses the effect of chronic stress and is significant for health.

Through the use of Transcendental Meditation, it was found that meditation training induced a decreased activation of painful stimuli in the anterior cingulate, prefrontal cortex, thalamus, and whole brain (Orme-Johnson et al., 2006). The meditative state may therefore induce brain activity with increased baseline activation of frontal attention circuits, wherein these circuits also are less responsive to unexpected attention-demanding stimuli. Thus, as a state effect the frontal attention network may be directed inward and become less reactive to external stimuli. However, long-term meditation practice may be related to trait effects reflecting the purposeful engagement of attention that preserves neural sources of attention and interceptive processing (Pagnoni, & Cekic, 2007).

Zikr Meditation

Zikr meditation is usually followed as an Islamic prayer that can be practiced at any time. It is a process that concentrates on thoughts of Allah (SWT) continuously, uninterrupted and consciously. This is done with a totality either cognitively or emotionally to the ruler of the universe, so that altered states of consciousness and transcendence can be achieved. Zikr

meditation is actually a form of transcendental meditation. In the transcendental meditation technique, there is a possible counteracting of the effect of stress, which can change the hormone levels (Maclean, 1996).

In Zikr meditation, it is better to utter the words with deep meaning, such as Ya Allah and Subhannallah. These will bring the Zikr practitioner to the transcendental world. Concentration of the mind in Zikr meditation can be followed by feelings of tranquility and an increase in extra sensory perception. Zikr means remembrance of the Allah Subhanna Wa Taa'la (SWT) from within the heart and is a rare gift from Allah SWT and His creation. Zikr meditation has strength and brings physical and spiritual benefits. The physical benefits include aspects such as purifying the heart from all negative attitudes and emotions; gaining freedom from worldly stress, anxiety, despair, and depression; and becoming highly focused and ambitious. In addition this increases spiritual strength and vitality, breathes the spirit of life into the heart, and the individual becomes one of those who are genuinely alive. One becomes able to live a colorful life embodied with awe, respect peace, and tranquility (Tim Zahra, 2006).

During Zikr meditation, consciousness of the object of meditation is directed to Allah (SWT). Thus, this transcendental meditation is mostly used as a way to bring ourselves closer to Allah (SWT) or transcendently united with Allah (Subandi, 2002 as cited Purwanto, 2007). Among Muslims, belief of God (Allah) can help them if something happen wrong in their life such as having problem or sick. In Muslim culture, particularly in Indonesia, all Muslim people practice Zikr meditation as a routine in their daily lives. They practice Zikr meditation everywhere even though they are in the hospital or home or they are sick or healthy. They believe that they would touch the Allah which, in turn, could help them to strengthen their soul, body, and mind. Once Zikr meditation practice is performed, the autonomic nervous system is stimulated less, and this in turn decreases physiological responses.

Previous studies have found the positive outcomes of practicing Zikr meditation among surgical patients and psychological disturbance. Mardiyono *et al.* (2007) found that Zikr therapy "Subhannallah" for 25 minutes can decrease of anxiety in major surgery pre-operative patients. The study found that there were insignificant differences between the control and experimental group (n = 70) in blood pressure, temperature, respiration, and pulse. Purwanto and Zulekha (2007) found that religious relaxation has a significant correlation with insomnia. The results of

this study, based on the daily diaries of subjects (n=24), show that religious relaxation can decrease insomniac disorders. The daily diary records enhanced quality of sleep during religious training for relaxation in the experimental group.

In conclusion, pain is subjective. Thus, health care professional should believe whatever people tell and feel about their pain. To effectively manage post-operative pain, pharmacological and non-pharmacological methods should be used in a combination to help the people to reduce pain. The non-pharmacological methods used for the management of post-operative pain include ice and heat therapies, TENS, relaxation, guided imagery and hypnosis, and meditation. Particularly, some kinds of meditations, Transcendental meditation, Kundalini yoga meditation, and Buddhist meditation have been reported in effectively reducing post-operative pain and some variables of physiological changes. Zikr meditation is one kind of meditation that has been reported in strengthening and bringing physical and spiritual benefits which lead body to clam down, decrease anxiety, and enhance the quality of sleep. However, no research has been conducted on the effect of Zikr meditation in reducing post-operative pain and physiological change. Since Zikr meditation is a religious meditation and has been reported in helping Muslim people to lead the state of calmness and peacefulness. It is very interesting to study the effect of Zikr meditation in reducing post-operative pain and physiological change. The result of this study will add more knowledge to the effectiveness of practicing Zikr meditation among the patients suffering from post-operative pain.

CHAPTER 3

RESEARCH METHODOLOGY

A quasi experimental design was used to examine the effect of Zikr meditation on the post-operative pain and physiological responses among the Muslim patients undergoing abdominal surgery. In this chapter, the methodology followed is discussed, including design, population and samples, research instruments, data collection procedures, the protection of human right and statistical design applied.

Research Design

Two groups, pre- and post-test experimental design were used to examine the effect of Zikr meditation on the post-operative pain and physiological responses among the Muslim patients who have undergone abdominal surgery.

Setting

This study was conducted at two surgical wards in the Adam Malik Hospital and Pirngadi Hospital, Medan, Indonesia. There are many tertiary and secondary hospitals in Indonesia, but only these two hospitals were selected as the research setting for this study for the following reasons. The Adam Malik Hospital is a government hospital, and is the referral hospital in Medan. It is also a teaching hospital for medical and nursing students. Almost all surgical procedures in Medan are conducted in this hospital, including heart surgery, orthopedic surgery, and abdominal surgery. There are three surgical wards: 1) the Gynecological ward; 2) the General surgical wards; and 3) the surgical wards. Pirngadi Hospital is also a government hospital and has five surgical wards and also has one intermediate care ward.

Both hospitals have the same policy of admission and providing nursing care for the patient undergoing the surgery. Patients are admitted to the hospital one or two day before surgery. They are taught to practice deep breathing, coughing, and ambulation before surgery. In addition, both hospitals provide wound dressing twice a day after surgery. Also, both hospitals allow patients to discharge home early after surgery, in case the patient has no complication.

Population and Sample

The target population in this study was the patients undergoing abdominal surgery admitted to the department of surgery wards of the Adam Malik and Pirngadi hospitals. Fifteen subjects, 10 for the experimental group and 5 for the control, were selected from the Adam Malik Hospital. Fifteen subjects were also selected from the Pirngadi Hospital, 5 for the experimental group and 10 for the control. This study was conducted from February to April 2009.

Sample size

The study of Setakasiron (1998) was used as a reference for the calculation of sample size. The effective sample size was calculated on the basis of the mean and standard deviation taken from this study that examined the effectiveness of using Buddhist meditation techniques with 20 patients with burn injury on pain intensity. The mean of pain intensity of the experimental group ($M=36.2$, $SD = 15.5$) was significantly lower than that of the control group ($M=38.6$, $SD= 23$). The sample size calculated for pain intensity from this previous study was 0.12. The sample size was estimated at the alpha of .05 and power of .80. The estimated sample size was large for each group (Lipsey, 1990). However, the researcher was unable to access the estimated number of subjects from both hospitals because of time limitation. Therefore, the total sample size in this study was taken as 30 subjects who were divided into two groups with 15 subjects in the experimental and 15 subjects in the control group. The sample size did not give high statistical power to the study. However, the sample of 15 was considered large enough to get a significant result (Green, 2000).

Sampling Technique

Purposive sampling was used to determine the subjects who were qualified for participating in this study. The following inclusion criteria were used to recruit the subjects:

1. They were scheduled for abdominal surgery, such as laparotomy and hysterectomy.
2. Their age was over or equal to 18 years old.
3. They were fully conscious, well oriented, and able to communicate verbally
4. They had no complications during the period of research study which includes infection, respiratory distress, or failure. The indicator of respiratory infection was fever higher than 38.5°C within 48 hours after surgery. The indicators of respiratory distress or failure were a respiratory rate greater than 30/ minute or showing difficulty in breathing, such as retraction or needing a ventilator.

In order to assign the subjects into experimental or control groups, an age and gender paired matching technique was used. The following three age groups (18-30 years, 31-45 years, 46-60 years), and gender (female and male) was used to distribute the subjects among the experimental and control groups. To avoid contamination between the control and experimental groups, the first 15 subjects were assigned to the experimental group. Then, the following 15 subjects were assigned to the control group by age and gender using the paired matching technique.

