

**UTILIZATION, BARRIERS AND BENEFITS OF
NON-PHARMACOLOGICAL PRACTICES IN ACUTE
PAIN RELIEF AMONG SURGICAL PATIENTS AT
HOSPITAL UNIVERSITI SAINS MALAYSIA
(HOSPITAL USM)**

SUZIANA ROSAINI BINTI SULAIMAN

**SCHOOL OF HEALTH SCIENCES
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(HOSPITAL USM)**

by

SUZIANA ROSAINI BINTI SULAIMAN

**Dissertation submitted in partial fulfilment of the
requirements for the degree of
Bachelor of Health Sciences (Nursing)**

June 2013

DECLARATION

I certify that this thesis does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university, and that to the best of my knowledge and belief it does not contain any material previously published or written by another person except where due references is made in the text.



.....

Suziana Rosaini Binti Sulaiman
Student of Degree of Bachelor Health Science (Nursing),
School of Health Science,
Health Campus,
Universiti Sains Malaysia,
16150 Kubang Kerian,
Kelantan
Date: 27th JUNE 2013

CERTIFICATE

This is to certify that the dissertation entitled 'Utilization, Barriers and Benefits of Non-Pharmacological Practices in Acute Pain Relief among Surgical Patients at Hospital Universiti Sains Malaysia (Hospital USM)' is the bona fide record of research work done by Suziana Rosaini Binti Sulaiman, Matric Number: 105155 during the period of September 2012 to June 2013 under my supervision. This dissertation submitted in partial fulfillment for the degree of Bachelor of Health Science (Nursing). Research work and collection of data belong to Universiti Sains Malaysia.



Supervisor
Miss Norazliah Hj Samsudin
Senior Lecturer,
School of Health Science,
Health Campus,
Universiti Sains Malaysia,
16150 Kubang Kerian,
Kelantan
Date: 27/6/2013.

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UTILIZATION, BARRIERS AND BENEFITS OF NON-PHARMACOLOGICAL PRACTICES IN ACUTE PAIN RELIEF AMONG SURGICAL PATIENTS AT HOSPITAL UNIVERSITI SAINS MALAYSIA (HOSPITAL USM)

ABSTRACT

The utilization of non-pharmacological practices is a very crucial component in postoperative pain management in pain relief. This study was designed to determine the utilization, barriers and benefits of non-pharmacological practices; examined the relationship between pain level with the practices and the difference in utilization of non-pharmacological practices between age, gender and educational level in acute pain relief. Hundred patients from surgical wards were randomly selected. Data were collected from January to March 2013 using self administered questionnaires and analyzed using SPSS version 19 for frequency, percentage, mean, standard deviation, *p* value and correlation coefficient. Ethical approval was obtained from Research Ethics Committee (Human), USM. Most of surgical patients had moderate pain level on the first 24 hours after surgery. They sometimes utilized non-pharmacological practices and mostly prefer to practice physical method such as massage and positioning. Mostly they not knowing the correct way in utilizing it and claimed that the pain will be reduced. There was poor relationship between pain levels with the utilization of non-pharmacological practices ($r=0.17$). There were significant difference in deep breathing exercise ($p=0.036$) and distraction ($p=0.023$) between age group; and in deep breathing exercise ($p=0.007$) and massage ($p=0.024$) between education level and no significant difference in any non pharmacological practices between gender. Thus, utilization of non-pharmacological practices should be implemented in the wards for better pain management.

**PENGGUNAAN, HALANGAN DAN FAEDAH AMALAN BUKAN
FARMAKOLOGI DALAM MENGURANGKAN KESAKITAN AKUT DALAM
KALANGAN PESAKIT SURGERI DI HOSPITAL UNIVERSITI SAINS
MALAYSIA (HOSPITAL USM)**

ABSTRAK

Penggunaan amalan bukan farmakologi adalah komponen yang sangat penting dalam pengurusan kesakitan postoperatif dengan mengurangkan kesakitan. Kajian ini adalah untuk menentukan penggunaan, halangan dan faedah amalan bukan farmakologi; mengkaji hubungan di antara tahap kesakitan dengan amalan-amalan ini dan perbezaan dalam penggunaan amalan bukan farmakologi dari segi umur, jantina dan tahap pendidikan tertinggi dalam mengurangkan kesakitan akut. Seratus pesakit dari wad pembedahan telah dipilih secara rawak dalam kajian ini. Data telah dikumpul dari Januari hingga Mac 2013 dengan menggunakan soal selidik yang ditadbir sendiri dan dianalisis menggunakan perisian SPSS versi 19 untuk kekerapan, peratusan, min, sisihan piawai, nilai p dan pekali korelasi. Kelulusan etika telah diperolehi daripada Jawatankuasa Etika Penyelidikan (Manusia), USM. Kebanyakan pesakit operasi mempunyai tahap kesakitan sederhana dalam tempoh 24 jam pertama selepas pembedahan. Mereka kadang-kadang mempraktikkan amalan bukan farmakologi dan kebanyakannya lebih suka mengamalkan kaedah fizikal seperti mengurut dan mengubah posisi badan. Kebanyakannya tidak tahu cara yang betul untuk mempraktikkan amalan-amalan ini dan memberitahu bahawa kesakitan akan dikurangkan. Terdapat hubungan yang lemah antara tahap kesakitan dengan penggunaan amalan bukan farmakologi ($r = 0.17$). Terdapat perbezaan yang signifikan ketika melakukan senaman pernafasan dalam ($p = 0.036$) dan mengubah pemikiran ($p = 0.023$) dari segi kumpulan umur; dan ketika melakukan senaman

