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The Effect Of Lavender Aroma Therapy And Musical Instruments On Pain Levels In Post-Surgical Patients

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Abstract *:* Postoperative pain is acute and requires immediate treatment. Pain after surgery is physiological, but it is one of the most common complaints from patients after surgery. This study aims to determine how much influence lavender aromatherapy and musical instruments have on pain levels in major postoperative patients. This research method uses a type of quantitative research with a *Quasi Experiment* design. The population in this study were major post-surgical patients who were treated at Aloei Saboe Hospital using the *Accidental Sampling* technique. With a sample of 36 respondents, 18 respondents in the control group and 18 respondents in the intervention group. Data analysis using the *Mann-Whitney* test. The results of this study indicate that there is a difference in effect of Lavender Aromatherapy and Musical Instruments on pain levels in post-surgical patients in the Aloei Saboe Hospital Working Area in the control group and intervention group with a significant value (p=0.000 <0.05) which means there is an Effect of Lavender Aromatherapy and Musical Instruments on Pain Levels in Post-Surgical Patients. Research is expected to be a reference reduce pain in post-surgical patients by providing Lavender Aromatherapy and Musical Instruments.

Introduction

Surgery is a surgical or invasive procedure on a part of the body that aims to treat conditions that are difficult to cure with simple drugs. Generally, surgery is performed by making an incision on the part of the body that results in injury and then repaired with sutures (1).

On the severity of the disease, surgery is divided into minor and major surgery depending on the complexity of the operation and the recovery process. Major surgery is a major surgical procedure that uses general anesthesia (2).

Major surgery is a surgical procedure that uses general anesthesia which is one of the forms of surgery that is often performed. Indications for major surgery include cholecystectomy, nephrectomy, colostomy, hysterectomy, mastectomy, amputation, surgery due to trauma, laparatomy and sectio caesarea (3).

Based on data obtained from the *World Health Organization (WHO)*, the number of patients with surgery has increased significantly from year to year. It was recorded that in 2017 there were 140 million patients in all hospitals in the world, while in 2019 the

data increased by 148 million. (*4*)

According to the *World Health Organization* (5), the number of clients undergoing surgery has increased significantly every year. It is estimated that every year there are 165 million surgical procedures performed worldwide. Recorded in the year 2020 saw 234 million clients in all the world's hospitals.

Based on data from the Ministry of Health (6) surgery ranks 11th out of 50 disease treatments in Indonesia, 32% of which are elective surgery. Disease patterns in Indonesia are estimated to reach 32% with major surgical operations.

Gorontalo Province has several hospitals that are the main referral places for patients undergoing surgery. One of them is RSUD Aloei Saboe which is known as a referral hospital especially for surgical patients. In 2023, there were 1,939 patients who underwent surgical procedures at this hospital. In the last 3 months, 251 people underwent major surgery.

Post-surgical procedures can cause pain, with the frequency, intensity and duration of post-surgical pain varying from patient to patient. Pain in postoperative patients is caused by mechanical irritation of the wound that stimulates chemical pain mediators by the body. (7).

In general, pain is a feeling of discomfort, either mild or severe. Pain is defined as a condition that affects a person and its existence is known when a person has experienced discomfort, both mild and severe. Postoperative pain is a common problem in hospitals, which is inevitable after surgery. It is estimated that around 77% of patients experience inadequate pain treatment, with 71% still feeling pain after treatment, and 80% experiencing moderate to severe pain. (8).

form of pain experienced by clients after surgery is acute pain. Acute pain seriously threatens the client's postoperative healing, inhibiting the client's ability to actively engage in mobilization, rehabilitation, and prolonged hospitalization *(9)*. Pain after surgery is physiological, but it is one of the most feared complaints by clients after surgery.

Postoperative pain is acute and requires treatment immediately. Pain management involves pharmacological and non-pharmacological approaches. Successful interventions are more likely to occur if they are carried out before pain becomes more severe, and often good results are achieved by applying several interventions simultaneously (10).

