



Effectiveness of Deep Breath Relaxation Techniques and Music Therapy on Reducing Anxiety Level among Pre-operative Patients

Mohamad Malikul Mulki^{1*}, Ta'adi², Lanny Sunarjo³

¹ Nursing Student, Postgraduate Program, Master Applied of Health
²⁻³ Politeknik Kesehatan Kemenkes Semarang, Semarang, Indonesia

Article info

Article history:

Received; October 27th, 2020

Revised: November 25th, 2020

Accepted: December 25th, 2020

Correspondence author:

Mohamad Malikul Mulki

E-mail: malikul.mulki96@gmail.com

DOI:

<http://doi.org.10.35654/ijnhs.v4i1.389>

Abstract

An operation is a form of action or surgery caused by frightening for everyone. Surgery could threaten the integrity of a body and soul. Thereby, it might impact physiological response during pre-operative period. Reducing the physiological response such as anxiety is essential for patients. Deep breath relaxation techniques and music therapy are alternative therapy to reduce the physiological issue during pre-operative period. The study aimed to examine the effectiveness of deep breath relaxation techniques and music therapy on reducing anxiety among patients during the pre-operative period. The quasi-experimental design, pretest, and post-test with a non-equivalent group were applied in this study. Forty-two patients were selected by using the consecutive sampling technique. The samples were divided into two groups: the intervention group (n=21) and the control group (n=21). The intervention group received the deep breathing relaxation technique and music therapy, while the control group only received the standard care. *Independent t-test* showed a significant difference p -value = 0.000, that the intervention group is better in lowering anxiety levels than the control group. It was found that the mean difference in the level of anxiety in the intervention was 16.41 with $p = 0.000$, while the mean difference between the anxiety level of the control was 6.38 and $p = 0.000$. In conclusion, deep breathing relaxation techniques and music therapy effectively lowered anxiety levels in pre-operative patients.

Keywords: deep breathing, relaxation techniques, music therapy, anxiety level, pre-operative



This is an Open Access article distributed under the terms of the Creative Commons Attribution 4.0 International License CC BY - 4.0

INTRODUCTION

The World Bank (2015) showed that the surgical operation highest position in the world. In Australia, the surgical procedures were 28,907 per 100,000 populations. World Health Organization (WHO) in 2013 showed the number of patients undergoing surgery reached 140 million patients in all hospitals in the world. This number had increased by 148 million people (1-2).

Anxiety and Depression Association of American (ADAA, 2014) estimated that anxiety affects one person in every 25 British people. Women have more anxiety than men, and it commonly occurred between the ages of 35-55. American Psychiatry Association (APA) reported that 8.3% of the population had anxiety and usually occurs in women 55-60%. Community surveys also showed 3-5% of adults experience anxiety, with a lifetime prevalence of over 25%. About 15% of patients who were getting operated on were anxious, and 25% occurred when seeking treatment. Anxiety disorders usually begin in early adulthood, between 15 and 25 years, and increase after 35 years old. Women are affected more frequently than men, with a ratio of up to 2:1 in some surveys (3).

In Indonesia, surgery patients reached 1.2 million people in 2012. Meanwhile, according to The World Bank (2012), Indonesia's surgery until 2012 was 1,905 people per 100,000 populations (1). In one of the largest hospitals in eastern Indonesia, in 2014, 1,967 patients underwent surgery at the Operation Cito Emergency Room. Based on the National Tabulation Data of the Indonesian Ministry of Health (2015), surgery occupies the 11th rank of the first 50 in treating disease patterns in hospitals throughout Indonesia (1).

Data on surgery patients at Madani Hospital in Palu City in 2019 amounted to 701 surgeries consisting of 148 medium surgeries and 553 major surgeries. Whereas in 2020, 117 surgeries were composed of 44 medium surgeries and 73 major surgeries. Respondents in this study were all respondents for major and moderate surgeries.

Operation or surgery is a challenging experience for almost all patients. Various bad possibilities can occur which will endanger the patient. Anxiety response often appears in patients who are going to undergo surgery (pre-surgery). Often patients and their families show a somewhat exaggerated attitude about the anxiety they experience. The anxiety they experience is usually related to all kinds of foreign procedures that the patient has to undergo and threats to mental safety due to surgical procedures and anesthesia. This procedure is a medical procedure that aims to save lives, prevent disability and complications (4).