Instrumentation

The instruments used in this study were set out in two parts as follows:

1. Instrument for data collection
 - 1.1. Demographic Data and Medical Information Form: The demographic data form included the information about age, sex, occupation, education, marital status, days in hospital, and medical payments (Appendix B). The medical information form included the information of diagnosis, type of operation, type of anesthesia, site of surgical pain, and pain medication used.

1.2. Pain Intensity Collection Form: The pain intensity was accessed by the Numeric Rating Scale (NRS) which ranged from 0 to 10. Where 0 indicates “no pain” and 10 indicates “worst possible pain.” (Appendix C). The researcher asked patient to rate pain intensity with NRS and then recorded it in the pain intensity collection form.

1.3. Physiological Data Collection Form: The physiological data collection forms included the details about blood pressure, heart rate, and respiratory rate (Appendix D). The blood pressure and heart rates were measured by using the digital blood pressure. The respiratory rate was measured by the researcher with a stop watch.

2. Experimental instrument

The Zikr meditation practice guidelines: The Zikr meditation practice guidelines were developed by the researcher based on the Holy Al-Qur’an guidelines for Muslims. It consisted of the meaning of Zikr meditation, the benefits of Zikr meditation, and guidelines for practicing Zikr meditation for the subjects undergoing abdominal surgery (Appendix D). The practice of Zikr meditation was started by undertaking deep breath for 5 minutes for relaxation, then remembrance of Allah for 25 minutes in accordance with the practice of Zikr meditation. The whole practice session lasted 30 minutes.

Validity

The content of Zikr meditation guidelines were evaluated by two experts in Zikr meditation from Indonesia, who were teachers of Islamic religion (Ustadz/Imam for the Islamic religion). Both had experience in Zikr meditation practice. After that, the content of the guidelines for Zikr meditation practice was revised based on the experts’ comments.

A pilot study was then conducted with 3 subjects in the Medan Hospital in order to test the suitability of the explanations in the guidelines. The results from the pilot study showed that the 3 subjects could read and understand the process of Zikr meditation practices. The time they spent in practicing Zikr meditation lasted 30 minutes for each period.

The subjects could also understand and use the NRS Pain Rating Scale. The subjects rated the intensity of pain from 7 to 6 after surgery on day 1 and 6 to 5 on day 2.

Reliability

The NRS have been reported to be reliable for measuring pain intensity. Ware, Epps, Herr, & Packard (2006) used NRS in pain in the older minority adults and the test-retest reliability coefficient was .87 and it was easy to score and record. In the present study, the researcher did not test the reliability of the NRS pain instrument, but the researcher asked 3 post-operative patients to rate their pain by using NRS. It was found that they could understand and rate their pain correctly.

Translation of Instrument

The Zikr meditation practice guidelines were developed in an English version. In order to use them with Indonesian people, the English versions of the instruments were translated into Indonesian versions using the back translation technique. The back translation technique, in this study, was performed as follows:

The researcher translated the English version of the guidelines into an Indonesian version.

1. One bilingual English- Indonesian translator checked and corrected the first draft of the Indonesian version.

2. Another bilingual Indonesian –English translator converted the translation of the first draft of Indonesian version back into the English version.

3. Linguistic discrepancies were identified in the original English version and also in the English version translated back from the Indonesian version. Modifications were made to the Indonesian version as required in order to establish the same meaning to the original within acceptable limits.

Data Collection

The data collection consisted of 2 phases: The preparation phase and intervention phase.

Preparation Phase

1. Data collection was started after the thesis proposal was approved by the Ethical Committee of the Faculty of Nursing, Prince of Songkla University. Permission was also obtained from the Directors of Adam Malik Hospital and Pirngadi Hospital, Medan, Indonesia for collecting the data.

2. The researcher informed the head nurses and staff nurses about the purposes of the research study, the protocol for data collection, and the frame work of the study.

3. A pilot study was conducted on 3 patients undergoing abdominal surgery. The purpose was to establish that the NRS pain assessment tool and the translation of the Zikr meditation practice guidelines were well understood by the patients, and that the proposed study was feasible. The results from the pilot study showed that the three subjects in the pilot study could understand the tools mentioned above. It was also established that the process of conducting Zikr meditation practice was feasible in the surgical units in both the hospitals.

They were willing to accept and practice the Zikr meditation with full concentration. The total time required to complete all of the practices was 30 minutes, including 5 minutes of deep breathing. The subjects were first asked to point with a ballpoint pen on the line in the NRS, and then the following measures of physiological response (systolic, diastolic, heart rate, and respiratory rate) were recorded. This was done by digital blood pressure and the counting of the respiratory rate with a stop watch. The timings of the measurements were before the practice and then 30 and 60 minutes after the practice. The pain intensity was only assessed before and after the practice. All the sessions on day one were conducted for 6-8 hours after surgery and on day two for 24 - 30 hours after surgery.

Intervention phase

The experimental group:

1. On the day of admission (1 day before surgery), potential subjects who met the inclusion criteria were approached for participating in the study. The researcher built up trust and a good relationship with the subjects. The researcher then explained to the subject the objectives, the procedures for conducting the study, the protection of human rights, and the outcomes of the study. When the subjects agreed to participate in this study, the researcher gave them a consent form for signing, and they filled the demographic data form.

2. When subjects were ready, the researcher made the environment around the beds to be quiet, and separate it from other beds. Each subject's bed was placed at the back part of the ward and a curtain was used to separate their bed from other patients' beds. The researcher then demonstrated how to practice Zikr Meditation to the patients. She started by taking deep breath for 5 minutes. This was followed by remembering Allah Subhanna Wa Taa'la (SWT) by saying: "Subhannallah" (God is the holiest) 33 times; "Alhamdullillah" (All praise to God) 33 times; "Allahu-akbar" (God is the greatest of all) 33 times; and "Lailaha-illallah" (There is no God but Allah) 33 times while counting on the tasbih (a kind of rosary). The practice of Zikr Meditation took around 30 minutes. Therefore, one round of Zikr meditation practice lasted for 30 minutes.

The researcher then asked subjects to return to the demonstration for one more round in order to make sure that the subjects could practice it correctly. At the end of meeting, the researcher gave a handbook of guidelines for Zikr meditation to the subjects so that, they can read and practice it themselves at any time during the post operative period.

3. On Day 1 (6-8 hours after surgery) the subjects were measured for the pain scores, BP, HR, and RR. These data were used as a baseline to compare later changes in physiological and pain scores. The BP cuff was constantly tied on the patients' hands until the end of Day 1 intervention.

The subjects were then asked to practice Zikr Meditation for one cycle (lasting 30 minutes). After finishing the Zikr meditation, subjects were asked to rate their pain score by using the Numeric Rating Scale. The BP, HR, and RR were then measured immediately after finishing the practice of Zikr Meditation and measured subsequently after 30 and 60 minutes.

4. On Day 2 (24-30 hours after surgery) the subjects were asked to rate their pain score by using the Numeric Rating Scale (NRS) and then their BP, HR, and RR were again measured. These data was used as a baseline to compare physiological changes, and pain score before the practice of Zikr meditation on Day 2. The BP cuff was continued to be tied on the patients' hand until the end of Day 2 intervention.

Then, subjects were asked to practice Zikr Meditation for one more cycle (lasting 30 minutes). After finishing the Zikr meditation, the subjects were asked to rate their pain score by using the Numeric Rating Scale (NRS).The BP, HR, and RR were then measured immediately after finishing the practice of Zikr Meditation, and then after 30 and 60 minutes.

The Control Group

The subjects in the control group received routine care similar to the experimental group except that they were not provided with the procedure for Zikr Meditation practice or the handbook and guidelines. Routine nursing cares included pain medication around the clock and wound dressing. The process of collecting data is shown in Figure 2.

Protection of Human Rights

The research proposal was submitted and approved by Ethical Committee of the Faculty of Nursing, Prince of Songkla University. Permission for data collection was obtained from the directors of Adam Malik and Pirngadi Hospitals, Medan, Indonesia. The objectives and procedures of the study were explained to the nursing staff and others personnel at both the hospitals to ask for their collaboration.

After being enrolled and assigned to the experimental and the control groups, the subjects were informed about the objectives and procedures of the study. In the experimental group, time was spent, and activities were discussed individually, to ensure the full understanding of the subjects. The subjects were assured about the confidentiality of the result. The data would be kept and then destroyed upon completion of the study. The data was treated anonymously. For the control group, the subjects were informed that they could practice Zikr meditation after finishing the data collection, if they were prepared to practice the same as that of experimental group. In addition, the subjects were informed that there was no physical risk involved by participating in this study. They were free to refuse to participate at any time during in the study. In addition, they were informed that there would be no charges for participation and neither would they receive any payment.