pernafasan dalam ($P = 0.007$) dan mengurut ($P = 0.024$) dari segi tahap pendidikan dan tiada perbezaan yang signifikan dalam penggunaan amalan bukan farmakologi antara pesakit pembedahan perempuan dan lelaki. Oleh itu, penggunaan amalan bukan farmakologi perlu dilaksanakan di dalam wad untuk pengurusan kesakitan yang lebih baik.

CHAPTER 1

INTRODUCTION

1.1 Background of study

The fear of pain is ranked second after the fear of death (Engwall & Duppils, 2009). Pain is a discomfort sensation, feeling of distress or agony, and very subjective and unique for each individual. A pain signal indicates the presence of damage or disease within the body. Pain can be classified into acute pain and chronic pain. Acute pain is defined as having pain at recent onset and in probable limited duration (Engwall & Duppils, 2009). Outcomes from the surgery, people will result with postoperative pain. Postoperative pain management is very crucial component of the care of surgical patient. Yet, inadequate postoperative pain management is still common. Postoperative pain that suffer by patient will result in clinical and psychological changes that increase morbidity, mortality, cost and decrease quality of life (Carr & Gaudas, 1999 cited by Apfelbaum, Chen, Mehta & Gan, 2003).

Postoperative pain is managed to tolerable state either pharmacologically or non-pharmacological. By pharmacology, drugs is given through patient-controlled analgesia (PCA), intravenous or orally. Analgesia provided for moderate to severe pain is an important ethical responsibility. This is because, analgesic is not free from potential side

effects or complications (Williams, Neumann, Goel & Wu, 2008). To provide adequate pain relief, non-pharmacological methods are used in adjunct with pain medications.

Studies had documented the effectiveness use of non-pharmacological methods in pain management after surgery. Polkki, VehviläInen-Julkunen and Pietila (2001) found that provide emotional support, helping with daily activities, creating comfortable environment were effective as a postoperative pain control. Furthermore, relaxation and music had a greater effect in relieving pain at first postoperative day (Good, Stanton-Hicks, Grass, Anderson, Choi, Schoolmeesters & Salman, 1999). It affects control central process that regulates pain transmission by decreasing anxiety (Borkovec & Sides, 1979; Hanser et al., 1983 cited by Good *et al.*, 1999), lowering muscle tension and distracting tension (Good, 1995 cited by Good *et al.*, 1999). Music is able to enhance patient's distraction and well-being, provides psychological support and to increase relaxation (Engwall & Duppils, 2009).

In Asian country, there is a study to explore the effectiveness of non-pharmacological method in surgical pain management. In Thailand, Lim, Songwathana and Petpichetchian (2008) have explored the effectiveness of music therapy towards postoperative anxiety and pain management. They found that, music therapy provide evidence result to be used as non-pharmacological, complimentary and non-invasive intervention to bring relief in anxiety and surgical pain.

1.2 Problem statement

Effective postoperative pain management is an essential component of the care of surgical patient in preventing them from being inhuman, increasing morbidity and mortality (Ramsay, 2000). Inadequate relieved of postoperative pain is harmful and can lead to a number of complications (Rao, 2006). Therefore, the pain of surgery must be relieved totally. In 1988, Brain Ready published his concept of acute pain services and later recommended the setting up of acute pain services at all hospital (Rao, 2006).

There is a study that shows patients still complaint of pain after surgery. Out of 648 subjects, 26% of patient had moderate to severe pain on the day of surgery, 21% on first postoperative day (POD), 13% on second POD, 10% on third POD, and 9% on fourth POD. It shows that patient can still experience pain even on the fourth day after surgery (Hans-Fritz, Maarten, Freya, Michael & Marcus, 2007).

In Malaysia, 50-70% of surgical patients are reported to experience moderate to severe pain after surgery (Hutchinson 2007 cited by Mathiza, Daphne & Kang, 2011).