Post-surgical pain management generally involves pharmacological therapy using narcotic and non-narcotic analgesics, as well as non-pharmacological therapies such as distraction and relaxation techniques. Some alternatives include deep breath relaxation, warm water compresses, meditation, aromatherapy, and music therapy. However, in this study researchers focused on alternatives to aromatherapy and music therapy to distract and relax patients in post-surgical pain. Because it is still very rare for studies to combine lavender aromatherapy and music therapy to treat postoperative pain.

In this case, aromatherapy is a method that uses essential oils to improve physical, emotional and mental health. spiritual. Another effect is to reduce pain and anxiety. By inhaling the scent of lavender, alpha waves in the brain will increase, which helps to feel relaxed. Aromatherapy provides a calming sensation for the brain and body, and reduces the stress felt (11).

In line with the research proposed by Dr. Alan Huck (Neurology Psychiatrist and Director of the Smell and Taste Research Center) aroma has a direct effect on the human brain, similar to narcotics. The nose has the ability to distinguish more than 100,000 different odors that greatly affect the brain related to mood, emotion, memory, and learning (12).

The administration of aromatherapy for post-surgical pain has been shown to have potential as an effective method of reducing pain and improving patient comfort after surgical procedures. Several studies have shown that the use of essential oils with specific scents can reduce anxiety, improve mood, and reduce the need for strong painkillers. In conclusion, aromatherapy has potential as a safe therapeutic approach and can be a valuable addition in post-surgical pain management.

In addition to aromatherapy, music therapy, also known as musicotherapy, is a non-pharmacological approach to health that uses music to address physical health

problems, individuals, including those with

Control group pain scale	**Before**		**after**	
	N	**%**	**N**	**%**
None pain	0	0	0	0
Mild Pain	2	11,1	4	22,2
Moder ate pain	16	88,9	14	77,8
Total	**18**	**100**	**18**	**100**

physical disabilities in social interactions (13).

The effect caused by music therapy is to have a relaxing effect on the body, affect blood flow, stabilize heart rate, and cause a sense of calm (14). Besides being able to reduce pain and relaxation, music can also increase the release of endorphin, thereby reducing the need for analgesic drugs (15). Music therapy is also known as a therapeutic method that uses music to relieve pain and reduce stress in patients undergoing treatment. Instrumental and classical music are often used in this therapy, with positive effects such as improving physical, mind, and mental health, and reducing anxiety and pain (16).

The combination of music therapy and lavender aromatherapy, along with standard analgesic therapy, has been shown to be effective in managing postoperative pain. One example of a study showed that patients who received this combination of therapies experienced a significant reduction in their pain levels, from an average score before therapy use (initial score of 6) to an average score after therapy use (final score of 3).

Through initial observations, researchers found that from the results of interviews with five patients underwent surgery, on average they experienced pain in the operated body part. The researcher also found that in the post-surgery room, on average, they only did deep breath relaxation therapy and did not find other therapeutic measures. such as aromatherapy or music therapy.

Based on the description above, the researcher is interested in conducting research on "The Effect of Lavender Aromatherapy and Musical Instruments on Pain Levels in Major Post-Surgery Patients" at Aloei Saboe Hospital.

Gorontalo Province has several hospitals that are the main referral places for patients undergoing surgery. One of them is RSUD Aloei Saboe which is known as a referral hospital especially for surgical patients. In 2023, there were 1,939 patients who underwent surgical procedures at this hospital. In the last 3 months there were 251 people who underwent major surgery. Through the initial observation, the researcher found that from the results of interviews with five patients who underwent surgery, on average they experienced high levels of pain.

Methods

This study was conducted at Aloei Saboe Hospital, Gorontalo from April 04 to July 10, 2024. This type of research is research quantitative research using *Quasi Experiment* design. *Accidental sampling* technique, which is a sample made by chance anyone who meets the researcher can be used as a sample, with predetermined criteria. The data analysis used in this study was the *Mann-Whitney* test.

Univariate Analysis

A. Pain Intensity of Major Postoperative Patients Before and After in the Control Group

Frequency Distribution Table of Intensity Pain of Major Post-Surgical Patients Before and After At Group Control in the Aloe Saboe Hospital Working Area.