Data Analysis

At the beginning of the data analysis, the assumptions of normality and homogeneity of variance for inferential parametric statistics variables were checked before performing the appropriate statistical analysis. If those assumptions were not met, non-parametric statistics analog in place of parametric statistics were used.

Frequency, percentage, mean, and standard deviation were used to describe the subjects' demographic data and the pain medication. A Chi - square test was used to compare the equivalence of the demographic data of the subjects in the experimental and control groups.

In addition, the Fisher exact test and the Monte Carlo technique were used as alternative statistics to undertake analysis of two-by-two contingency tables when expected frequencies were too small.

In this study, the first analyzed statistic used was a parametric test for pain intensity, and the second analyzed statistic used is a non-parametric test used for physiological response. Normality of the assumption was made for a parametric test, but the researcher did not find assumptions for parametric tests, such as normal distribution and homogeneous variance. Therefore, the researcher changed the analysis of the statistics from parametric to non-parametric analysis.

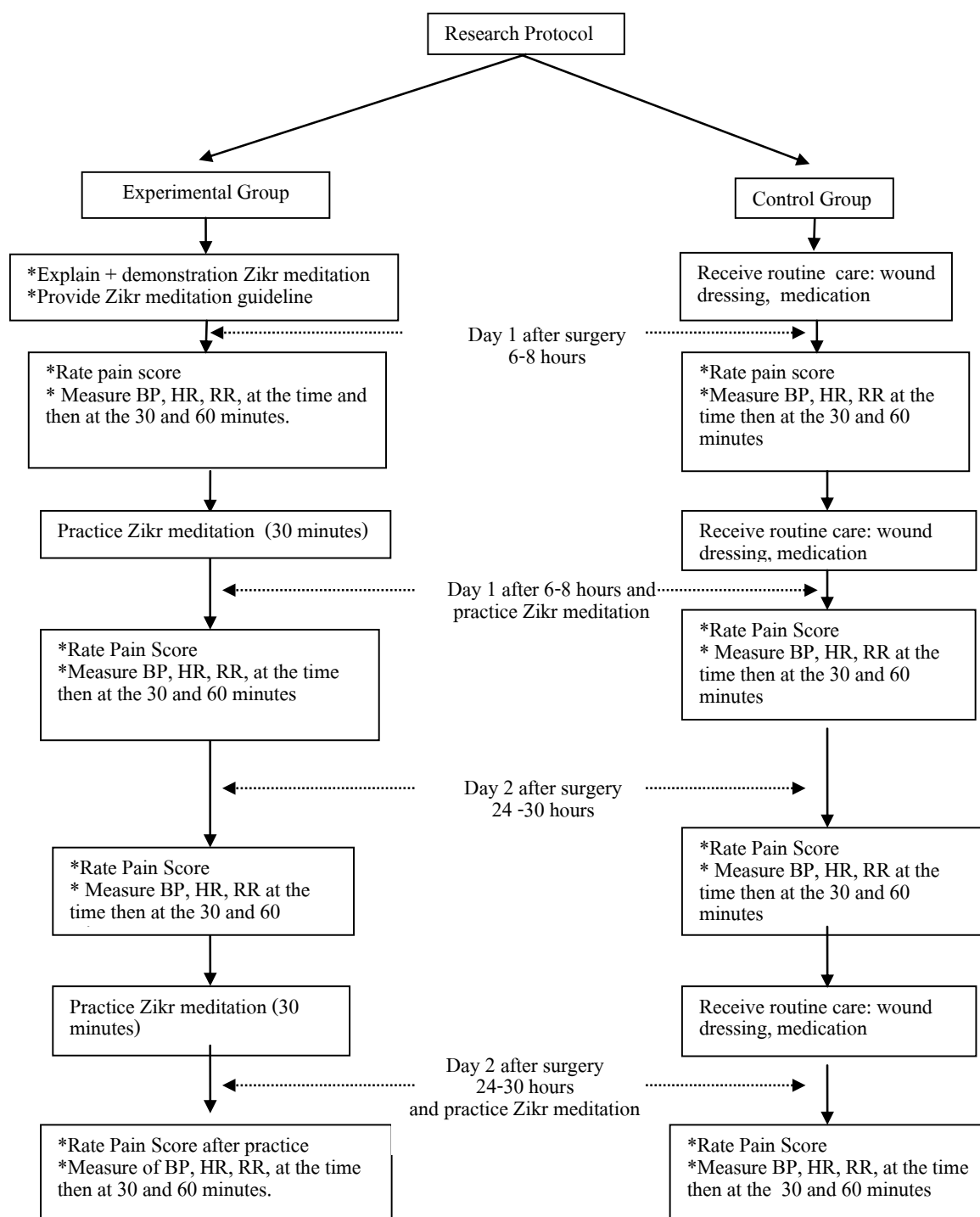


Figure 2. Research protocol

CHAPTER 4

RESULTS AND DISCUSSION

The aims of this study were to evaluate the effect of Zikr meditation on post-operative pain management among the Muslim patients who underwent abdominal surgery. This chapter presents and discusses the research findings of the present study. The results were based on 30 subjects undergoing abdominal surgery in two surgical wards in the Adam Malik Hospital and Pirngadi Hospital, Medan, Indonesia. The results are presented in three parts as follows: the demographic characteristics and medical related data, pain intensity between and within the groups, and physiological responses (systolic, diastolic, heart rate, and respiratory rate) between the two groups.

Results

Demographic Characteristic and Medical Related Data

Data related to demographic characteristics and medical history of the subject is shown in Table 1. The results showed that the majority of the subjects were male (53.3%). The mean age of the subjects in the experimental group was 36.13 years (SD = 8.26), and in the control group, it was 36.80 years (SD= 12.19). Most of the subjects in both groups have education level of junior to high school (66.7% in the experimental group and 93.3% in the control group). More than the halves of the subjects in both the groups were married (60% in the experimental group and 66.7% in the control group). Most of the subjects in both the groups worked in non-government organizations. There were no statistically significant differences in the demographic characteristics between the experimental and control group (Table 1).

The subjects in both groups were scheduled for the major surgery. Most of the subjects in both the groups had intestinal problems and this was followed by cancer problems. Most of the subjects in both the groups were undergoing general anesthesia before the surgery and were admitted to the hospital 1-2 day before surgery. The subjects in both groups asked for pain medication generally within the first 8 hours after surgery. There was no statistical significant difference in the relevant clinical characteristic between experimental and control groups (Table 1).

Table 1

Frequency and percentage of demographic and relevant clinical characteristics (N=30)

Characteristics	Experimental Group (n=15)		Control Group (n=15)		Total		χ^2	P value
	N	%	N	%	N	%		
Sex							.00 ^a	1.00
Male	8	53.3	8	53.3	16	53.3		
Female	7	46.7	7	46.7	14	46.7		
Education level							3.67 ^b	.16
Elementary school	3	20	1	6.7	4	13.3		
Junior to high school	10	66.7	14	93.3	24	80		
University	2	13.3	0	0	2	6.7		
Marital status							2.52 ^c	.34
Single	2	13.3	4	26.7	6	20		
Married	9	60.0	10	66.7	19	63.3		
Separate	4	26.7	1	6.7	5	16.7		
Occupation							2.15 ^c	.14
Government	2	13.3	0	0	2	6.7		
Non government	13	86.7	15	100	28	93.3		
Days in hospital before surgery							1.03 ^c	0.31
1 – 2 days	15	100	14	93.3	29	96.7		
2 -3 days	0	0	1	6.7	1	3.3		
Type of anesthesia							2.15 ^c	0.14
General anesthesia	15	100	13	86.7	28	93.3		
Others anesthesia	0	0	2	13.3	2	6.7		
Duration of medication used (ketorolac)							0.37 ^c	1.00
Every 8 hours	14	93.3	13	86.7	27	90.0		
Every 12 hours	1	6.7	2	13.3	3	10.0		

Table 1 (continued)

Characteristic	Experimental Group		Control Group		Total		χ^2	P value
	(n=15)		(n=15)					
	N	%	N	%	N	%		
Diagnosis							1.24 ^c	.68
Oncology Problem	5	33.3	5	33.3	10	33.3		
Intestinal Problem	7	46.7	9	60.0	16	53.3		
Others (blunt injury, appendicitis)	3	20.0	1	6.7	4	13.3		
Site of surgical pain							0.38 ^c	1.00
Upper quadrant	3	20.0	3	20.0	6	20.0		
Middle	10	66.7	11	73.3	21	70.0		
Lower quadrant	2	13.3	1	6.7	3	10.0		
Type of operation							0.83 ^c	0.65
Major operation	13	86.7	11	73.3	24	80.0		
Minor operation	2	13.3	4	26.7	6	20.0		

Note: a = Chi Square, b = Monte Carlo, c = Fisher's exact test

Pain Intensity

Pain intensity of the experimental and control groups

The data related to pain intensity (mean and SD) before and after Zikr meditation in the experimental and control groups is presented in Table 2.

