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THE TECHNIQUES OF DEEP BREATHING RELAXATION AND AUDITORY DISTRACTION TO REDUCE LEVEL OF PAIN

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ABSTRACT

The need of absence of preoperative pain is one of the basic needs of patients in hospital. However, until now, the effective of techniques to reduce pain intensity is still unknown. Therefore, the purpose of study was to determine the effectiveness of deep breathing relaxation and auditory distraction techniques to decrease the postoperative pain level. The type of study was quasi-experimental. The population involved the adult postoperative patients. 32 respondents were chosen as the samples using simple random sampling. The independent variables were deep breathing relaxation and auditory distraction, whereas dependent one was postoperative pain. Data were collected by filling out the observation sheet, and analyzed using independent sample T-test. The results of study showed that before treatment of deep breathing relaxation, the pain was 6.50, whereas it was reduced to 5.00 after the treatment. Moreover, before treatment of auditory distraction, the pain was 7.38, whereas it was reduced to 3.75 after the treatment. The results of statistical test showed that $p = 0.035 < \alpha = 0.05$ illustrating a difference of pain level before and after the two treatments to reduce the patients' pain. The effectiveness of auditory distraction was smaller than deep breathing. Hence, the nurses are expected to implement auditory distraction to reduce postoperative pain.

Keywords: postoperative pain, deep breathing relaxation, auditory distraction

INTRODUCTION

Surgery causes changes in body tissue continuity. To maintain homeostasis, the body has mechanism to perform the recovery on body tissues undergoing injury immediately. During this recovery process, chemical reactions occur in the body so that patients will feel pain. Anesthesia is done to avoid pain during surgery. However, after the surgery is completed and the effect of anesthesia begins to disappear, they will feel pain in the body area undergoing incision. A patient who has surgery cannot be separated from the phenomenon of pain. (Sigit, 2010) .Pain is a condition that affects a person, and its existence is known when someone feels it (Tamsuri, 2007). Meanwhile, according to International Associate for the Study of Pain (IASP), "Pain is an unpleasant subjective and emotional sensory resulted from actual or potential tissue damages, or describes the condition of the occurrence of damages".

Various attempts have been made to reduce the intensity of pain, both pharmacologically and non-pharmacologically. Pharmacological pain management is more effective than non-pharmacological methods, but it is more expensive. Moreover, they potentially bring adverse effects, whereas non-pharmacological methods

which are cheaper, simpler, and effective are found without adverse effects. Several non-pharmacological methods that can reduce pain intensity are relaxation techniques, distraction techniques, massage, hydrotherapy, hot or cold therapy, guided imagery, acupressure, aromatherapy (Arifin, 2008). But until now, it has not been able to explain which technique is more effective to reduce pain intensity. It is supported by a study done at RSU Syahriani TK II (Syahriani General Hospital) Pelamonia Makasar in 2010 on the effects of relaxation technique on the pain level of postoperative patients. Before the relaxation technique was administered, among 15 respondents, 3 people experienced mild pain (20%), 8 people experienced moderate pain (53.33%), and 4 people experienced severe pain (26.67%). After the relaxation technique was administered, the patients have undergone changes in the intensity of pain in which 7 people (46.67%) had a change in the pain intensity from moderate to mild pain, and 2 people (13.33%) had a change from severe to moderate pain. Meanwhile, the study done by Handayani in 2011 at RSI Surabaya (Surabaya Islamic General Hospital) on the effects of music therapy on pain levels showed that of 12 postoperative patients given no music therapy, 8 patients (66.7%) experienced moderate pain, whereas after given music therapy, the number of patient's with moderate pain decreased to 5 patients (41.7%).

Interventions done by nurses for pain management with non-pharmacological methods include relaxation and distraction techniques. Relaxation techniques which can be used to reduce pain are as follows: deep breathing technique, muscle relaxation, and progressive relaxation exercises. While, distraction techniques can be done in various ways, including visual distraction, auditory distraction, breathing distraction, intellectual distraction, breathing technique and guided imagery.

Pain management with deep breathing relaxation technique is an external action that affects an individual's response to pain. Deep breathing relaxation technique is a form of nursing care which train clients how to perform deep breathing, slow breathing (maximum deep inspiration breath hold), as well slow exhaling. Besides reducing pain, deep breath relaxation technique can also improve pulmonary ventilation and increase blood oxygen. Deep breathing relaxation technique can eliminate postoperative pain because activities in large fibers are stimulated by the action, so that the gate to the activities of small diameter nerve fibers (pain) is closed (Smeltzer & Bare, 2002).

Distraction technique is a method for pain relief by distracting the patients' attention on other things so that they will forget the pain that occurs. One of the techniques is auditory distraction technique by listening to music. Sholawat music therapy (praising and praying for The Prophet Muhammad through music) can overcome pain based on the Gate Control Theory in which pain impulses can be regulated or inhibited by the defense mechanisms throughout the central nervous system. This theory states that pain impulses transmitted when a defense mechanism is open, and impulses are inhibited when a defense mechanism is closed. One way to close this defense mechanism is by stimulating the secretion of endorphins which will inhibit the release of prostaglandin.