Over 80% of patients whose had undergone surgery having acute postoperative pain. Out of all of them, 86% had moderate, severe or extreme pain and more patients experience pain after discharge than before discharge. In addition, for those who receive analgesia to relieve pain, 23% patients develop side effects from the medication such as drowsiness, nausea, constipation, sleeplessness, dizziness, vomiting, abdominal discomfort, itching, mood changes and difficult urinating (Apfelbaum *et al.*, 2003).

There is a minor concern regarding movement-related acute pain among post surgical patient. It is stated that, there is problem arise in nurse conveying the non-

pharmacological methods towards their patient. The nurses lack resources, time and staff to use the non-pharmacological method in pain management, as well as due to work overload and busy wards (Rantala, Kankkunen, Kvist & Hartikainen, 2012). Then, patients will not know how to utilize non-pharmacological practice since there is little exposure on the practice.

Surgical patients still experience pain after surgery up to the fourth day of postoperative. So, by practicing non-pharmacological practice, pain will be reduced to optimum level. Therefore this study is to explore the utilization, barriers and benefits of non-pharmacological practices in acute pain relief among surgical patients at Hospital Universiti Sains Malaysia (Hospital USM). It is important to know patients' experience in dealing with their own pain. This is because, each person has different pain's threshold peak. This study is also interested in finding the benefit from the methods used in pain management after surgery.

The conceptual framework is adapted from the Polkki's Nonpharmacological Method Questionnaire in their study on 'Nonpharmacological Methods in Relieving Children's Postoperative Pain: A Survey on Hospital Nurses in Finland' (Polkki, Vehvilainen-Julkunen, & Pietila, 2001). In the study, nurses used versatile non-pharmacological methods in children's postoperative pain relief, although some defects could be observed. From this framework, it will promote pain relief to optimum level by practicing non-pharmacological method. In the framework, there are three components such as utilization, barriers and benefits.

1.3 Research objective:

1.3.1 General Objective:

The purpose of this study is to determine the utilization, barrier and benefit of non-pharmacological practices in acute pain relief among surgical patients at Hospital Universiti Sains Malaysia (Hospital USM).

1.3.2 Specific objective

1. To determine the utilization, barriers and benefits of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM
2. To examine the relationship between pain level with the utilization of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM.
3. To examine the difference in utilization of non-pharmacological practices between age, gender and education level in acute pain relief among surgical patients at Hospital USM.

1.4 Research question

The research questions are as follows:

1. What are the utilization, barriers and benefits of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM?

2. Is there any relationship between pain levels with the utilization of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM?
3. Is there any difference in utilization of non-pharmacological practices between age, gender and educational level in acute pain relief among surgical patients at Hospital USM?

1.5 Hypothesis

1. H_0 = There is no significant relationship between pain levels and utilization of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM.

H_A = There is significant relationship between pain level and utilization of non-pharmacological practices in acute pain relief among surgical patients at Hospital USM.

2. H_0 = There is no significant difference in utilization of non-pharmacological practices between age, gender and educational level in acute pain relief among surgical patients at Hospital USM.

H_A = There is significant difference in utilization of non-pharmacological practices between age, gender and educational level in acute pain relief among surgical patients at Hospital USM.

1.6 Definition of terms

1.6.1 Non-pharmacology practices

Non-pharmacology refers to the therapy that does not involve the use of drug (Ballantyne, Cousins, Glamberardino, McGrath, Rajagopal, Smith, Sommer, & Wittink, 2010). It is used in improving health or well being by making pain more tolerable and giving patient a sense of control over the situation. These non-pharmacological approaches are directed towards prevention of pain become worse. There are variety techniques of non-pharmacological categories such as physical sensation of pain, emotional support and cognitive-behavioral method. The cognitive behavioral methods involve deep breathing exercise technique, relaxation, distraction, and imagery. The physical methods include positioning, thermal regulation and massage. Then, for the emotional support, it involves utilization of comforting measure in pain reliever (Simkin & Klein, 2007). These utilization of non-pharmacological practices are measured by five-points Likert scale with 1 for not at all, score 2 for rarely, score 3 for sometimes, score 4 for most of the times and score 5 for always (Polkki, Vehvilainen-Julkunen, & Pietila, 2001).

1.6.2 Barriers of non-pharmacological practices

The barriers that may develop in utilizing non-pharmacological practices are lack of knowledge, not knowing the correct way, lazy, only relying on pills and lethargy. This is measured by frequency on barrier arise in practicing non-pharmacology (Polkki, Vehvilainen-Julkunen, & Pietila, 2001).