Pain intensity on day 1 (6-8 hours after surgery): The mean pain intensity before Zikr meditation in the experimental group was 6.07 (SD = .80) and 6.73 (SD = .70) in the control group. The mean pain intensity after Zikr meditation in the experimental group was 5.40 (SD = 1.06) and 6.73 (SD = .70) in the control group (Table 2).

Pain intensity on day 2 (24-30 hours after surgery): The mean pain intensity before Zikr meditation in the experimental group was 5.13 (SD = .83) and 5.93 (SD = .70) in the control group. The mean pain intensity after Zikr meditation in the experimental group was 4.40 (SD = 1.06) and 5.93 (SD = .70) in the control group (Table 2).

Table 2

Mean and standard deviation of pain intensity before and after Zikr meditation in the experimental and control groups

Variables	Experimental (n=15)		Control (n=15)	
	M	SD	M	SD
Pain 6-8 hours after surgery (Day 1)				
Before	6.07	0.80	6.73	.70
After	5.40	1.06	6.73	.70
Pain 24 -30 hours after surgery (Day 2)				
Before	5.13	0.83	5.93	.70
After	4.40	1.06	5.93	.70

Comparison of relative change of pain intensity between the experimental and control groups

Relative change of pain intensity on day 1 (6-8 hours after surgery): The pain intensity before and after Zikr meditation was compared by subtracting the level of pain after Zikr meditation from the level of pain before meditation.

In the experimental group, it was found that the relative change of pain was 0.67 (SD = .49). In the control group, it was .00 (SD = .00). The statistics, using the Independent t-test, showed that there was a significant difference in the relative change of pain intensity between the groups ($t_{14} = 5.29, p < .01$) (Table 3).

Relative change of pain intensity on day 2 (24-30 hours after surgery): A similar comparison was made on Day 2. It was found that the relative change of pain in the experimental and control group was 0.73 (SD = .59) and 0.00 (SD = .00) respectively. The Independent t-test showed that there was a significant difference in the relative change of pain intensity between the groups ($t_{14} = 4.79, p < .01$) (Table 3).

Table 3

Comparison of relative change of pain intensity before and after Zikr meditation between the experimental and control groups as tested by Independent t-test (N= 30)

Mean difference	Experimental		Control		t
	D	SD	D	SD	
6- 8 hours after surgery (Day 1)	.67	.49	.00	.00	5.29 **
24-30 hours after surgery (Day 2)	.73	.59	.00	.00	4.79**

** $p < .01$, $df = 14$

Pain intensity in the experimental group

The data related with pain intensity (Mean and SD) before and after Zikr meditation in experimental group shown by hours after surgery and tested by Paired t-test is presented in Table 4.

Pain intensity on day 1 (6-8 hours after surgery): The mean pain intensity before and after Zikr meditation in the experimental group was 6.07 (SD = .80) and 5.40 (SD = 1.06) respectively. A statistical analysis of Paired t-test showed that there was a significant difference in the pain intensity before and after Zikr meditation in the experimental group ($t_{14} = 5.29$, $p < .01$) (Table 4).

Pain intensity on day 2 (24-30 hours after surgery): The mean pain intensity before and after Zikr meditation in the experimental group was 5.13 (SD = .83) and 4.40 (SD = 1.06) respectively. A statistical analysis of Paired t-test showed that there was a significant difference in the pain intensity before and after Zikr meditation in the experimental group ($t_{14} = 4.79$, $p < .01$) (Table 4).

Table 4

Mean and standard deviation of pain intensity before and after Zikr meditation in experimental group shown by hours after surgery and tested by Paired t-test

Variable	Before (n =15)		After (n = 15)		Paired t-test
	M	SD	M	SD	
Pain 6-8 hours after surgery	6.07	.80	5.40	1.06	5.29**
Pain 24-30 hours after surgery	5.13	.83	4.40	1.06	4.79**

** $p < .01$, $df = 14$

Physiological responses

Physiological responses in the experimental and control groups

Physiological response on day 1 (6-8 hours after surgery): The physiological responses which were measured before and after Zikr meditation includes systolic and diastolic blood pressure, respiration, and heart rate. These were measured before, at the time, and after 30 and 60 minutes of meditation. There was no significant difference in the physiological responses after 6-8 hours of surgery. The results for the experimental and control group are shown in Tables 5, 6, 7, and 8.

Table 5

The mean rank of the systolic blood pressure before, at the time, and after 30 and 60 minutes of meditation on day 1 (6-8 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Blood Pressure	Experimental Group	Control Group	Z	P value
Systolic	(n=15)	(n=15)		
Before	14.37	16.63	-0.71	.48
At the time	14.37	16.63	-0.71	.48
30 minutes	13.77	17.23	-1.08	.28
60 minutes	12.90	18.10	-1.63	.11

Table 6

The mean rank of the diastolic blood pressure before, at the time, and after 30 and 60 minutes of meditation on day 1 (6-8 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Blood Pressure	Experimental Group	Control Group	Z	P value
Diastolic	(n=15)	(n=15)		
Before	17.13	13.87	-1.03	.30
At the time	17.13	13.87	-1.03	.30
30 minutes	17.13	13.87	-1.03	.30
60 minutes	17.17	13.83	-1.04	.30

Table 7

The mean rank of the heart rate before, at the time, and after 30 and 60 minutes of meditation on day 1 (6-8 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Heart rate	Experimental Group (n=15)	Control Group (n=15)	Z	P value
Before	18.13	12.87	-1.646	.10
At the time	18.13	12.87	-1.646	.10
30 minutes	18.10	12.90	-1.626	.10
60 minutes	18.13	12.87	-1.643	.10

Table 8

The mean rank of the respiratory rate before, at the time, and after 30 and 60 minutes of meditation on day 1 (6-8 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Respiratory rate	Experimental Group (n=15)	Control Group (n=15)	Z	P value
Before	15.93	15.07	-0.276	0.78
At the time	16.03	14.97	-0.339	0.73
30 minutes	15.93	15.07	-0.276	0.78
60 minutes	17.17	13.83	-1.059	0.29

Physiological responses on day 2 (24-30 hours after surgery): The physiological responses which were measured before and after Zikr meditation includes systolic and diastolic blood pressure, respiration, and heart rate. These were measured before, at the time, and after 30 and 60 minutes of meditation. There was no significant difference in the physiological responses 24-30 hours after surgery. The results for the experimental and control group are shown in Tables 9, 10, 11, and 12.

Table 9

The mean rank of the systolic blood pressure before, at the time, and after 30 and 60 minutes of meditation on day 2(24-30 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Blood pressure	Experimental Group	Control Group	Z	P value
Systolic	(n = 15)	(n = 15)		
Before	14.27	16.73	-0.770	.44
At the time	14.27	16.73	-0.770	.44
30 minutes	14.27	16.73	-0.770	.44
60 minutes	14.10	16.90	-0.873	.38

Table 10

The mean rank of the diastolic blood pressure before, at the time, and after 30 and 60 minutes of meditation on day 2 (24-30 hours after surgery) of the experimental and control group as tested by Mann- Whitney U test (N=30)

Blood pressure	Experimental Group	Control Group	Z	P value
Diastolic	(n=15)	(n=15)		
Before	16.37	14.63	-0.545	.58
At the time	16.20	14.80	-0.442	.66
30 minutes	16.20	14.80	-0.442	.66
60 minutes	15.37	15.63	-0.083	.93

Table 11

The mean rank of the heart rate before, at the time, and after 30 and 60 minutes of meditation on day 2 (24-30 hours after surgery) of the experimental and control group as tested by Mann-Whitney U test (N=30)

Heart rate	Experimental Group (n=15)	Control Group (n=15)	Z	P value
Before	17.80	13.20	-1.44	.15
At the time	17.80	13.20	-1.44	.15
30 minutes	17.80	13.20	-1.44	.15
60 minutes	17.10	13.90	-0.997	.32

Table 12

The mean rank of the respiratory rate before, at the time, and after 30 and 60 minutes of meditation on day 2 (24-30 hours after surgery) of the experimental and control group as tested by Mann-Whitney U test (N=30)

Respiratory rate	Experimental Group (n=15)	Control Group (n=15)	Z	P value
Before	17.17	13.83	-1.059	.29
At the time	17.17	13.83	-1.059	.29
30 minutes	17.17	13.83	-1.059	.29
60 minutes	14.00	17.00	-0.971	.33

Discussion

The discussion focuses on the three parts that are based on the objectives and hypotheses of this study. The first part is about characteristic of the subjects. The second part deals with hypothesis of hypothesis testing of pain intensity between and within the experimental groups. The third part considers the physiological responses (systolic, diastolic, heart rate, and respiratory rate) between the two groups.

