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Original Research

The Effectiveness Of Murottal Al-Qur'an Therapy And Virtual Reality To Reduce Pain Intensity In Post Operating Patients

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Abstract

Pain management in postoperative patients so far in the Shofa Room of PKU Muhammadiyah Hospital in Temanggung is still limited to pharmacotherapy in the form of 1000 mg injection metamizole or 30mg ketorolac injection and the provision of deep breath therapy. Giving this therapy is not optimal in dealing with patient pain. Therefore other therapies need to be given for example non-pharmacology, one of them is a combination of murottal Al-Qur'an therapy and virtual reality when the pharmacotherapy reaction is finished and the complementary therapy has never been done in the room. The purpose of this study was to determine the effect of a combination of Murottal Al-Qur'an therapy and virtual reality on pain intensity in postoperative patients. The research design used in this study was quasi-experimental with a pre-posttest with a control group design approach. The subjects of this study were 32 post-operative patients at PKU Muhammadiyah Temanggung Hospital. The sampling technique used was purposive sampling. The instrument used in obtaining data is the Numeric Rating Scale. The results showed that: 1) there were differences in the average pretest and posttest intensity of postoperative pain in the intervention group with a p-value of 0,000; 2) there is a difference in the average pretest and posttest intensity of postoperative pain in the control group with a p-value of 0.003; and 3) there is a significant difference in the decrease in intensity of postoperative pain in the intervention group and the control group with a p-value of 0.009 where the experimental group showed a decrease in intensity more effectively than the control group. The results of this study indicate that the combination of Murottal Al-Qur'an therapy and virtual reality is effective in reducing pain intensity in postoperative patients.

INTRODUCTION

Perioperative nursing is all treatment that uses an invasive way by opening or displaying the part of the body to be operated on by making incisions starting from pre-operative, intra-operative, and post-operative stages (Potter & Perry, 2010). Perioperative nursing aims to establish the diagnosis (biopsy, exploratory laparotomy), for healing (mass excision). Each perioperative phase begins and ends in a specific time with a sequence of events that make up the surgical experience, and

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each includes a wide range of nursing behaviours and activities performed by nurses using nursing processes and nursing standards.[1]

Some disease conditions require perioperative or surgical measures. Data from the World Health Organization (WHO) is estimated that every year there are 230 million surgeries performed worldwide. Research in 56 countries from 192 countries is estimated that 234.2 million surgical procedures are performed every year and have the potential to cause complications and death (WHO, 2013), while in Indonesia surgical cases reached 1.2 million people in 2013 and is estimated to increase every year.[2] Perioperative action is very risky if it is not handled properly and properly according to the procedure and can cause various complications at every stage.

The results of a preliminary study in the Shofa Room of PKU Muhammadiyah Temanggung Hospital showed that the prevalence of postoperative patients during the last three months from September to November 2019 has increased quite significantly, in September 112 patients, October 126 patients, and November 136 patients. A preliminary study conducted on 5 patients at 5 hours since the administration of postoperative analgesic therapy at H + 1, 5 of these patients still complained of moderate to severe pain (scale 4 - 7). These data are proven by a study conducted by other study that the half-life of intravenous administration of ketorolac injection is five hours in adult patients. After five hours post-injection, the drug concentration in the blood decreases, as a result of which the analgesic effect of the drug decreases. [3, 4] Pain that arises as a result of tissue damage is subjective and causes discomfort.[5] Pain is a physiological mechanism that aims to protect yourself and as a warning sign that tissue damage is occurring, therefore, assessment of pain by nurses in postoperative patients is very important.[6] After the pain assessment is carried out, it is necessary to collaborate to provide analgesic therapy with the right dose.[7] The problems that arise when the use of analgesic therapy for a long enough time can cause adverse side effects, one of which is increased gastric acid secretion.[8] Therefore, it is also important to provide non-pharmacological therapy to reduce postoperative pain, one of which is by using murottal Al-Quran therapy.[9]

Pain management in postoperative patients so far in the Shofa Room of PKU Muhammadiyah Temanggung Hospital is still limited to providing pharmacotherapy in the form of 1 gram of metamizole injection and 30mg of ketorolac injection (based on standard operational procedures of PKU Muhammadiyah Temanggung Hospital) and providing deep breath therapy. The administration of this therapy is deemed not optimal in dealing with patient pain because based on a study conducted by researchers on 5 patients, all of them still complained of pain. Therefore, other therapies need to be given, for example non-pharmacological, one of which is a combination of murottal Al-Quran therapy and virtual reality when the pharmacotherapy reactions have run out and the complementary therapy has never been done in that room. This combination of therapy is expected to have a more effective impact in reducing the pain intensity of the patient because, with this combination of therapy, 2 nerves are simultaneously activated, namely the visual and auditory nerves.