Source: primary data, 2024.

From the results of research conducted by researchers, the distribution of pain intensity before and after in the control group in the Aloe Saboe Hospital work area is as follows:

Based on the table above, it shows that the pain intensity in the control group before 30 minutes to be observed was found to be mostly classified as moderate pain category, namely

Pain Scale	N	Averag e± std deviatio n	Min - ma x	*P-value*
pretest	18	4,22 ± 0,808	3-6	0,083
posttest	18	4,22 ± 0,873	3-6	

16 respondents or 88.9%, followed by mild pain as many as 2 respondents or 11.1% and for the category no pain as many as 0 respondents. After 30 minutes of observation and reviewit was found that the moderate pain category was 14 respondents or 77.8%, mild pain was 4 respondents or 22.2% and the category of no pain was 0 respondents.

B. Pain Intensity of Patients After Major Surgery Before and After in the Intervention Group

Table Frequency Distribution of Pain Intensity of Major Postoperative Patients Before and After in the Intervention Group Aloei Saboe Hospital Working Area

Pain scale intervention group	Before		after	
	N	%	N	%
None pain	0	0	10	55,6
Mild pain	1	5,6	8	44,4
Moderate pain	17	94,4	0	0
Total	18	100	**18**	**100**

Source: primary data, 2024.

From the results of research conducted by researchers, the distribution of pain intensity before and after treatment with lavender aromatherapy and musical instruments in the intervention group in the Aloe Saboe Hospital work area is as follows:

Based on the table above, it shows that the pain intensity in the intervention group before the treatment of lavender aromatherapy and musical instruments was found to be mostly in the category of moderate pain as many as 17 respondents or 94.4%, mild pain 1 respondent or 5.6% and for the category no pain as many as 0 respondents. After the treatment of lavender aromatherapy and musical instruments, the category of no pain was found to be 10 respondents or 55.6%, mild pain was 8 respondents or 44.4% and the category of moderate pain was 0 respondents.

Pain Scale	N	Average± std deviation	Min-max	*P-value*
Control	18	4,06 ± 0,873	3-6	0,000
Intervention	18	0,67 ± 0,840	0-2	

Bivariate Analysis

A. Control Group

Table Analysis of the Effect of Lavender Aromatherapy and Musical Instruments on Pain Levels in Major Post- Surgical Patients in the Control Group at Aloe Saboe Regional Hospital.

Source: primary data, 2024.

Based on the table above, the average value and standard deviation of the values before and after are obtained. For the before value, the mean and standard deviation values are 4.22 and 0.808 respectively with a minimum value of 3 and a maximum of 6. While for the after value, the mean and standard deviation values are 4.06 and 0.873 respectively with a minimum value of 3 and a maximum of 6. From the table above, the *Wilcoxon* significance test value is 0.083. This shows that there is no significant average difference between the pre and post scores in the control group (*p-value> 0*.05).

B. Intervention Group

Table Analysis of the Effect of Lavender Aromatherapy and Musical Instruments on Pain Levels in Major Post-Surgical Patients in the Intervention Group at Aloe Saboe Regional Hospital.

Source: primary data, 2024.

Based on the table above, the average value and standard deviation of the values before and after are obtained. For the value before the average value and standard deviation are obtained While for the value after the average value and standard deviation are obtained as 0.67 and 0.840 respectively with a minimum value of 0 and a maximum of 2. From the table above, the *wilcoxon* significance test value is also obtained, which is 0.000. This shows that there is a significant average difference between the pre and post scores in the intervention group (*p-value <0*.05).

C. Comparison of Pain Scale After in Control Group and Intervention Group

Comparative Analysis Table of Pain Scale After in the Control Group and Intervention Group in the Aloe Saboe Hospital Area.

Source: primary data, 2024.