Surgery or surgery is one of the frightening actions for everyone. Even though doctors and nurses have explained how the impact and benefits will be experienced from this surgery, most people still feel worried about activities that might frighten them because of various reasons or many things that the fear makes them feel anxious (5).

Anxiety needs to get attention and nursing intervention because the patient's emotional state will affect the patient's body functions before the operation. High stress can affect the body's physiological parts, which is marked by an increase in blood pressure, increased pulse frequency, and an increase in the frequency of breath. Because of these signs, the doctor will usually postpone the operation to prevent the healing of the client's disease. Here the role of nurses is needed to intervene with patients from pre to post-surgery. The nurse can perform therapies such as relaxation therapy, distraction, meditation, imagination. In this study, the researchers chose to do relaxation therapy. Theoretically, anxiety can be overcome by using pharmacological and non-pharmacological treatments (6).

Several relaxation techniques can be applied to clients who experience anxiety, deep breathing relaxation. Deep breathing relaxation techniques are believed to reduce anxiety by relaxing the muscle tension that supports anxiety, slowly inhaling (inspiration), then holding it for ± 5 seconds, and finally exhaling (expiration) slowly, followed by relaxing the shoulder muscles

(7).

Anxiety in pre-operative patients can be prevented or reduced by relaxation techniques. Besides deep breath relaxation techniques, several other non-pharmacological therapies are generally known and used in reducing anxiety, one of which is music therapy.

Reducing anxiety before surgery is very important for the patient. In this case, if it is not handled correctly and adequately by the nurse, there will be various kinds of consequences, including delays in surgery. Non-pharmacological therapy to overcome anxiety in pre-operative patients uses relaxation techniques using music or often referred to as music therapy. It was due to music therapy can deliver a relaxation stimulus in the body. Thus nurses can perform music therapy to reduce anxiety levels in classical music therapy. Music therapy aims to help express feelings, physical aid rehabilitation, positively influences mood and emotional conditions, and reduce anxiety levels in patients (8).

One technique that is effective in reducing anxiety is the distraction technique (listening to music). Distraction is a distraction from one's focus of attention to another stimulus (listening to music) to reduce anxiety. Music can produce a calming effect on the nervous system's stress-induced overactivity by closing stimuli in times of anxiety, thereby lowering anxiety levels (7).

Music can also affect breathing because breathing is rhythmic. More in-depth and slower breathing rates are great for inducing calm, emotional control, deeper thinking, and better metabolism. Shallow, rapid breathing can lead to superficial, fragmented thinking, impulsive behavior, and a tendency to make mistakes. Giving music by slowing down the music's tempo or listening to music that sounds longer and slower, people are generally able to deepen and slow down their breathing, thereby allowing the mind to calm down (9).

Techniques used in music therapy for healing disease by using certain rhythmic sounds. The type of music used in music therapy can be adjusted according to your wishes, for example, classical music, instrumental, relaxing rhythmic music, orchestras, and other modern music. Music can affect heart rate, pulse, and blood pressure. Heart rate responds to musical variables such as frequency, tempo, and volume and tends to be faster or slower along with a musical sound's rhythm (6-9).

Relaxation therapy, a technique based on the belief that the body responds to anxiety-inducing thoughts due to pain or illness. One of the studies on the effect of deep breath relaxation techniques and lavender aromatherapy reduces anxiety levels in pre-appendicitis patients. The data showed that the average value before the intervention was 28.70 and 23.70 after the intervention. There is a difference in the value of anxiety after the intervention ($p=0.001 \leq \alpha 5\%$, meaning a decrease in the value of anxiety before and after the intervention (10).

One of the treatments for pre-operative anxiety in patients is deep breathing relaxation techniques. In previous research, the Effect of Deep Breath Relaxation Techniques on Anxiety Levels in Pre-operative Patients, statistical tests obtained a value of $p=0.000$. It was indicated that there is an effect of giving deep breath relaxation techniques on pre-operative patients' anxiety levels. This is evidenced by the decrease in anxiety, which was previously in the moderate anxiety category then turned into mild anxiety after being given a deep breath relaxation technique (11).