Characteristics of the Subjects

The demographic characteristics of the subjects following the Zikr meditation practice are summarized in Table 1. All subjects were Muslim and were considered by the matching pair technique. These were grouped into three age groups (18-30 years, 31-45 years, 46-60 years), and by gender into two groups (female and male). Through the matching technique, the researcher can assess the different scores for intensity of pain matched by age and sex. The majority of the subjects in both groups were married, having junior to high school education level, and were non-government employees. However, all of them received health insurance from the government. Almost all of the subjects in this study reported that sometimes they practiced Zikr meditation after *salaat* (prayer in Islam), and followed by Zikr meditation for 10-15 minutes. Some subjects practiced with a *tasbeih* (a kind of rosary) and others liked counting their fingers. However, practice of Zikr meditation in this study was different from the daily practice of Zikr meditation in general. The practice of Zikr meditation in this study was started with deep breathing (5 minutes) and then continued with Zikr meditation by saying the specific words for 25 minutes; thus, all session took about for 30 minutes.

Most of the subjects received general anesthesia and the medicine which could affect their capacity for practicing Zikr meditation. However, all subjects were able to follow and remember the procedure of Zikr meditation. All the subjects received pain medication around the clock; however, 90% of the subjects in both groups received it after every 8 hours. The findings of the study showed that 96.7% of subjects stayed in hospital for 1-2 days before their surgery. This made it easier to demonstrate Zikr meditation practice before the conduction of operations and they were able to remember all procedures through out this study.

Hypothesis testing

Hypothesis I: Pain after undertaking Zikr meditation practices in patient undergoing abdominal surgery were lower than before undertaking Zikr meditation.

Pain intensity within experimental group: Subjects following Zikr meditation practice had showed statistical significant difference in the levels of pain intensity before and after Zikr meditation on day 1 (6-8 hours after surgery) and before and after Zikr meditation on day 2 (24-30 hours after surgery) (Table 4). However, the level of pain in the control group also decreased from day 1 to day 2 after surgery. Pain intensity decreased similarly from day 1 to day 2 in both

the experimental and control groups. The results were similar to the previous studies (Fongkaeo, 2002; Tyler *et al.*, 1993). This may be due to the fact that the pain pattern was worst on post-operative day 1, and then the pain decreased continuously on the following days because the abdominal muscles started recovering (Fongkaeo, 2002; Tyler *et al.*, 1993). Also all the patients in this study were Muslims and they practiced Zikr meditation on the routine basis in their daily lives. Therefore, Zikr meditation proved to strengthen the soul, body, and mind which in turn helped the subjects in control group to reduce the sensation of pain in the first and second day after surgery. However, pain intensity in experimental group was significantly lower than control group because the experimental group practiced the program of Zikr meditation for 25-30 minutes longer than the control group.

Hypothesis II: There was a difference in the post-operational pain intensity of patients who had undergone abdominal surgery among the experimental group that practiced Zikr meditation and a control group.

Pain intensity of control and experimental groups: The findings of this study supported this hypothesis. The subjects following the Zikr meditation practice had lower mean different in pain scores than those who did not practice Zikr meditation. The subjects following the practice of Zikr meditation showed significant difference of pain intensity at day 1 (6-8 hours after surgery) and at day 2 (24-30 hours after surgery) (Table 3). Zikr meditation could also play a role in the central nervous system. According to the gate control theory, the activation of the higher brain centers can cause the gates of the spinal cord to close. This modulates and prevents the pain input to the higher brain centers to be interpreted as pain experience (Melzack & Wall, 1999). Zikr may work as a distraction whereby the regions of the brain get engaged and become active and this distracts patients' thoughts from pain to the remembrance of the God Almighty (Kakigi *et al.*, 2005). In addition, patients feel comfortable and calm because they feel close to God which makes them more relaxed. This stimulation of the higher brain centers is modulated by Zikr and causes activation of the descending pathways. This closes the gates and prevents further incoming pain signals from the dorsal horn of the transmitted spinal cord to the brain stems resulting in less pain messages to the brain. Therefore, patients following the practice of Zikr meditation guideline had lower pain intensity than patients in the control group. Thus, this study further supports that the Zikr meditation can reduce surgical pain which is consistent with the findings of the study of other

meditations, such as transcendental meditation (MacLean, 1997) and Buddhist meditation (Setakasikorn, 1998).

Hypothesis III: There was a difference in the physiological responses in patients who undergo abdominal surgery among the experimental group that practiced Zikr meditation and a control group.

Overall, results of this study showed that there was no significant difference between the two groups in the physiological responses on day 1 and day 2. These responses included the systolic and diastolic blood pressure, heart rate, and respiratory rate. They were measured either before Zikr meditation, at the time of, and after 30 and 60 minutes after the practice of Zikr meditation (Tables 5, 6, 7, 8, 9, 10, 11, and 12). Thus, the findings of this study did not support the third hypothesis.

These physiological responses in this study were not similar to those found in the previous studies. The previous studies reported that practicing meditation decreased the heart rate (Danucalov *et al.*, 2008; Arambula., 2001; Anwar, 1997 as cited in Purwanto, 2007), the respiratory rate (Arambula., 2001; Anwar, 1997 as cited in Purwanto, 2007), and blood pressure (Yucel, 2007; Anwar, 1997 as cited in Purwanto, 2007). They also reported that when the people had stress or serious situation, such as surgery, the high level of stress or high level of pain intensity triggered cortisol hormone which, in turn, stimulated the physiological responses in the body (Khalsa as cited in Phleps, 2007). The physiological responses including blood pressure, respiratory rate, and heart rate would increase. However, in people practicing meditation, the cortisol hormone was cleared up from the blood stream which, in turn, did not increase the physiological responses (Khalsa as cited in Phleps, 2007; Danucalov, 2008). Physiological responses decreased after practicing Zikr meditation. In this study, the researcher found that the physiological responses were not at all changed, neither increasing nor decreasing. One reason might be that all subjects in this study were Muslims and they practiced Zikr meditation on the routine basis in their daily lives. In this study, all subjects reported that they practiced Zikr meditation on the routine basis during their stay in the hospitals. Subjects in experimental group practiced Zikr meditation following the guideline, whereas subjects in control group practiced Zikr meditation following their routine. Therefore, Zikr meditation will strengthen soul, body, and mind of all the subjects which, in turn, helped them in controlling the pain intensity and stress

level, and clearing cortisol hormone from the blood (Khalsa as cited in Phleps, 2007; Danucalov, 2008). Thus, the physiological responses were controlled and might not change, neither increasing nor decreasing, before or after surgery. Similar findings were reported by Mardiyono *et al.* (2007), who found that using Zikr meditation “Subhannallah” for 25 minutes could decrease the anxiety in patients during pre-operative to major surgery which, in turn did not show any significant difference in blood pressure, temperature, respiratory rate and pulse rates between the control and experimental group (n = 70). They summarized that practicing Zikr meditation would help subjects to control their stress which, in turn, decreased the physiological responses before surgery.

In summary, the pre-operative teaching of the process of Zikr meditation could help the subjects in decreasing their pain intensity more significantly than subjects in the control group who were only practicing Zikr meditation as a routine in their daily life. Zikr meditation also helped subjects in controlling their pain intensity and stress levels which did not lead to change in the physiological responses after surgery. Therefore, the pre-operative teaching of the process of Zikr meditation should be taught to all subjects who are undergoing abdominal surgery in order to help them to reduce the sensation of pain and to control the sensation of stress.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

This quasi experimental research was designed to examine the effects of Zikr meditation on Muslim patients undergone abdominal surgery. This study was conducted at Adam Malik and Pirngadi hospitals, Medan, Indonesia during February – April, 2009. Thirty subjects were selected for this study: 15 for the experimental and 15 for the control group. A paired matching technique (age and sex) was used to divide the subjects in the experimental and control groups. Three age groups were identified (18-30 years, 31-45 years, 46-60 years); and two gender groups (female and male) was identified.