Based on the table above, the mean value and standard deviation of the posttest value of the pain scale in the control and intervention groups were obtained. For the control group, the mean and standard deviation values were 4.06 and 0.873, respectively, with a minimum value of 3 and a maximum of 6. Meanwhile, for the intervention group, the mean and standard deviation values were 0.67 and 0.840, respectively, with a minimum value of 0 and a maximum of 2. From the table above, the *mann whitney* significance test value is also obtained, which is 0.000. This shows that there is a difference in the average posttest value which is significant between group control and intervention groups (*p-value<0*.05).

Pain Scale	N	Average± std deviation	Min-max	*P-value*
pretest	18	4,44 ± 0,784	3-6	0,000
posttest	18	0,67 ± 0,840	0-2	

Discussion

1. Pain Intensity After Major Surgery Before and After Lavender Aromatherapy and Musical Instruments in the Control Group in the Working Area of Aloe Saboe Hospital

In this study all respondents underwent major surgery. The types of major surgery undergone by respondents included appendectomy with a total of 5 control group respondents, followed by several operations such as ORIF, thyroidectomy, mastectomy, scoliosis and others as in table 4.3. This study supports data published by the Ministry of Health (17) that disease patterns in Indonesia are estimated to reach 32% with major surgery.

Based on the results of the study of the effect of lavender aromatherapy and musical instruments on the control group, it shows that the pretest value on the table Table 4.4 shows that 18 respondents were mostly in the moderate pain category as many as 16 respondents (88.9%) and the remaining mild category was 2 respondents (11.1%). And after 30 minutes without being given intervention in table 4.4 shows that 18 respondents in the control group with moderate pain category were 14 respondents (77.8%) and mild pain as many as 4 respondents (22.2%).

This is likely due to the effects of tissue trauma during the surgical procedure leading to activation of pain receptors. In addition, the acute phase of post-surgical pain in the first 24 hours especially if the effect of previous analgesic drugs begins to decline. as well as psychological factors can also be worsened pain perception in most of these respondents. Meanwhile, the other 4 respondents were in the mild pain category, which may be due to a lower level of surgical trauma, less individual sensitivity to pain, or the influence of more effective analgesic drugs. Good coping mechanisms and previous pain experience can also influence pain perception.

This research is in line with research conducted by (18) which explains that pain intensity in major postoperative patients is dominated by respondents at moderate pain levels between 4-6 as many as 15 respondents (100%). In his research he also explained that the factors that influence postoperative pain include psychological factors, the level of individual sensitivity which is also related to previous pain experiences. This research is also supported by the Fourth Theory of Pain. This theory explains that pain consists of two components: the perception of pain and a person's reaction to it. The reaction is described as a complex biopsychosocial process involving cognition, past experiences, culture, and various psychological factors that influence pain perception (19).

Overall, the control group consisted of 13 respondents aged 16-45 years and 5 respondents aged 46-65 years. This study is in line with several similar studies that show variations in pain levels based on chronological age. Research from (20) also explained that young adult patients have a response that is more sensitive to pain. to pain differently than in the elderly. Older people require a higher intensity of pain stimuli than younger people. Older adults consider pain to be a natural component of the aging response, so complaints are often ignored.

In the control group, 16 respondents (88.9%) were in the moderate pain category. The results showed that moderate pain in these respondents was generally related to the type of surgery which largely focused on major surgery. Major surgery is a surgical procedure that uses general anesthesia which is one form of surgery that is often performed (21). The difference between major and minor surgical pain levels lies in the risk of complications and recovery time. Major surgery is surgery performed on body parts such as the head, chest and abdomen, with a high risk of complications and a long recovery time.

From the description above, it can be assumed that pain in post-surgical patients can also be influenced by age and type of surgery. The pain experienced by respondents also varies from mild pain to moderate pain.

2. Pain Intensity after Major Surgery Before and After Lavender Aromatherapy and Musical Instruments in the Intervention Group in the Aloe Saboe Hospital Working Area

In the intervention group based on the results of the study in the discussion table, it shows that of the 18 respondents in the intervention group before being given treatment, almost all respondents were in the moderate pain category.

As many as 17 respondents (94.4%) felt moderate pain conditions such as hissing but were still able to show the location of the pain and could still describe it when feeling pain. and the remaining mild pain was 1 respondent (5.6%) the mild pain experienced by this respondent was in the form of when the pain was felt the respondent could still communicate well. This research is also similar to research conducted by (22) which states that post-major surgical patients are all in the moderate pain category as many as 15 respondents (100%).