Sholawat music is one of the Islamic musical art performed with Javanese music instruments, such as *terbang* (Javanese percussion music instrument). Sholawat can help a variety of diseases, such as mental disorders, stress, coughs and colds. In addition to

its ability to cure various diseases. Sholawat music can also make the feeling peaceful that will reduce pain. Sholawat music can also stimulate an increase of endorphins, a type of morphine substance supplied by the body. Hence, when the peripheral pain neurons send signals, synapses occurs between peripheral neuron and neurons in the brain where prostaglandin delivers impulses. At that time, endorphins will block the release of prostaglandin from sensory neurons, and the pain transmission in the spinal cord is blocked, so that the pain sensation will decrease. Another advantage of distraction technique is that it provides the best influence for a short period of time to overcome the pain during invasive procedures.

RESEARCH METHOD

This quasi-experimental research involved all postoperative patients in Shofa and Marwah Room, Multazam Room, Mina and Arofah Room at RSI Surabaya as the populations. Samples of 32 patients were selected based on the criteria of postoperative patients on day two with pain experience using simple random sampling technique. Independent variables were deep breathing relaxation and auditory distraction techniques, whereas dependent variable was pain scale. NRS (Numeric Rating Scale) was used as the observation sheet. Data were analyzed using independent sample T-test.

The procedures of data collection were as follows:

a. The respondents are selected based on research criteria
b. The respondents were divided into two groups: the treatment group of deep breathing relaxation technique and the treatment group of auditory distraction technique with sholawat music therapy.
c. Assessment of patient's pain level was done by using NRS 0-10 observation sheet before the treatments were given to both groups.
d. The group of relaxation technique was given deep breathing relaxation technique once (1x) per day, ± 10 minutes per patient.
e. The group of auditory distractions technique was given sholawat music therapy once (1x) per day, ± 10 minutes per patient,
f. After giving a deep breath relaxation and auditory distraction techniques with music therapy, the level of pain was re-assessed using a questionnaire

RESULTS

a. Characteristics of respondents by age

Table 1 Characteristics of Respondents by Age in inpatient room for adults patients at RSI Surabaya, located on Ahmad Yani, Surabaya

Age (years of age)	Treatment of deep breathing relaxation technique		Treatment of auditory distraction technique (sholawat music therapy)	
	Total respondents	Percentage (%)	Total respondents	Percentage (%)
16-20	0	0	1	6,3
21-40	10	62,5	6	37,5
41-65	6	37,5	5	31,2
>65	0	0	4	25
Total	16	100	16	100

Source: Primary data

b. Characteristics of respondents by gender

Table 2 Characteristics of respondents by gender in inpatient room for adults patients at RSI Surabaya, located on Ahmad Yani, Surabaya

Gender	Treatment of deep breathing relaxation technique		Treatment of auditory distraction technique (sholawat music therapy)	
	Total respondents	Percentage (%)	Total respondents	Percentage (%)
Male	6	37.5	4	25
Female	10	62.5	12	75
Total	16	100	16	100

Source: Primary data

c. The characteristics of respondents by education

Table 3 Characteristics of Respondents by Education in inpatient room for adults patients at RSI Surabaya, located on Ahmad Yani, Surabaya

Education	Treatment of deep breathing relaxation technique		Treatment of auditory distraction technique (sholawat music therapy)	
	Total respondents	Percentage (%)	Total respondents	Percentage (%)
Elementary	3	18,75	5	31,2
Intermediate	7	43,75	3	18,8
Higher education	6	37,5	8	50
Total	16	100	16	100

Source: Primary Data

d. The level of pain before a deep breathing relaxation and auditory distraction techniques (sholawat music therapy) were administered.

Table 4 Distribution of pain level before the treatment of deep breathing relaxation and auditory distraction techniques (sholawat music therapy) in postoperative patients hospitalized in inpatient room for adults at RSI Surabaya, located on Ahmad Yani, Surabaya

Types of treatments	Pain Scale before treatments			
	N	Mean	SD	SE
Deep breathing relaxation	16	6,50	1,414	0,354
Auditory distraction (sholawat music therapy)	16	7,38	1,088	0,272

Source: primary data

e. The level of pain after a deep breathing relaxation and auditory distraction techniques (sholawat music therapy) were administered.

Table 5 Distribution of the pain level after the treatment of deep breathing relaxation and auditory distraction techniques (sholawat music therapy) in post-operative patients hospitalized in inpatient room for adults at RSI Surabaya, located on Ahmad Yani, Surabaya.