The experimental group was asked to practice Zikr meditation practice for 30 minutes for 2 days as follows: Day 1 (6-8 hours after surgery); and day 2 (24-30 hours after surgery). The practice of Zikr meditation was started by undertaking deep breathing for 5 minutes for relaxation, followed by the remembrance of Allah for 25 minutes as per the practice of Zikr meditation. Also, the Zikr meditation practice guideline was provided for experimental group in order for them to learn and practice any time they wanted after surgery. The instruments used for data collection consisted of demographic data and medical information, pain intensity collection form, and physiological data collection form. A Numeric Rating Scale (NRS) was used to measure pain intensity, and blood pressure was measured by using an OMRON- SEM 1 digital automatic blood pressure monitor.

Frequency, percentage, mean, and standard deviation were used to describe the subjects' demographic data and the pain medication used. A Chi - square test was used to compare the equivalence of the demographic data of the subjects in the experimental and control groups. In addition, the Fisher exact test and the Monte Carlo technique were used as an alternative statistical tools to undertake analysis of two-by-two contingency tables when expected frequencies were too small.

Overall, the subjects following the guideline of Zikr meditation practice had lower mean difference in pain scores than did those in control group. The subjects following the practice of Zikr meditation showed statistical significant difference in pain intensity at day 1 (6-8 hours after surgery) and at day 2 (24-30 hours after surgery) (Table 3).

However, the result of this study showed that there was no statistically significant difference between the two groups in the physiological responses on day 1 and day 2. These responses included the systolic and diastolic blood pressure, heart rate, and respiratory rate. They were measured either before Zikr meditation, at the time of Zikr meditation, and 30 and 60 minutes after the practice of Zikr meditation (Tables 5, 6, 7, 8, 9, 10, 11, and 12). Thus, the findings of this study did not support the third hypothesis.

Strengths and Limitations

There was no difference in the demographic data in the control and experimental groups. Particularly, all subjects used pain medication around the clock. Also, all subjects were Muslim, thus it was very easy to ask the subjects in the experimental group to practice Zikr meditation for 30 minutes by following the guidelines. They were quick to perform and concentrate on their tasks which, in turn, lead to the state of relaxation with ease.

Despite these strengths, this study had several limitations. Firstly, some subjects in experimental group were in pain from their surgery and could not concentrate deeply when practicing Zikr meditation. Thus, they could not concentrate on practicing Zikr meditation fully. Therefore, the pain intensity rated by these subjects might not represent the subjects' real pain intensity. Secondly, the number of subjects in this study was very low i.e., 15 subjects per group. The results from this study cannot be generalized to other people or groups suffering from pain after surgery. Thus, the effects of Zikr meditation on reducing pain intensity and physiological responses calls for further exploration.

Implications and Recommendation

The findings of this study have important implications for the nursing profession and health care professionals despite the above limitations. Nurses can combine the practice of Zikr meditation with pharmacological management to help the patients who have undergone abdominal surgery to reduce their pain. Zikr meditation should be included in the nursing caring in general hospitals or special hospitals such as Islamic hospitals. Zikr meditation could also be practiced by Muslim nurses in hospitals or by student nurses. Medan has two Islamic Hospitals, and the Muslim patients follows the religious practices such as conducting prayers before surgery or praying for dying patients. These activities are mostly conducted in the morning and evening. However, the practice of Zikr meditation is an alternative option in health care to help Muslim

patients in Islamic hospitals to recover from the post-operative pain. Policy in Islamic hospitals should allow religious practices conducted by Muslim patients, such as conducting prayers in the morning and evening by ustads or a religious teacher.

Zikr meditation practice should be included in the nursing curriculum in order to teach nursing students, how to use it to reduce pain after surgery. Thus, it can be one of the non-pharmacological strategy and can be combined with pharmacological strategy to have more positive effect on post-abdominal surgery pain and also this therapy does not have any side effects and harm to patient during practice.

This study provides some evidence of the effect of Zikr meditation on pain intensity among Muslim patients that have undergone abdominal surgery. However, the results of this study cannot be extended to all such patients because the numbers of subjects studied were too limited. Any future study on the effect of practicing Zikr meditation on the pain experienced by Muslim patients after abdominal surgery should be conducted with more subjects and thus reducing the occurrence of bias.

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APPENDICES

*Appendix A***Informed Consent Form**

My name is Nunung Febriany Sitepu. I am a Master student of Faculty of Nursing, Prince of Songkla University, Thailand. I am conducting a research project to examine the effect of Zikr meditation on post operative pain among Muslim patients undergoing abdominal surgery in Medan, Indonesia. Hence, it is expected that the results of this study will contribute good evidence and increase an awareness among nurses and patients as a complementary therapy to reduce post operative pain. This practice will be undertaken for 2 days. In this study, you will be assigned into one of two groups, either a control group which you will receive standard care from our nurses or an experimental group which similar to the control group plus a practice of Zikr meditation.

You are being asked to participate in this study. If you decide to participate in this study voluntarily, I will begin the following procedures. If you are in the control group, I will ask about your pain intensity and measure your blood pressure, pulse rate, and respiration 2 times in the first and second day post surgery. You are not allowed to practice Zikr meditation during the study period, but if you are interested, I will teach you to practice Zikr meditation after the end of the study period. If you are in the experimental group, you will be trained about the Zikr meditation and practice it during the study period. It will be take approximately 30 minutes/session. You will practice Zikr meditation once a day for 2 days post surgery. I will ask about you pain intensity and measure your blood pressure, pulse rate, and respiration before and after your will Zikr meditation practice.

You will also be asked to provide your personal information. Your medical information will be collected from you medical chart. Altogether you will spend approximately 1 -2 hours participating in this study. Your contribution will be valuable for the development of the nursing profession, particularly in giving nursing care for Muslim patient to reduce post operative pain. This study has no known risk related to your well- being.

All information will remain confidential and anonymous, and will only be accessible by the researcher and the research advisors of this study. You participation is voluntary. It will

depend on you whether you participate or not. You may withdraw from this study at any time and no penalty. There will be no influence on your receiving medical treatments if you withdraw from this study. Your signature in this form will indicate that you understand this form and you are willing to participate in this study.

.....
Participant	Signature	Date

If you have any questions, suggestions or can not contribute to this study, you can contact me by phone or the following address:

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Appendix B

Demographic Data and Medical Information Form

Code:

Date/ Time:

Hospital/ Ward:

1. Age : years
2. Gender : 1 Male 2 Female
3. Level of Education :
- | | |
|--|--|
| <input type="checkbox"/> 1 No formal education | <input type="checkbox"/> 4 Senior high school |
| <input type="checkbox"/> 2 Elementary School | <input type="checkbox"/> 5 College/ University |
| <input type="checkbox"/> 3 Junior high school | <input type="checkbox"/> 6 Others |
4. Race
- | | |
|---------------------------------------|--|
| <input type="checkbox"/> 1 Batakanese | <input type="checkbox"/> 4 Javanese |
| <input type="checkbox"/> 2 Melayunese | <input type="checkbox"/> 5 Padang |
| <input type="checkbox"/> 3 Chinese | <input type="checkbox"/> 6 Others..... |
5. Job/ Occupation
- | | |
|--|---|
| <input type="checkbox"/> 1 Government employee | <input type="checkbox"/> 2 Private employee |
| <input type="checkbox"/> 3 Business person | <input type="checkbox"/> 4 Others |
6. Family income per month:
- | | |
|--|---|
| <input type="checkbox"/> 1 Rp, 500,000- 1,000,000 | <input type="checkbox"/> 2 Rp, 1,000,000- 2,000,000 |
| <input type="checkbox"/> 3 Rp, 2,000,000- 3,000,000 | <input type="checkbox"/> 4 Rp, 3,000,000- 4,000,000 |
| <input type="checkbox"/> 5 Rp, more than Rp, 5,000,000 | |
7. Marital status :
- | | |
|-------------------------------------|------------------------------------|
| <input type="checkbox"/> 1 Single | <input type="checkbox"/> 2 Married |
| <input type="checkbox"/> 3 Divorced | <input type="checkbox"/> 4 Widowed |
8. Terms of medical payment:
- | | |
|--|---|
| <input type="checkbox"/> 1 Wholly reimbursed | <input type="checkbox"/> 2 Partially reimbursed |
| <input type="checkbox"/> 3 Totally self pay | <input type="checkbox"/> 4 Others,..... |
9. Home location: 1 Urban area 2 Rural area
10. Have you had surgery in the past? () No () yes
If yes, please specify.....