1.6.3 Benefits of non-pharmacological practices

The benefits that may be obtained are less dependency on medication, adjunct to medication, shorter length of stay and reduction in hospitality cost. This is measured by frequency on barrier arise in practicing non-pharmacology (Polkki, Vehvilainen-Julkunen, & Pietila, 2001).

1.6.4 Acute Pain

Acute pain is defined as pain at recent onset and has limited duration. It is related to time, injury and disease. Acute pain can be brief and last for moments or hours, and can be persistent and lasting for weeks or several months until the disease heals (Bonica, 1990 cited in Health Care Guideline: Assessment and Management of Acute Pain, 2008).

1.7 Significance of study

This study is significance to explore other methods used by patient in adjunct to the medication-related pain management after surgery. This study also aims to find out to which extends patient used non-pharmacological method in relieving their pain after surgery. The result will determine the most non-pharmacological practices used by patients to reduce their pain. From this study, the barriers and benefits on utilizing non-pharmacological practice will be determined.

This result can be used as a guide to be implemented in the nursing care among surgical patient with acute pain. So, some complications from unrelieved pain after surgery can be reduced and prevented at optimum level.

These study findings is also significant in nursing education. The non-pharmacological practice in pain relieving can be included in the nursing syllabus. This means, nursing students will be taught about preoperative teaching among surgical patients in pain relieving after surgery.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

As a response of tissue damage and noxious (harmful) stimuli, the body will produce a state of acute pain. This is actually a normal physiologic response towards dangerous stimuli. When there are harmful stimuli such as surgery, tissue damage and inflammation will occur (Bader, Echtele, Fonteyne, Livadas, Meerleer, Borda, Papaioannou & Vranken, 2010).

Pain is subjectively to be described by each individual. International association study of pain (IASP) describe pain as 'unpleasant emotional situation which originates from certain area, which is dependent or non-independent on tissue damage and which is related to the past experience of the person in question' (Demir, 2012). Pain after surgery is a common phenomenon and normal thing to be expected. This pain results from the cutting of skin that stimulates nerve fibers to signal pain. Hence, anesthetist will prepare epidural, continue morphine infusion, PCA or subcutaneous morphine in related to drug-related pain management (Mackintosh, 2007). These drugs are used for treating somatic dimension such as physiological and emotional aspects of the pain. Then, non-drug related pain management can be used as patient's own initiative to reduce their pain.

2.2 Non-pharmacological practices concept

Non-pharmacological pain practice is one approach to a comprehensive method relief. This practice did not replace the pharmacological methods totally, but instead of used in conjunction to enhance patients' relief of pain (Polkki, Vehvilainen-Julkunen, & Pietila, 2001). Polkki, Vehvilainen-Julkunen, and Pietila (2001) classified non-pharmacologic method into five categories such as cognitive-behavioral methods, physical methods, emotional support, helping with daily activities and creating comfortable environment. However, in this study, researcher takes the three first categories which consist of: (1) cognitive behavioral methods such as deep breathing technique, relaxation, distraction, imagery; (2) physical methods such as positioning, thermal regulation, massage; and (3) emotional support such as comforting. This non-pharmacological method is aimed to treat the affective, cognitive, behavioral and social cultural dimension of pain (Yavuz, 2006 cited by Demir, 2012). Deep breathing exercise, relaxation, distraction, imagery, positioning, thermal regulation, massage and comforting are the examples of non-pharmacological therapies that can be used in relations to acute pain relieving.

Deep breathing exercise is one of the methods under relaxation technique. It is used to counteract the negative effect of surgery such as reducing pain and refocus attention away from discomfort. It is performed by inhaling slow breaths through nose and exhaling through mouth (Rusy & Weisman, 2000). Through breathing, our body will regulate balance between carbon dioxide and oxygen in blood. If there is too much oxygen will leads to agitation and nervousness and too much carbon dioxide will leads to dizziness and distortion of responses. Other than that, deep breathing also will provide

person to focus on the respiration and avoid disturbing thoughts (Demir, 2012). This situation will lead to diverting attention from stressful and promote relaxation. This relaxation will reduce muscle tension associated pain (Rusy & Weisman, 2000). Anxiety and discomfort will decrease.

Relaxation is defined as 'the absence of physical, mental and emotional tension' (Anselmo, 2005). It is a simple practice that can help relieve stress and tension. According to Benson (2006), who developed a relaxation response, this technique will produce healthy well-being by changing on the heart rate, lower metabolism and a decrease respiration rate. This relaxation is effectively used for both higher and lower levels of pain. It can be done independently to promote patient's well-being without the risk of drugs and invasive treatment (Roykulcharoen & Good, 2004). It is a self care strategy in which patients are able to manage their own pain.