In the intervention group based on the results showed that of the 18 respondents in this group after being given the intervention, most of the respondents were in the mild pain category, namely 8 respondents (44.4%) and the rest were in the no pain category, namely 10 respondents (55.6%). A total of 8 respondents still felt mild pain despite the intervention, possibly due to the varying effectiveness of the intervention, the physical condition of the individual, or a heavier initial pain level. Meanwhile, the other 10 respondents showed optimal results with the disappearance of pain, which was influenced by the success of the intervention, low initial pain levels, and good coping mechanisms or body adaptation. Initial pain conditions and individual characteristics are the main factors in a person.

This study is in line with previous research by (23) which states that respondents in the intervention group after being given the intervention most experienced mild pain. The same research conducted by (24) is also quite in line, about lavender aroma therapy and musical instruments on pain intensity in post-surgical patients in the pre-test respondents experienced moderate pain as many as 12 respondents (66.7%) and those who experienced mild pain were 6 respondents (33.3%), then after being given therapy 18 respondents (100%) experienced mild pain.

Research (25). Also in line with the results of this study which states at group treatment group, before intervention (pre-test), all 15 respondents experienced moderate pain (scale 4-6). After intervention (post-test), the pain level changed, where 14 respondents (93.3%) experienced mild pain (scale 1-3) and 1 respondent (6.7%) still experienced moderate pain (scale 4-6). This is also supported by the Fourth Theory of Pain as described above.

explained previously and also supported by *The Gate Control Theory*, which explains the relationship between *the* explains the relationship between thoughts,emotion, and pain perception. This theory focuses on the role of factors psychological factors in influencing pain perception (26).

In this study, researchers provided lavender aromatherapy and musical instruments to respondents for 30 minutes, before which researchers asked for consent to become respondents and explained to respondents if they could be accompanied by their families when researchers intervened. Lavender aromatherapy and musical instruments are given to respondents in accordance with predetermined procedures, namely by helping them find a comfortable position, encouraging them to relax, and

providing lavender aromatherapy using a diffuser so that respondents can use it. inhale lavender essential oil while listening to music.

From the results of this study, after being given lavender aromatherapy and musical instruments in the intervention group, respondents initially experienced moderate pain to mild pain, as well as respondents who experienced mild pain some dropped to no pain. The results of this study are in line with research (27) Lavender Aromatherapy and Musical Instruments can have a significant effect in reducing pain levels in postoperative patients.

With lavender aromatherapy and musical instruments, the body can experience a significant reduction in pain levels. Lavender aromatherapy is known to have a calming effect that can help reduce muscle tension and provide a sense of comfort. Meanwhile, musical instruments can distract from the pain, create a more relaxed atmosphere, and stimulate the release of endorphins, which act as natural pain relievers. The combination of these two methods can support more effective pain management and improve respondents' physical and emotional well-being (28).

Researchers argue that the provision of lavender aromatherapy and music therapy is important for respondents with mild, moderate and severe pain levels. provision of lavender aromatherapy and music therapy aims to reduce the pain experienced by respondents after major surgical operations. Lavender aromatherapy and music therapy are the main methods that are effective in relieving pain, so their use can provide comfort and help respondents

3. The Effect of Lavender Aromatherapy and Musical Instruments on Pain Levels in Major Post-Surgical Patients in the Working Area of Aloe Saboe Hospital

results showed that before being given the intervention of lavender aromatherapy and musical instruments, in the intervention group, respondents in the moderate pain category were 17 respondents (94.4%), respondents in the mild pain category were 1 respondent (5.6%), but after being given the intervention of lavender aromatherapy and musical instruments decreased to respondents with moderate pain categories as many as 0 respondents, mild pain as many as 8 respondents (44.4%) and no pain as many as 10 respondents (55.6%).