Types of treatments	Pain Scale after treatments			
	N	Mean	SD	SE
Deep breathing relaxation	16	5,00	1,826	0,456
Auditory distraction (sholawat music therapy)	16	3,75	1,342	0,335

Source: primary data

f. The effectiveness of pain level reduction before and after the treatments of deep breathing relaxation and auditory distraction techniques (sholawat music therapy)

Table 6 Distribution of the effectiveness of pain level reduction before and after the treatments of deep breathing relaxation and auditory distraction techniques (sholawat music therapy) in inpatient room for adults at RSI Surabaya, located on Ahmad Yani, Surabaya

Types of treatments	N	Mean of Pain Level	
		Before	After
Deep breathing relaxation	16	6,50	5,00
Auditory distraction (sholawat music therapy)	16	7,38	3,75

Source: primary data

The results of statistical test of independent sample T-test showed $p = 0.035 < \alpha\ (0.05)$, so that H_0 was rejected, which meant that there were differences of the effectiveness in the results after administering deep breathing relaxation and auditory distraction (sholawat music therapy) techniques.

DISCUSSION

Postoperative patients experience various levels of pain. Patients who have undergone surgery will have tissue damage accompanied by the release of substances that can stimulate pain, such as serotonin and prostaglandin. Each patient perceives pain, felt as an uncomfortable feeling, very different. According to the theory claimed by International Association for the Study of Pain (IASP), "Pain is a subjective sensory and emotional unpleasant obtained associated with tissue damage". Meinhart and Mc.Caffery assert, "During the phase of sensation, patients experience pain". Perceived pain is subjective, which means that each person responds to pain differently so that tolerance to pain is also different. A patient's perception of pain response can be influenced by many factors, such as age, sex, and educational level.

The results of research revealed that the average age of both group was 21-40 years of age (young adults). According to the theory proposed by Feldman (2009) that "At the age of 21-40, the cognitive development becomes more complex, and emotional development of personality is still influenced by the stages and events of life". At that age, people tend to report pain if it is pathological and

malfunctions, while the middle-aged adults tend to bury the experience of pain because they assume that pain is natural.

In both groups, the average sex was female. It indicated that females often complained when experiencing pain compared to males who tend to hold pain instead of expressing it. According to Gill's theory, "Men are not worth complaining of pain, while women may complain of pain".

In the group of deep breathing relaxation, almost half (43.75%) had secondary education, whereas half of the group of auditory distraction (50%) were high-educated. It showed that the level of education could influence the response to pain. The higher a person achieved education, the more often he expressed the perceived pain. According to Notoatmojo (2003), "Education is important in influencing a person's mind. The higher a person's education, the more easily he receives information so that they have more knowledge".

In the group of deep breathing relaxation technique, after receiving the treatment, the patients experienced a decrease in pain scale to 5.00 because the muscles which are tense initially are loosened, causing the smooth exchange of oxygen in the body, so the pain is reduced. Smeltzer and Bare (2002) state, "Deep breathing relaxation therapy will cause vasodilation in the respiratory muscles, causing relaxation of the body muscles that makes the blood flows smoothly, so that the homeostasis of the body will be awake and the perceived pain will be reduced eventually.

In the group of auditory distraction technique, once given the treatment, the pain decreased the level to 3.75 because the music heard by the respondent can divert them from the pain. Farida's Gate Control Theory (2010) claims, "Auditory distraction technique with sholawat music therapy can stimulate an increase in endorphin which is a type of morphine substance supplied by the hypothalamus". When the pain of peripheral neurons sends signals synapse, there will be synapses between peripheral neurons and the neurons which lead to the brain where substance P conducts impulses. When endorphins block the release of substance P from sensory neurons, the pain transmission in the spinal cord is inhibited, so that the pain sensation will be reduced.

The results of independent sample T-test showed that $p = 0.035 < \alpha$ (0.05), H_0 was rejected, which meant that there were differences in effectiveness between the techniques of deep breathing relaxation and auditory distraction (sholawat music therapy).

Hence, auditory distraction was more effective than deep breathing relaxation. These two techniques have different levels to decrease pain experienced by the postoperative patients. However, during the treatment of deep breathing relaxation, the respondents should be able to focus on the instructions given by the researchers. In fact, they could not focus on the instructions, so that the given technique did not run optimally. Meanwhile, during auditory distraction treatment (sholawat music therapy), the patients could quietly listen to the music played by the researcher, so that the result was more maximal.

As stated by Smeltzer & Bare (2002), "Deep breathing relaxation technique can improve alveolar ventilation and maintain gas exchange so as to reduce the intensity of pain". Nevertheless, there are three main things needed in relaxation: the right position, the mind rest and quiet environment. On the other hand, music distraction technique can control blood pressure, heart rate, and sides of the brain that control feelings and emotions. Listening to music on a regular basis helps the body to relax physically and mentally, to help relieve and prevent pain.

CONCLUSION AND RECOMMENDATIONS

Both auditory distraction (sholawat music therapy) and deep breathing relaxation techniques can reduce postoperative pain. However, the auditory distraction technique (sholawat music therapy) was more effective than deep breathing relaxation. Thus, nurses are expected to assist the postoperative patients in implementing the techniques of deep breathing relaxation and auditory distraction (sholawat music therapy) independently, besides administering pharmacological techniques.

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