Distraction as one of cognitive behavioral intervention diverts patients' attention from stressful stimulus such as pain and focuses mind into a pleasant one (Sinha, Christopher, Fenn & Reeves, 2006). Patients will use different suitable distracters to help minds off from pain. This distracters act as brains own pain killers to block pain signal. This effect of distraction lies in the Gate Control Theory proposed by Melzack and Wall in 1965 (Smeltzer, Bare, Hinkle, & Cheever, 2010). Sinha *et al.*, (2006) performed evaluation of non-pharmacologic method in relieving pain and anxiety for laceration repair in pediatric and revealed the use of music as highest priority in distraction. Music intervention can be one of the postoperative pain treatments in adjunct to analgesics due to noninvasive, low cost and easy to practice during postoperative period (Engwall & Duppils, 2009). In the early 1800s, Florence Nightingale had noticed the power of music

as part of healing process for injured soldiers in the Crime War (Engwall & Duppils, 2009). She recommended the use of music on wind instrumental pieces with continuous sounds and performed by human voice having a beneficial effect. From the tones and sound, music will produce psychological and physiological responses within the human body (Murrock & Higgins, 2009). The music passes through auditory cortex of the brain and alters patient mood. When the music distracts the mind, pain is mediated by thalamus to the sound rather than to the painful input. Music can be stimulus-substituted to distract patient from unpleasant stimulus. When in pain, patient tends to increase heart rate, blood pressure, respiratory rate and anxiety due to the release of epinephrine and norepinephrine (Murrock & Higgins, 2009). So, by listening to calming music will reduce muscular and mental tension and then reduce sympathetic stimulation of the hypothalamus (Good *et al.*, 1999). Hence, it will result in the release of beta-endorphins, the body's natural opioid pain relievers to disrupt stress response production (McKinney *et al.*, 1997 cited by Murrock & Higgins, 2009). In postoperative pain management, music can be used in pain alleviation. It is due to the power of music in enhancing distraction and well being, and to increase relaxation.

Guided imagery is a mind-body therapy and particularly helpful in acute pain alleviation. It is a simple tool which can empower patient to participate in their own healing. Hart defined it as a technique that utilizes stories to influence the image and patterns that the mind creates. Thus, patient will use their own imagination to create desired images that will bring beneficial emotional and physical effects. According to Naparstek (cited by Hart, 2008), guided imagery expert, imagery is "any perception that comes through any of the senses including sight, smells, sound and feel." For example, a

patient is encouraged to imagine being at a favorite place and then imagine the sights, sounds and smell of that place. So, by practicing imagery, patients will be guided to a state where the mind is calm. This imagination is to produce a sense of well-being and useful in postoperative pain management. As adjunct to medication, imagery can reduce pain when practiced regularly (Hart, 2008). It also can reduce patient's reliance on medication. Other than that, it can increase patient feelings of self-mastery and control. This is because, patient can practice this by their own.

Positioning is under physical methods categories of non pharmacological practice in pain alleviation after surgery. It can be applied with pillows, wedge, supporting and weight shifting. Joelsson, Olsson and Jakobsson (2009) performed a study about patients; experience of pain and pain relief following hip replacement surgery. Most patients expressed pain as intense but tolerable experience during postoperative phase. Generally, the patients describe the effectiveness of medication in pain relief. However, the needs of pillows are also stated in providing security and better night sleep. In relieving pain, different body position is tried such as supine position and lying down on the side where the hip doesn't hurt. They complain of pain disappearance by doing that. Joelsson, Olsson and Jakobsson, (2009) found out that, there are insufficient pain management during the first operative days and fear to mobilize on the following postoperative days. The patients experience severe and localized pain to the hip on the first operative days. So, more active pain management in reducing fear of moving is crucial to be practised (Joelsson, Olsson & Jakobsson, 2010).

In pain reliever, heat therapy is widely used by applying hot or cold object on the pain area (Lane & Latham, 2009). The application of heat and cold therapy was

according to the gate control theory of pain transmission. Stimulation on skin will activate the large diameter of nerve fibers and prevent short diameter of nerve fibers from transmitting pain to the brain (Smeltzer *et al.*, 2010). Gate is closed and pain perception is reduced.

Pain experience will lead to the production of bradykinin and prostaglandin. Application of heat therapy will decrease sympathetic nervous system, promote vasodilatation and reduce blood flow (Lane & Latham, 2009). Then, bradykinin and prostaglandin are removed from the area. Pain experience due to muscle spasm of smooth muscle may be relieved by cold therapy (Simkin & Klein, 2007). Daniel, Stone and Arendt (1994) had studied the effect of cold therapy on pain, swelling and range of motion after anterior cruciate ligament reconstructive surgery. Many patient reports that the cold pad is felt well. The pain is relieved resulted from the decrease in soft tissue swelling, decreased muscle spasm and effect on the pain threshold (Daniel, Stone & Arendt, 1994).