Based on these results, a statistical test was carried out, the *Wilcoxon* significance test in the intervention group obtained a sig value (2- tailed) = 0.000, because the value (2-tailed)<0.05 which indicates a significant difference between pain intensity before and after being given Lavender Aromatherapy and Musical Instruments to respondents.

In the control group, there were 2 respondents in the mild pain category (11.1%) and 16 respondents in the moderate pain category (88.9%) and after 30 minutes, they were asked again without being given the intervention, the pain felt in the control group to the difference in the mild pain category was respondents (22.2%) and in the moderate pain category was 14 respondents (77.8%) which means that there is no decrease in the pain scale, this is due to older age or age. Being younger may affect the physiological response to pain, where the body's ability to adapt or recover from pain may vary.

In the control group based on the *Wilcoxon* statistical test, the sig value (2-tailed) = 0.083> from 0.05 so it can be concluded that there is no significant effect and difference in pain intensity because no intervention is given reduce pain so that the pain mechanism in postoperative patients is not reduced and causes respondents to feel discomfort.

The results of research that have been carried out in the intervention group and control group were subjected to the *mann whitney* statistical test to see if there is a significant difference between the means in two groups that are not related, obtained sig (2-tailed) = 0.000, because the sig value (2-tailed) ,0.05, it shows that there is a significant difference between pain intensity in the control group and the intervention group after treatment.

This is supported by the results of research that shows the average value after being given Lavender Aromatherapy and Musical Instruments in the intervention group is 0.67 while in the control group without using Lavender Aromatherapy and Musical Instruments the average result is 4.06. The P-value (0.000) <0.05, the average pain in the

control group from scale 5 and scale 6 and there is no change in pain. In the intervention group before being given Lavender Aromatherapy and Musical Instruments ranged on a scale of 5 and after being given the mean value decreased to a scale of 2, so there was a significant difference significantly on group intervention as well as the control group. This shows that the administration of lavender aromatherapy and musical instruments is effective in reducing pain intensity in post-surgical patients.

Factors affecting the results of the study before being given Lavender Aromatherapy and Musical Instruments are that respondents do not know or understand Lavender Aromatherapy and Musical Instruments, as well as things that will be done during the provision of these therapies. Meanwhile, the factors that influence the results of the study after being given Lavender Aromatherapy and Musical Instruments are that respondents are able to adapt during treatment and already understand the methods and benefits of giving Lavender Aromatherapy and Musical Instruments.

This study is in line with Astuti's research (29), which states that to reduce the pain scale in patients, in addition to administering analgesic drugs, non-pharmacological pain management is also needed. This non-pharmacological method aims to reduce dependence on drugs and minimize side effects that may arise from long-term analgesic use. Some methods that have proven effective are lavender aromatherapy and the use of musical instruments.

Lavender aromatherapy works through the limbic system in the brain, which plays a role in regulating emotions and pain sensations. Lavender essential oil has long been used for its relaxing effects, which can help reduce anxiety and pain levels in patients (30). In addition, musical instruments can provide mental distraction and stimulate the body's relaxation response, thereby helping reduce perceptions of pain. Music has also been shown to affect breathing rhythm, heart rate and blood pressure, all of which contribute to reducing pain (31).

According to (32). Therapy using lavender oil is an effective method for controlling postoperative pain. Lavender oil inhalation is an effective non- invasive and non-pharmacological intervention for postoperative pain management. The effectiveness of this intervention was found to be very high, where pain reduction occurred about 30 minutes after administration, so lavender oil can be used as an effective nursing initiative in controlling post-cesarean section pain (33). Similar research by Pratiwi (34) who used relaxation techniques with lavender aromatherapy for 15 minutes routinely showed that lavender had a significant impact on reducing pain intensity in post-cesarean section mothers.

According to Purbasari (35), lavender aromatherapy is a treatment method using essential oils that is useful for reducing pain, providing a calming effect, and reducing motor activity. Inhaling lavender aromatherapy can increase alpha waves in the brain, which helps a person feel more relaxed and contributes to decreased pain. In addition, therapy with musical instruments can be used as a complement to this method. Soothing music, combined with lavender oil inhalation, has been shown to help increase the relaxation effect and decrease pain perception. This combination provides additional support in postoperative pain control therapy.