Murottal Al-Quran is a recording of the reading of a letter in the Al-Quran chanted by a qori '(Al-Quran reader) in the form of sound.[10] Murottal Al-Quran is claimed to be one of the effective non-pharmacological pain management in postoperative patients. This is evidenced by a study that states that listening to the murottal Al-Quran can provide benefits in the healing process because it can reduce pain and can make you feel relaxed, this is due to a decrease in adrenal corticotropin hormone (ACTH)

which is claimed to be stress hormone. Besides, other research states that listening to the murottal Al-Quran for a few minutes can reduce pain intensity and can have a positive effect on the listener.[11] Besides, non-pharmacological therapy that can contribute to reducing pain by distracting attention is to use a virtual reality tool, because this tool can provide multimodal stimuli (visual, auditory, tactile, and olfactory).[12] Virtual Reality is a sophisticated technology that can make users interact with an environment that is simulated by a computer (computer-simulated-environment). This virtual reality uses a system that follows the user's head movements and gives the illusion of being surrounded by a virtual world.[13]

Murottal Al-Quran therapy and the use of virtual reality have the same function, which is to activate the hearing and visual nerves. In the chanting of the sound of the Al-Quran physically containing human elements, the human voice is an amazing healing instrument and the most accessible tool. Sound can reduce stress hormones, activate natural endorphins, increase feelings of relaxation, and divert attention from fear, anxiety and tension, improve the body's chemical system so that it lowers blood pressure and slows down breathing, heart rate, pulse, and brain wave activity. The rate of breathing that is deeper or slower is very good for causing calm, emotional control, deeper thinking and better metabolism.[14]

Murottal Al-Qur'an therapy in the form of a sound recording containing surah Al-Rahman is more familiar and has 78 verses and all the verses have a short character and 31 verses are repeated so that they are comfortable to listen to and can cause a relaxing effect for even lay listeners.[15] Murottal Ar-Rahman when combined with virtual reality using glasses / virtual box containing videos given to patients for 15 minutes can have a positive psychological effect. This is because when the combination of this therapy is played and shown then reaches the brain, this therapy will be translated by the brain.[16] Based on this phenomenon, the researcher was interested in conducting a study on the combination of murottal Al-Quran therapy and Virtual Reality on pain intensity in postoperative patients at PKU Muhammadiyah Hospital, Temanggung.

METHODS

The research design used in this study was quasi-experimental with a pre-posttest approach with a control group design, where the respondents were divided into two groups, namely the intervention group and the control group. The intervention group received routine actions in the room, namely intravenous analgesic therapy and deep breathing relaxation nursing actions, coupled with a combination of murottal Al-Quran therapy and virtual reality. The control group received standard room therapy, namely intravenous analgesic therapy and deep breathing relaxation nursing measures.

Research subjects The subjects of this study were 32 post-operative patients at PKU Muhammadiyah Hospital, Temanggung. The sampling technique used is population sampling. The instrument used in obtaining data was the Numeric Rating Scale (NRS). The data analysis technique used in this study was the Shapiro Wilk to find the normality of the data, then followed by the Wilcoxon test to look for differences in the average pretest and posttest in each group and the Mann Whitney test to look for differences in the average pain intensity in the intervention group. and the control group.

RESULTS

The research subjects in this study were 32 postoperative patients at PKU Muhammadiyah Temanggung Hospital from February 2 to March 2, 2020. The results of the characteristics of respondents in this study were used to determine the

general description of respondents based on age and gender, type of surgery, and level of anxiety. An overview of the characteristics of the respondents is presented in the following table:

Result of this study shows the distribution of research subjects. In the experimental group for the age category, the most were elderly as many as 7 people (43.8%) and at least 1 person for late adolescence (6.3%), the distribution of respondents for the most types of surgery was appendectomy as many as 7 people (43.7%) and the least was debridement and prostatectomy of 1 person (6.3%), while the distribution of respondents for the category of the highest level of anxiety was on the moderate anxiety scale, namely 9 people (56.3%), while for the control group the age category was the most elderly. as many as 7 people (43.7%) and at least 1 person for late adolescence (6.3%), the distribution of respondents for the most types of surgery was appendectomy as many as 8 people (50.0%) and the least amount of debridement and prostatectomy was 1 person (6, 3%), while the distribution of respondents for the category of the highest level of anxiety on the medium anxiety scale was 7 people (43.7%).