Massage therapy is the therapeutic technique that is used widely since the earliest age of traditional healings. Massage is defined as 'any systematic form of touch or manipulation performed on soft tissue of the body that provides comfort and promotes health' (Piotrowski, Paterson, Mitchinson, Kim, Kirsh & Hinshaw, 2003). It can be done with friction, percussion and vibration on the soft tissue for recovery and supporting health (Demir, 2012). According to the study by Piotrowski *et al.*, (2003), massage is useful in adjuvant therapy for relieving pain after surgery. The results show that massage significantly accelerated the rate of decline in pain.

Combination of pharmacological intervention together with comfort measure will be most effective in relieving patient's pain (Mackintosh, 2007). Reassurance is crucial in comforting patient to reduce their anxiety. Comforting also can be applied towards adult population. The current meaning of comfort refers to the state of relief from pain, suffering or distress (Miceli, Mancini & Menna, 2009). When people are comforted, their suffering is also reduced. This can be accomplished with specific help or advice related to the problem, even just by listening or the expression of concern (Miceli, Mancini & Menna, 2009). Means, empathically involving in patients' pain will make them not lonesome in experiencing pains.

2.3 Utilization, barriers and benefits of non-pharmacological practices in acute pain relief among surgical patients

2.3.1 Utilization of non-pharmacological practices

Apparently, there is still no study available regarding the utilization of non-pharmacological practices among patients in acute pain relief which was commonly done towards nurses, parents and student. A study done by Polkki, Vehvilainen-Julkunen and Pietila (2001) reported that almost 57% of nurses used non-pharmacological therapies routinely. 61% of respondents were reported 'always' using distraction, 51% always using deep breathing technique, 44% always using relaxation and 26% always using imagery. From the physical method categories, positioning (98%) was always used by respondent. It was followed by thermal regulation (13%) and massage (12%). From the emotional support categories, comforting is the highest as positioning which is 98%.

A study by Mehta, Siegler, Henderson and Reid (cited by Rantala *et al.*, 2012) found out that, 75% caregivers of cognitively impaired patients used distraction, repositioning and cold packs in acute pain reliever. A study by Polkki, Inen-Julkunen, and Pietila (2002) regarding parents roles in using non-pharmacological methods in their child's postoperative pain alleviation showed that, most parents provide emotional support and helping with daily activities in pain alleviation. Meanwhile, imagery, relaxation, breathing techniques and massage are used half by parents.

Roykulcharoen and Good (2004) performed a study regarding the effects of systematic relaxation towards postoperative pain and anxiety alleviation. In the study, pain sensation, pain distress and state anxiety is measured. Pain is severe for both control and relaxation group at the pretest since they only returned to bed after ambulation. After 15 minutes practicing this relaxation, pain severity became mild in relaxation group. Pretest sensation and distress of pain scores measured by Visual Analogue Sensation of Pain and Distress scale and ranged from 23 to 100mm and 19 to 100mm respectively changes to 5 to 90mm and 3 to 90mm respectively after 15 minutes of relaxation. This means, postoperative patient who used systematic relaxation in pain management had significantly less sensation and distress of pain during their recovery. They recommend continuing exploration in nursing research and practices, including in education programs.

In the previous study, Good *et al.*, (1999) had also done a study regarding relaxation at recovery from ambulation. However, the difference is, they use jaw relaxation rather than systematic and only for 10 minutes. They found that, only 11% and 13% had less sensation and distress of pain respectively, while Roykulcharoen and Good

(2004) found 55% and 65% respectively. So, the greater effect of systematic relaxation is due to the longer treatment time (15 minutes) compared to jaw relaxation (10 minutes), quiet time, better mastery of the intervention and greater body involvement (whole body and jaw).

Sinha *et al.*, (2006) performed evaluation of non-pharmacologic method in relieving pain and anxiety for laceration repairs in pediatric. Here, they suggested using distraction technique according to age and interesting to be used. Intervention groups were given a choice of age-appropriate distractions such as music, video games, movie and reading books. In intervention group, 395 younger children choose music as their distracter, 29% video games, 27% movie, 4% bubbles and 2% choose books. Meanwhile, 63% of the older children choose music, 21% video games, 16% movie as their distracter. From that, most of them choose music in pain relieve intervention.

There are also some studies regarding positioning in postoperative pain alleviation among children. During child hospitalization, parents' have greater role in accompanying their child and participate in their care (Polkki, Inen-Julkunen, & Pietila, 2002). 90% of parents claimed the use of positioning as a pain-relieving towards their child. There are also studies in exploring nurse responsibility towards pain alleviation after surgery among children, including Chinese nurses who claimed to 'always' use positioning to relief pain (He, Polkki, Vehvilainen-Julkunen, & Pietila, 2005) and Finland nurses reported to use positioning 'nearly always or always' (Polkki, Vehvilainen-Julkunen, & Pietila, 2001).