A previous study regarding the effectiveness of Murotal therapy and classical music therapy on reducing anxiety among pre-operative and postoperative limb fracture found that most of the patients were moderate anxiety before receiving the intervention. The anxiety level who received music therapy showed a positive effect on reducing patients' anxiety. The valuedifferent test of anxiety levels with murotal therapy t - count of 10.920 ($p=0.000 < 0.05$) means that H_0 is rejected, meaning that the administration of murotal therapy is effective in reducing the patient's anxiety level. Different test of anxiety levels with music therapy and murotal values obtained t -count, amounting to 2.946 ($p=0.000 < 0.05$) so that H_0 is rejected, meaning that the provision of murottal treatment is more effective in reducing the patient's anxiety level than music therapy (12).

The phenomenon found in the Madani Hospital in Palu City shows that most patients who undergo surgery feel anxious, worried, and say they are afraid. Based on pre-operative data for the last three months, patients who were going for surgery experienced some anxiety, especially in patients who had performed surgery for the first time. The type of surgery in this study was the category of medium surgery and major surgery. So researchers are interested in doing research. Based on the experience found in several hospitals that patients who experience pre-operative anxiety do not have a nursing intervention to reduce anxiety.

OBJECTIVE

This study aimed to examine the effectiveness of deep breath relaxation techniques and music therapy on reducing pre-operative patients' anxiety levels.

METHOD

The quasi-experimental, pretest, and post-test with the non-equivalent control group was used in this study. The researcher arranged two groups, such as the intervention group, who received the deep breathing relaxation techniques and music therapy, while the control group received the music therapy. Deep breath relaxation techniques were provided for 15 minutes with short breaks every five breaths and music therapy for 20 minutes.

The anxiety level was measured by using the instrument State-Trait Anxiety Inventory (STAI) questionnaire. If a score of 20-39 = mild anxiety, a score of 40-59 = moderate Anxiety, and a score of 60-80 = severe anxiety. Measurement of respondents' anxiety levels was carried out before and after treatment (pretest and post-test).

This study population was all pre-operative patients with moderate surgery and major surgery at Madani Regional Public Hospital, Palu City. The sample was selected using a consecutive sampling technique and based on inclusion and exclusion criteria. We recruited 42 samples and divided them into two groups the intervention group (n=21) and the control group (n=21).

In this study, researchers collected data by using some techniques such as observation, identification, interview, and filling out observation sheets. The collected data were analyzed through the IBM SPSS version 21.0 program and continued with different tests, namely the parametric test (Paired t-test and Independent t-test) to determine the mean difference between the experimental and control groups.

RESULT

Table 1 Data demographic based on age, gender, occupation, and type of operation

Characteristics	Intervention (n=21)		Control (n=21)		P
	N	%	N	%	
Age					0.680*
17 - 23 years	9	21.4	9	21.4	
24 - 30 years	21	50.0	21	50.0	
31 - 37 years	3	7.1	3	7.1	
38 - 34 years	5	11.9	5	11.9	
45 - 51 years	4	9.5	4	9.5	
Gender					0.590*
Male	19	45.2	19	45.2	
Female	23	54.8	23	54.8	

Occupation					
Farmer	10	23.8	10	23.8	0.532*
Civil servant	4	9.5	4	9.5	
IRT	15	35.7	15	35.7	
Self-employed	13	31.0	13	31.0	
Type of Operation					
Medium	22	52.4	22	52.4	0.553*
Large	20	47.6	20	47.6	
Total	42	100	42	100	

*Homogeneity Test

Table 1 described the data demographic based on age, gender, occupation, and type of operation. Half of the respondents were 24-30 years old (50%). More than half of the respondents were male (54.8%). More than half (52.4%) had a medium of operation regarding the type of operation, and 47.6 were large operations. The data demographic among the intervention group and control group had the same significant value p-value >0.05. It was indicated that the data was homogeneous.

Table 2 The mean differences in anxiety level before and after treatment among the intervention group and control group

Group	Pretest Mean ± SD	Post Test Mean ± SD	Mean (Δ)	t	P
Intervention	55.76±3.015	39.62±3.612	16.41	14.937	0.000*
Control	55.05±3.694	48.67±1.592	6.38	6.172	0.000*

*Paired t-test

Table 2 described The mean differences in anxiety level before and after treatment among the intervention and control groups. The findings showed that the mean anxiety level among the intervention group before receiving the intervention (55.76±3.015) decreased than after receiving the intervention (48.67±1.592) with a p-value of 0.000 (<0.05).

Table 3 The mean difference of anxiety level between the intervention group and control group

Variable	Intervention Group Mean ± SD	Control Group Mean ± SD	Mean Difference	t	P
Anxiety level	39.62±3.612	48.67±1.592	-9.048	-10.504	0.000

*Independent t-test

Based on table 3 showed that after receiving the intervention, the mean of anxiety among the intervention group (39.62±3.612) was lower compared to the control group (48.67±1.592) with a p-value <0.05).