11. Number of days in a hospital before surgery:

1 day

2 days

3 days

Others

12. Diagnosis:.....

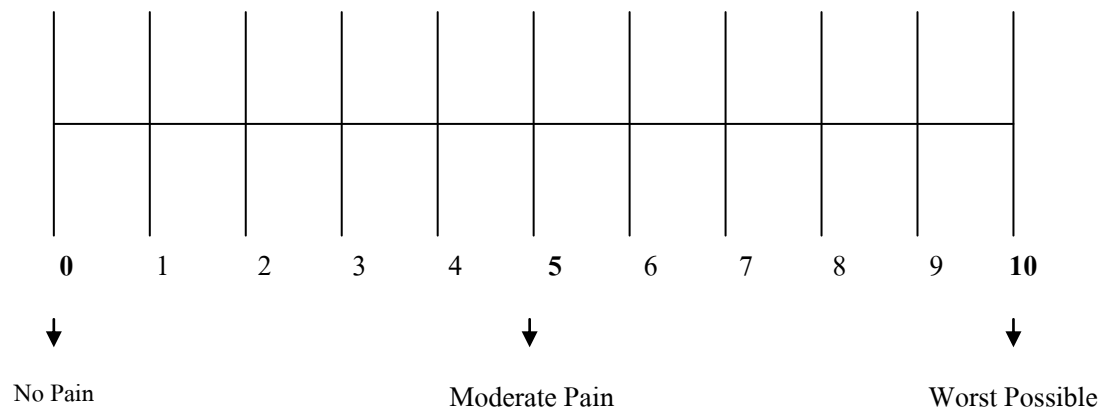
13. Site of pain:

14. Type of operation:.....

15. Type of anesthesia:

*Appendix C***Pain Numeric Rating Scale**

Instruction: Please rate your pain by circling the one number that best describes about your intensity of pain.

Numeric Rating Scale - NRS

Appendix D

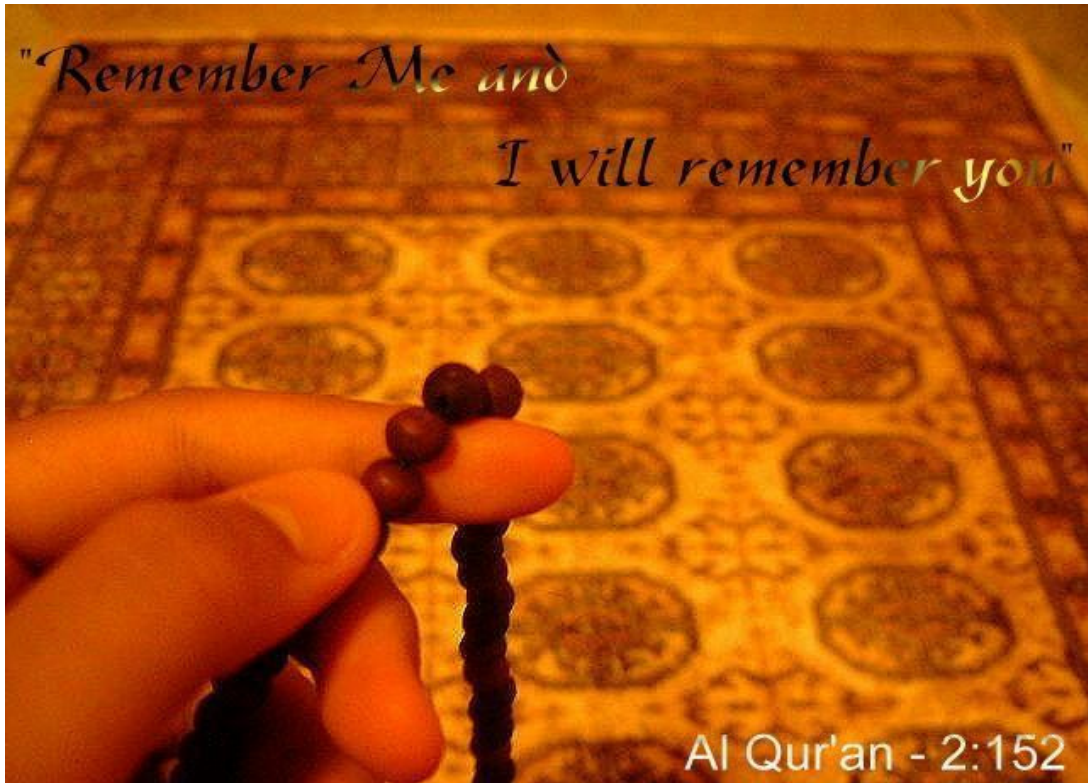
Physiological Response Record Form

Physiological Response Record Form

Times	Experimental Group			Control Group				
	BP		HR	RR	BP		HR	RR
	SBP	DBP			SBP	DBP		
Before practice Zikir meditation								
At the time Zikir Meditation practice								
30 minutes after Zikir Meditation practice								
60 minutes after Zikir Meditation practice								

Appendix E

Zikr Meditation Guidelines



Wa ahsan al-hadyi hadyu Muhammad

And the best guidance is the guidance of Prophet Muhammad,
may the blessings and peace of Allah be upon him.

NIYYA: INTENTION

In the Name of Allah, the Beneficent, the Merciful all Praise is for Allah, Lord of the words, and may the blessings and peace of Allah, the Glorified and the Exalted, be upon our Beloved Prophet Sayyidina Muhammad Sallallahu 'alayhi wa Sallam, on his Family, his companions, and their successors in excellence, till the Day of Judgement, Amin.

These guidelines consist of:

1. Meaning of Zikr Meditation
2. Benefits of Zikr Meditation
3. Step of Zikr Meditation

Zikr Meditation

Zikr is come from Arabic word and has mentioned in many places in the Holy Qur'an, and in most verses. Zikr literally means remembrance, mentioning, and recollection, to rehearse, to celebrate or commemorate, and in our context, the remembrance of Allah. It includes *tasbih* (glorifying), *takbir* (exalting), *tahmid* (praising), proclaiming one's helplessness and destitution before Him in prayer and supplication, and praising and praying upon the Prophet (s) Muhammad Shallahu Allahi Wassalam (SAW).

Allah (SWT) has commanded us to remember him always. He says: "Remember me, I shall remember you." (Qur'an 2:152) Thus it is very important for us as Muslims to Zikr, or remembrance of Allah (SWT).

The purpose of Zikr is to purify your hearts and souls and uplift our spirits. All words of praise and glory to Allah (SWT), whether spoken out loud or silently in one's heart, are known as Zikr. When you do Zikr, your hearts turn to the highest ideals and are free from the temptations of sin. Obviously, this is true only if the words come from the heart and not just from the tongue. If one continues to keep the remembrance of Allah in one's heart, the human soul is strengthened. It is food for the soul, and a polish of the heart, so invigorates it. And with an invigorated soul it becomes easy to overcome one's base instincts, overcoming the comfort, and to vanquish of perception of pain intensity. Thus one is able more easily to avoid of perception of pain and the good deeds increase. Obviously this is true only if the words come from the heart and not just from the tongue.

The most common Zikr formulas are "God is holy" (Subhanallah), "All praise to God" (Alhamdulillah), "God is most great" (Allahuakbar), and "There is no god but God" (Lailaha-illallah), repeated in either a low or a high voice. Some Zikr formulas also involve breathing patterns and performed while counting beads.

Benefit of Zikr

1. Nourish and strengthen your soul
2. Purify your heart from inward and outward defects and faults
3. Filter from your heart the affections for things "other than God"

4. Replace your restlessness and excessive temptations with peace of mind, health and tranquillity.
5. Almighty God remembers those who remember Him
6. It makes the heart vigilant and enhances the concentration of one's mind
7. Your heart will be filled with the secret of love and the light of insight into Almighty God.

Zikr meditation is energy healing and transformational system that were developed from the original practices of Zikr in Moslem people based on Holy Al –Qur’an as basic guidelines. Zikr meditation was thought to be a living light energy. It can be accessed in a variety of ways. Zikr meditation practice can reduce of pain and become strengthen during got a disease because that is come from spiritual level down to the physical body. When working with the Zikr Meditation practice, our feel wonderfully sensitive, psychic, and emphatic. It is used both to heal, as well as to help accelerate our personal development and achieve our true potential.