They also found out relationship between massage duration and patient age with pain alleviation. Patient age 41 to 60 years old received longer duration massage therapy and experienced pain reduction compared to younger adults. A pilot study done by Cutshall, Wentworth, Engen, Sundt, Kelly and Bauer (2010) also proves that massage can be effectively used in reducing pain, anxiety and tension after surgery. During the study, patients were provided massage therapy in between day 2 and 5 after surgery. For each session, patient is assessed for 1 to 5 minute, appropriate position and the massage is started for about 20 minutes. Most patients request for massage on upper back, shoulder and neck.

Comforting is one of the most commonly used non-pharmacological pain alleviation towards children by parents (Polkki, Inen-Julkunen, & Pietila, 2002; Kankkunen *et al.*, 2009) and by nurses (Polkki, Vehvilainen-Julkunen, & Pietila, 2001; He *et al.*, 2005). This emotional support is easily implemented by parents since it is actually a normal part of parenting the child. Most of them complaints of talking to child in an encouraging voice or telling them that everything will be alright (Polkki, Vehvilainen-Julkunen, & Pietila, 2002).

2.3.2 Barriers of non-pharmacological practices in acute pain relief

On the first day of postoperative, surgical patients will result in lethargy and weakness (Lammers & Nguyen, 2010). So, the largest barrier identified in utilizing non-pharmacological practice in acute pain relief is patients who are unwilling to try and practice it. The nurses also listed lack of time, lack of knowledge and efficacy were three other barriers (Bicek, 2004).

2.3.3 Benefits of non-pharmacological practices in acute pain relief

The nurses also asked to list out any benefits to non-pharmacological therapies. Fewer side effects (40.4%) were listed as the most benefit and followed by more patient control (19.1%), less medication needed (12.8%) and has more one on one time with the patient (10.6%). Other than that, non-pharmacological practices are used in conjunction with pharmacology to enhance patients' relief of pain (Polkki, Vehvilainen-Julkunen, & Pietila, 2001).

2.4 The relationship between the pain levels with the utilization of non-pharmacological practices in acute pain relief among surgical patient

Non-pharmacological intervention can enhance activity in descending inhibitory systems and thereby decrease pain perception (He *et al.*, 2005). Rantala *et al.*, (2012) revealed that listening to the music will reduce pain as well as promote relaxation and well-being. Application of cold therapy had greatly reduced postoperative swelling, pain score and amount of opioid required (Lane & Latham, 2009). This means that, postoperative patient who used systematic relaxation in pain management had significantly less sensation and distress of pain during their recovery.

2.5 The difference in utilization of non-pharmacological practice with age, gender and education level in acute pain relief among surgical patients

For the study to explore parents' role in utilization non-pharmacological pain alleviation among children, there are some demographic data that influence the practice (Polkki, Inen-Julkunen, & Pietila, 2002). They found out that, a father used guided imagery more than mother. Then, younger parents used it more than older ones. Furthermore, there is no relationship between the level of education and the number of prior hospitalizations of their child with application of non-pharmacological methods. Guided imagery, relaxation, positive reinforcement, touch and comfort are more often used towards female children.

There is gender variation in response to pain. Compared to men, women are more sensitive to multiple pain modalities (Fillingim, King, Ribeiro-Dasilva, Rahim-Williams & Riley, 2009). Meanwhile, there are associations between duration and patient age in massage therapy with pain reducing. Older patients are able to receive longer duration of massage and experience reduced pain compared to younger ones (Piotrowski *et al.*, 2003).

2.6 Conceptual framework

For the conceptual framework in this study, the researcher had developed a framework adapted from Polkki's Non-Pharmacological Method Questionnaire. The researcher wants to test this non pharmacological practice in pain relief that involves utilization, barriers and benefits.

The utilization of non-pharmacological practice involves three main components, which are cognitive behavioral method, physical method and emotional support. The cognitive behavioral methods involve deep breathing exercise technique, distraction, and imagery. The physical methods include positioning, thermal regulation and massage. Then, for the emotional support, it involves utilization of comforting measures in pain relief.

The barriers that are expected to be faced by respondents in utilizing the non-pharmacological practice are lack of knowledge, not knowing the correct ways, laziness, relying on pills and lethargy. The benefits that will be achieved by practicing it are pain alleviation, less dependency on medication and can be used as adjunct to medication.