Based on the data normality test, it can be seen that the overall data is not normal, so the next hypothesis test uses a non-parametric test, namely the Wilcoxon test and the Mann Whitney test.

Based on table 1, shows that in the intervention group the average pain intensity of respondents before being given treatment was 5.56 and after being given the treatment it became 3.44 with a mean difference of 2.12, the pain intensity value at the time of the pre-test got a minimum value of 4 and a maximum of 7 whereas in the post-test the minimum score is 2 and the maximum is 5. The p-value in the intervention group is 0,000. In the control group, the average pain intensity of respondents before being given treatment was 4.88 and after being given the treatment it became 4.31 with a mean difference of 0.57, the value of pain intensity at the pre-test got a minimum value of 3 and a maximum of 6 while in the post-test the minimum value is 3 and the maximum is 6. The p-value in the control group is 0.003. The results of the data analysis showed that there was a difference in the average pain intensity before and after the intervention was given, meaning that there was a significant decrease in postoperative pain intensity in both the intervention group and the control group.

Table 1 shows that the average (mean) of the intervention group on the post-test data was lower (3.44) than the average (mean) of the control group (4.31). This means that the pain intensity in the intervention group was lower after receiving treatment compared to the control group. The results of the data analysis showed that the p-value was 0.009, meaning that there was a significant difference in the reduction in pain intensity in the intervention group and the control group.

Table 1
The mean differences of Post-operative Pain Intensity

Indicators	Intervention group	Control group	p
Pain intensity before intervention	5.56 (±0.814)	4.88 (±0.885)	0.230
Pain intensity after intervention	3.44 (±0.814)	4.31 (±0.875)	0.009
p	0.0001	0.003	

DISCUSSION

Based on the results of the study showed that most of the respondents underwent appendectomy surgery as many as 16 people (66.6%). Appendectomy surgery is a surgical procedure to remove the infected appendix or appendix (appendicitis). The results also showed that the age group of respondents were elderly as many as 14 respondents (29.2%) and the least for the late adolescence was 2 people (4.2%). Age can be a factor affecting pain. Elderly

reported lower levels of pain than younger ages, especially children. This is because children have the highest level of distress and anxiety compared to adults or the elderly.[9]

The results of research conducted on all-male respondents. The results of this study indicate that before the combination of murottal Al-Qur'an therapy and virtual reality (pretest) in the intervention group the average pain intensity was 5.56 (moderate) and after the intervention (posttest) was 3.44 (mild) with the difference figure obtained p-value 0.000. In the control group, the pretest measurement results were 4.88 (moderate), and the posttest measurement results were 4.31 with a difference value obtained p-value 0.003, meaning that the two groups showed a difference in pain intensity before and after the intervention was given.

The results of this study reinforce the previous study entitled the effect of visual distraction therapy with virtual reality media on the pain intensity of post-laparotomy patients. The average pain intensity before visual distraction therapy with virtual reality media was 5.18 with a standard deviation of 0.751. Meanwhile, the pain intensity after therapy was 3.55 with a standard deviation of 1.036. The statistical test results obtained a p-value of 0.002 (p-value 0.002 <α 0.05), it is concluded that there is an effect of visual distraction therapy with virtual reality media on pain intensity in post-laparotomy patients.

Post-surgery patients will experience different pain depending on the patient's condition at that time. The pain is caused by an incision wound in the area that was operated on (Potter & Perry, 2010). The pain can stimulate the sympathetic nervous system, increase heart rate and blood pressure which can interfere with the patient's hemodynamics. The action that must be taken is to provide maximum comfort, eliminate factors that increase pain perception. Postoperative analgesic therapy in the form of intravenous injection of metamizole and/or ketorolac 1 ampoule and 500 mg tablet of mefenamic acid which is given three times a day. The pain will appear again after the reaction from the drug wears off, so the patient has to wait for the next drug administration hour according to the predetermined hour.[3, 4]

In this study, it showed that the decrease in the average pain intensity of the intervention group was higher than the control group with a difference in the mean reduction of 1.55 with a p-value of 0.009 (p-value <0.05), this means that there is a difference in the decrease in intensity. pain relief after being given a combination of murottal Al-Quran therapy and virtual reality in the intervention group than in the control group in postoperative patients. In this study, it can be concluded that the combination therapy of murottal Al Qur'an and virtual reality is effective in reducing the intensity of postoperative pain. The results of this study are in line with the research of other research in her study that found that murottal therapy affected reducing pain in mothers who were treated with curettage. The results of this study are also in line with other research which states that murottal therapy has a major effect on reducing pain responses in post hernia surgery patients in Cilacap. Through the provision of Al Qur'an murottal therapy, there will be changes in the electric current in the muscles, changes in blood circulation, changes in heart rate and blood levels in the skin.