Consideration before practicing Zikr Meditation

1. Perform wudhu. It is a ritual ablution before we want to pray. But in patient post surgery, we can modify without wudhu. Perform of clean dress, clean within and without.
2. Erase all wordly worries from our heart which can make our heart calm. If you have trouble over someone or have a negative feeling, you should ignore those.
3. Position yourselves as you like and full comfortable. Positions will be lying, or sitting.



4. Close your eyes and bring your attention to the region of your heart.



5. Environment should be arranged quiet. A comfort and conducive room will be prepared at the surgery ward. This will make you comfortable and relax to participate.



6. Wearing hijab.
7. You should believe that Zikr Meditation will make your mind fully peaceful which in turn will reduce pain. Another very important thing to do is to before you begin Zikr Meditation is to dedicate it. Meaning say to yourself or out loud that you do this Zikr Meditation so that all beings may be happy, all beings may be free of suffering pain after abdominal surgery.
8. You should keep silent for a long period of time after Zikr meditation practice and restrain one's ego (nafs).

Preparing phase

Make a niyyah or the intention to perform this Zikr Meditation

- Focus in one mind such as Allah SWT / do not think anything.



Step of Zikr Meditation:

Step 1

- Position must be relax
- Deep breathing (take times 5 seconds)
- Deep breathing is a simple but very effective of meditation. It is a core component of everything from the “ take ten deep breaths “ approach to calming someone down, right throught to Zikr meditation. Deep breathing is important from the standpoint of both and spiritual development. That can increases our vitality and promotes relaxation. Before deep breathing to Zikr meditation, we must understand through the direct inner sensation of our bodies the function of the chest and diaphragm in bretahing then can related to meditation. Deep breathing can also allow held in emotions to come to the surface.

Step 2

Zikr Meditation practice

- Start with a bismillah
- Start from the word “God is the holiest”(Subhanallah) "All praise to God" (Alhamdulillah), "God is the greatest" (Allahuakbar), and "There is no God but Allah" (Lailaha-illallah). Each of these items is mentioned for 33 times in 20 -25 minutes and can be repeated as many times as possible.

- While start, you count *tasbih* (a kind of rosary) or fingers to connect ourselves to the Allah SWT by uttering recommended words at the above.



- - All of the words take time 30 minutes and 5 seconds for deep breathing.

Step 3

- Relaxation stage. This stage you are slowly opening your eyes, looking environment by moving your eyes as you can, and slowly moving your body as you can.



- - If you feel a litte bit of pain, you can practice Zikr meditation as possible as you can. This practice will help you to relax and distract from pain.

References:

- Sakandri, I. A. (2005). *Zikr penentram hati*. Jakarta: Serambi.
- Tim Zahra. (2007). *Zikr 99 Asma'ul Husna & Fadhilah Surah Yasin*. Jakarta: Zahra.
- Tim Zahra. (2006). *Zikr Zikr penenang dan Penenteram hati ajaran Nabi*. Jakarta: Zahra.

Appendix E

Table of Zikr Meditation Practice

No	Objective	Session	Place	Content	Activities Program	Media	Time
1	<p>-To understand the meaning of Zikr meditation practice as treatment for relief pain after surgery</p> <p>- To enhance familiarity about procedures of Zikr Meditation practice.</p>	<p>First Session (1st visit, before surgery)</p> <p>Teaching Simulation</p>	<p>Surgical Ward</p>	<p>Establish the Rapport between researcher and patient.</p> <p>Providing Environment.</p> <p>Teaching</p> <p>Simulate</p> <p>I.Introductory of Zikr Meditation</p> <p>II. Meaning of Zikr Meditation</p> <p>III. Benefits of Zikr Meditation</p> <p>IV Type of Zikr Meditation</p>	<p>Start with says: Assalamualikum Waramatullahi Wabarakathu</p> <p>Introduce of researcher.</p> <p>Before Abdominal Surgery</p> <ul style="list-style-type: none"> ● A vision of all possibilities through the Zikr meditation of post abdominal surgical can minimizing of pain after surgery. ● Learning and Understanding the Zikr meditation technique. <p>The mechanics and origin of the Zikr Meditation techniques.</p> <p>Show of Zikr meditation step by step.</p> <p>Step 1: Relaxation for 5 minutes</p> <p>Step 2: Zikr meditation for 25 minutes</p> <ul style="list-style-type: none"> - Start with saying a bismillah - Start from the word "God is the holiest"(Subhanallah) "All praise to God" (Alhamdulillah), "God is the greatest" (Allahuakbar), and "There is no God but Allah" (Lailaha- 	<p>-The manual book of Zikr Meditation practice</p> <p>-Tasbih (a kind of rosary) or Finger point for counting of Zikr Meditation practice</p>	<p>1 hour</p> <p>5 minutes</p> <p>25 minutes</p>

No	Objective	Session	Place	Content	Activities Program	Media	Time
					<p>illallah). Each of these items is mentioned for 33 times and will last 20 -25 minutes.</p> <ul style="list-style-type: none"> - While start, you count <i>tasbih</i> (a kind of rosary) or fingers to connect ourselves to the Allah SWT by uttering recommended words at the above. <p>Step 3: Consious state</p> <ul style="list-style-type: none"> - Slowly opening your eyes - Looking environment by moving your eyes - Slowly moving body as you can. 		
2	To enhance congruency between expected and experience events.	First session (2 nd visit, the day after surgery)	Surgical wards	Zikr Meditation Practice	<p>One day after surgery: Patient perform of Zikr Meditation practice as previous explanation before surgery.</p> <p>Before patient do a Zikr Meditation practice, researcher will check pain intensity and physiological response.</p> <p>In this session, patient do Zikr Meditation practice step by step</p> <p>Step 1: Relaxation for 5 minutes</p> <p>Step 2: Zikr meditation for 25 minutes</p> <ul style="list-style-type: none"> - Start with saying a bismillah - Start from the word "God is the holiest"(Subhanallah) "All praise to God" (Alhamdulillah), "God is the greatest" (Allahuakbar), and "There is no God but Allah" (Lailaha- 	Tasbih (a kind of rosary) or Finger point for counting of Zikr Meditation practice	5 minutes 25 minutes

No	Objective	Session	Place	Content	Activities Program	Media	Time
					<p>illallah). Each of these items is mentioned for 33 times and will last 20 -25 minutes.</p> <ul style="list-style-type: none"> - While start, you count <i>tasbih</i> (a kind of rosary) or fingers to connect ourselves to the Allah SWT by uttering recommended words at the above <p>Step 3: Consious state</p> <ul style="list-style-type: none"> - Slowly opening your eyes - Looking environment by moving your eyes <p>Slowly moving body as you can.</p> <p>After patient do Zikr Meditation practice, researcher will check pain intensity and physiological response for 30 minutes, and 60 minutes</p> <p>Researcher make appointment for tomorrow</p>		
3	To enhance congruency between expected and experience events.	Third session (3 rd visit, two day after surgery)	Surgical wards	Zikr Meditation Practice	<p>Two day after surgery: Patient perform of Zikr Meditation practice as previous explanation in one day after surgery.</p> <p>Before patient do a Zikr Meditation practice, researcher will check pain intensity and physiological response.</p> <p>In this session, patient do Zikr Meditation practice step by step</p> <p>Step 1: Relaxation for 5 minutes</p> <p>Step 2: Zikr meditation for 25 minutes</p> <ul style="list-style-type: none"> - Start with saying a bismillah 	Tasbih (a kind of rosary) or Finger point for counting of Zikr Meditation practice	5 minutes

No	Objective	Session	Place	Content	Activities Program	Media	Time
		At the end of the session		Closing all of session Zikr meditation practice	<ul style="list-style-type: none"> - Start from the word "God is the holiest"(Subhanallah) "All praise to God" (Alhamdulillah), "God is the greatest" (Allahuakbar), and "There is no God but Allah" (Lailaha-illallah). Each of these items is mentioned for 33 times and will last 20 -25 minutes. - While start, you count <i>tasbih</i> (a kind of rosary) or fingers to connect ourselves to the Allah SWT by uttering recommended words at the above <p>Step 3: Consious state</p> <ul style="list-style-type: none"> - Slowly opening your eyes - Looking environment by moving your eyes - Slowly moving body as you can. <p>After patient do Zikr Meditation practice, researcher will check pain intensity and physiological response for 30 minutes, and 60 minutes. Researcher close all of the program of Zikr meditation practice for patient undergone abdominal surgery.</p>		25 minutes

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