Conceptual framework of the study

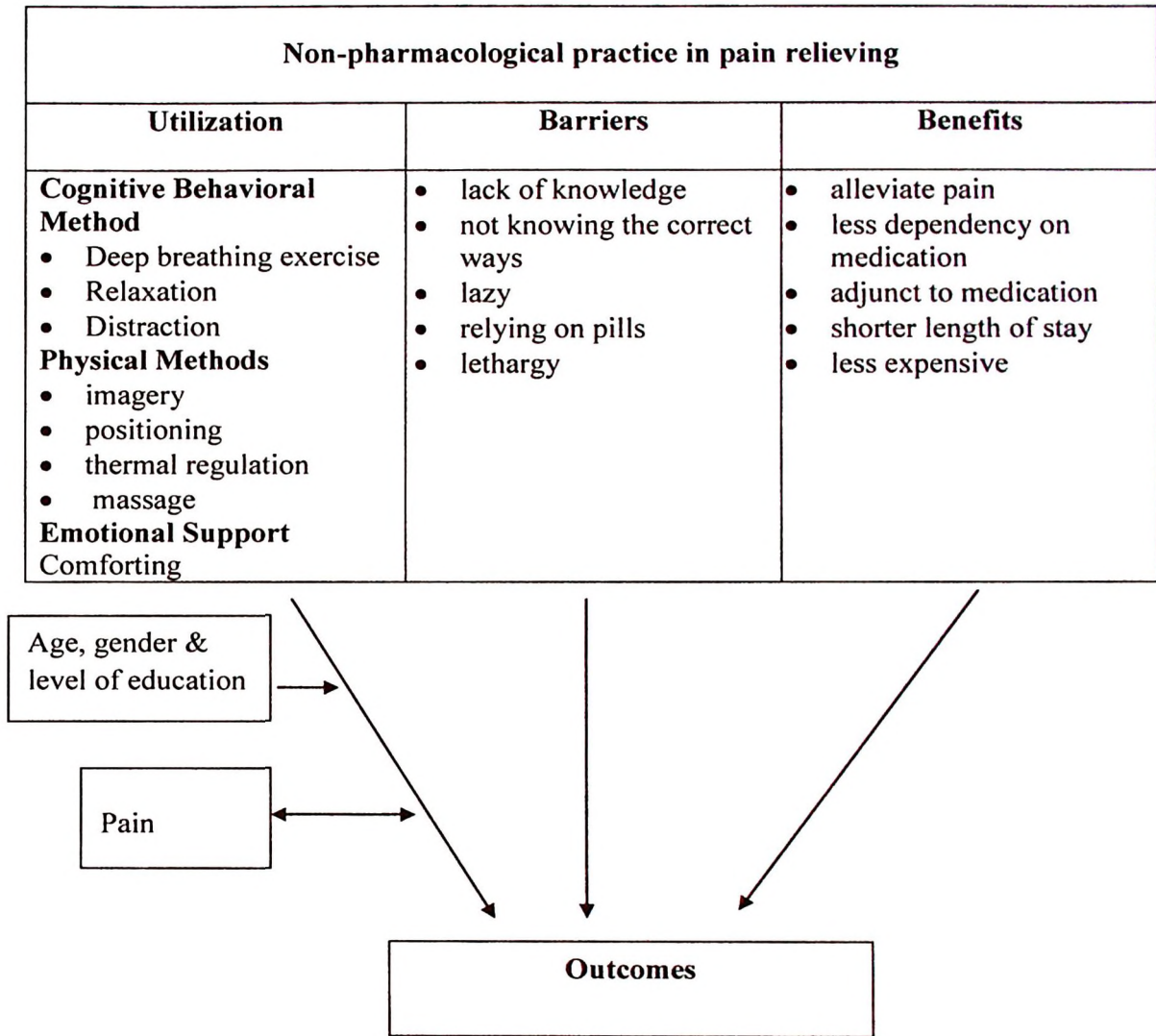


Figure 1.1: Conceptual framework of the study on utilization, barriers and benefits of non-pharmacological practices in acute pain relief among surgical patients adapted from Polkki, Vehvilainen-Julkunen, and Pietila, 2001.

CHAPTER 3

METHODOLOGY

3.1 Research Design

Cross sectional survey design was used in this study to determine the utilization, barriers and benefits of non-pharmacological practices in acute pain relieving among surgical patients at Hospital Universiti Sains Malaysia (Hospital USM), Kubang Kerian, Kelantan, Malaysia.

3.2 Population and setting

The target populations in this study were hospitalized patients at surgical wards at Hospital USM. There were 8 surgical wards included in this study, which are general surgery wards: 1 Selatan, 2 Intan and 3 Utara, orthopedics wards: 2 Zamrud, 4 Utara and 4 Selatan, otorhinolaringology wards: 4 Timur Depan and gynecology ward: 1 Utara.