Murottal Al Qur'an therapy is proven to activate body cells by converting sound vibrations into waves that are captured by the body, reducing the stimulation of pain receptors so that the brain releases endogenous natural opioids because these opioids are permanent to block pain nociceptors. Meanwhile, the use of virtual reality is for distraction or away from attention to something that is being faced, for example, pain (pain).

The results showed that after a combination of murottal Al-Quran therapy and virtual reality (post-test) the average pain intensity value in the intervention group 3 (mild), with the lowest pain intensity 2 (mild) and the highest 5 (moderate). . These results indicate that there is a difference in the lowest pain intensity, previously on a scale of 4 after being given a combination of murottal Al-Quran therapy and virtual reality to the lowest on a scale of 2.Pain management in postoperative patients in the Shofa Room of PKU Muhammadiyah Hospital Temanggung is still limited by providing pharmacotherapy in the form of intravenous injection of metamizole and/or ketorolac 1 ampoule and mefenamic acid 500 mg. Administration of this therapy has begun to disappear drug reactions at 5 to 6 hours after administration. The combination of murottal Al-Quran therapy and virtual reality was given after the analgesic reaction disappeared, which was six hours after giving the analgesic while waiting for the analgesic therapy program the next hour to enter.

After the bivariate test using the Mann Whitney test, it can be seen that there are differences in pain intensity in postoperative patients before and after being given a combination of murottal Al-Qur'an therapy and virtual reality with p-value = 0.009 (<α = 0.05), so that It can be concluded that there is an effect of a combination of murottal Al-Quran therapy and virtual reality on pain intensity in postoperative patients in the Shofa Room of PKU Muhammadiyah Hospital, Temangung.

The distraction technique in the form of listening to the murottal Al-Qur'an can relieve and calm the patient's feelings of pain, it was found that there was a decrease in pain in postoperative patients.[10] Sound therapy can regulate stress-related hormones, including ACTH, prolactin and growth hormone and can increase endorphin levels, thereby reducing pain.[9] Endorphins are neuroregulatory types of neuromodulators involved in the analgesic system, found in the hypothalamus and areas of the analgesia system (limbic system and spinal cord). These analgesic properties make endorphins an endogenous opioid. Endorphins are thought to cause presynaptic and postsynaptic inhibition of pain fibres (nociceptors) that are syncing on the dorsal horn. These fibres are thought to achieve inhibition through inhibition of pain neurotransmitters.[17] Therapy in the form of music or sound must be listened to at least 15 minutes to provide a therapeutic effect [5], while according to Yuanitasari (2008) the duration of music or sound therapy for 10-15 minutes can have a relaxing effect. The low sound intensity between 50- 60 decibels is comfortable and painless and has a positive impact on the listener. Al-Quran reading therapy has been shown to activate body cells by converting sound vibrations into waves captured by the body, reducing pain receptor stimuli and the brain is stimulated to release endogenous natural opioid analgesics to block pain nociceptors.[18]

Another distraction technique is visual distraction using virtual reality. Visual distraction or vision is a distraction directed into visual actions. The purpose of using this visual distraction technique is to obey or divert attention to something that is being faced, for example, pain.[19, 20] Distraction using virtual reality can stimulate the release of endorphins, the mechanism is to reduce pain according to the Gate Control theory.[21] When getting normal stimulation (somatosensory), the cell projection gate signals, so that it does not cause pain perception. If pain stimulation is received, the stimulation signal will pass through the large and small nerve fibres causing the inhibitor cells to become inactive, so that the projection gate of the cells opens and causes the perception of pain in the brain.

It can be concluded that the combination of murottal Al-Quran therapy and virtual reality is proven to reduce pain intensity in postoperative patients. This is because listening and seeing are some of the

distraction techniques that can be done, the technique focuses on diverting the patient to something other than pain. Distraction can stimulate the descending control system, thereby releasing endogenous opiates in the form of endorphins, dynorphins and reduced pain.

CONCLUSION

There is a significant difference in the average pain intensity in the intervention group and the control group with a p-value of 0.009. The average pain intensity in the intervention group was 3.44, while in the control group it was 4.31, which means that the application of a combination of murottal Al-Quran therapy and virtual reality was proven to be effective in reducing pain intensity in postoperative patients.

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CONFLICTS OF INTEREST

Neither of the authors has any conflicts of interest that would bias the findings presented here.

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