According to (36) The combination of Lavender Aromatherapy and Musical Instruments provides a holistic approach to pain management, where both methods are not only effective but can also be applied easily in various healthcare environments. Thus, this approach can be part of complementary therapy to improve the quality of life of patients without adding pharmacological burden.

From the observations made by researchers, it was found that most respondents experienced a decrease in pain intensity after being given Lavender Aromatherapy and Musical Instruments. Respondents felt more relaxed and comfortable, and could also mention the level of pain felt (37,38,39). Overall, all respondents on average said that they felt more relaxed, calm, comfortable and the pain felt was reduced even though the responses shown were different for each respondent. And for the control group there was no effect on post- surgical patients because they were

not given the intervention of Lavender Aromatherapy and Musical Instruments, respondents still felt pain and discomfort (40,41,42).

The description of the results of the study above is in line with research conducted by (44.45) The results in this study showed a decrease in the from each day, starting from day I with a scale of 5 after intervention, day II with a scale of 4 after intervention and day III with a scale of 3 after intervention. These results indicate that the combination of standard therapy (administration of analgesics) with music therapy and lavender aromatherapy has an impact on reducing the pain scale in patients.

Researchers argue that factors that can affect the final results of the H0 analysis are rejected and H1 is accepted, namely that there is a positive effect of giving Lavender Aromatherapy and Musical Instruments which are performed once, for 30 minutes on reducing pain intensity during the pre-test and post-test. This can be seen from the statements of respondents who are able to understand the use of Lavender Aromatherapy and Musical Instruments. So it can be assumed that the administration of Lavender Aromatherapy and Musical Instruments is one of the non-pharmacological pain management that can help reduce the pain felt. In addition to saving costs, this technique is also easy to do by the patient's family, does not require a long time and can be done in any condition and has no side effects in its use. The results of this study are supported by previous research studies which indicate that the provision of Lavender Aromatherapy and musical instruments can be used as one of the non-pharmacological nursing interventions on pain intensity in major postoperative patients (46).

Based on this, according to the researcher's assumption of this study is that there is an influence between before and after the intervention of giving Lavender Aromatherapy and Musical Instruments on the level of pain in major post-surgical patients in the Aloei Saboe Hospital Working Area. This shows that the provision of Lavender Aromatherapy and Musical Instruments affects the pain experienced by respondents, for this reason it is necessary to have a role for health workers to teach interventions giving Lavender Aromatherapy and Musical Instruments in post-surgical patients.

Conclusions

This study aims to determine the effect of Lavender Aromatherapy and Musical Instruments on pain levels in post-surgical patients in the Aloei Saboe Hospital Working Area based on the results of the study, it can be concluded as follows:

1. The pain intensity of post-surgical patients before being given Lavender Aromatherapy and Musical Instruments was in the moderate pain category (4-6) with 16 respondents (88.9%) for the control group and for the intervention group with moderate pain as many as 17 respondents (94.4%).
2. The pain intensity of post-surgical patients after being given Lavender Aromatherapy and Musical Instruments was in the moderate pain category (4-6) with 14 respondents (77.8%) for the control group and for the intervention group it was in the mild pain category (1-3) as many as 8 respondents (44.4%) and respondents who had not felt pain were 10 respondents (55.6%).
3. There is an effect of giving Lavender Aromatherapy and Musical Instruments on the level of pain in post-surgical patients in the Aloei Saboe Hospital Working Area in the intervention group using the *Wilcoxon* test obtained a significant value (p = 0.000 <0.05) and there is no effect of giving Lavender Aromatherapy and Musical Instruments on the level of pain in post-surgical patients in Working Area Aloei Saboe Hospital in the control group using the *Wilcoxon* test obtained a significant value (p=0.083>0.05).
4. There is a difference in the effect of giving Lavender Aromatherapy and Musical Instruments on the level of pain in post-surgical patients in the Aloei Saboe Working Area in the control group and the intervention group using the *mann whitney* test obtained a significant value (p = 0.000 <0.05).

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