DISCUSSION

This study's bivariate analysis is the Independent t-test, which shows that the mean value of deep breath relaxation and music therapy in the intervention group and the music therapy control group has a significant difference p=0.000. Based on the study results, there is a difference in the values of the two groups after intervention shows the effect of the effectiveness of deep breath relaxation techniques and music therapy on reducing anxiety levels in pre-operative patients. The

results of this study indicate that the two groups before and after treatment experienced changes. The value of deep breath relaxation therapy and music therapy in the intervention group decreased after being treated with a value ($p=0.000$) with a delta of 16.41. In contrast, the mean value of music therapy in the control group fell ($p=0.000$) after being given treatment with a difference of delta 6.38, which means that this study's results are more effective in deep breath relaxation techniques and music therapy on reducing anxiety levels in pre-operative patients.

This study is in line with previous research. The results showed that relaxation effectively reduced anxiety in patients with Sectio Caesarea surgery with significance ($p=0.000$). Likewise, music therapy was effective in lowering anxiety with significance ($p=0.000$). It can be concluded that deep breath relaxation and music therapy can reduce anxiety in patients undergoing Sectio Caesarean surgery. Still, there is no difference in decreased pressure after giving deep breath relaxation techniques and music therapy⁽¹³⁾.

Music can stimulate the central nervous system to produce endorphins, where these endorphins can lower vital signs and create a pleasant atmosphere to minimize fear and anxiety. Music can also provide positive feelings and improve mood to automatically enhance the ability to improve clinically, such as pain and anxiety. Meanwhile, deep breathing relaxation techniques can help calm and comfort and reduce tension in the whole body. Doing deep breath relaxation can increase lung ventilation and increase blood oxygenation. This is because deep breathing is an attempt to inspire and expire so that it affects cardiopulmonary stretching. Cardiopulmonary stretching can increase baroreceptors, stimulating the parasympathetic nerves to reduce tension, anxiety and control the heart rate function so that the body relaxes.

The anxiety that often occurs in pre-operative patients stimulated by stressors with the word surgery or surgery threatens the patient's comfort while being treated in the pre-operative care room and becomes a heavy burden. It was due to each respondent always being overshadowed by prolonged anxiety and perceived feelings. Anxiety is a mental tension accompanied by bodily disturbances that cause a feeling of not being aware of threats. Anxiety itself is closely related to physiological and psychological stress. The anxiety they experience is usually associated with all kinds of foreign procedures that patients have to undergo and threats to mental safety due to surgical policies and anesthesia procedures⁽¹⁴⁾.

Deep breath relaxation techniques and music therapy are techniques to divert attention from anxiety and pain. Deep breathing relaxation techniques and music therapy also have the same effect of stimulating the sympathetic nerves that produce a relaxation response to effectively reduce anxiety

(13).

This study also showed that client anxiety in the control group also decreased. Still, the decrease in anxiety in the intervention group was more significant than reducing anxiety in the control group. This study is related to previous research with data analysis results in the study that music therapy can reduce pre-operative patients' anxiety levels⁽¹⁵⁾.

In this study, all respondents experienced surgery for the first time. This may be what causes respondents to experience anxiety because of ignorance of the experience of surgery. Patients who are going to undergo surgery will experience psychological impacts. Various psychological effects that can arise are anxiety expressed in multiple forms, such as anger, resistance, or apathy towards nursing activities. All that results from ignorance of the surgical experience.

CONCLUSION

In conclusion, the deep breathing relaxation techniques and music therapy were effective. They recommended alternative, complementary therapies since the anxiety levels reduced among the intervention group after receiving the program compared with the control group.

REFERENCES

- (1) Barus M, Simanullang Msd, Gea Ecp. Pengaruh Progressive Muscle Relaxation Terhadap Tingkat Kecemasan Pre Operasi Di Rumah Sakit Santa Elisabeth Medan Tahun 2018. *Jurnal Mutiara Ners*.98:108.
- (2) Ningrum Tp, Isabela C. Gambaran Karakteristik Pasien Wound Dehiscence Menurut Variabel Rotterdam Di Rsud Kota Bandung. *Jurnal Keperawatan Bsi*. 2016;4(2).
- (3) Basri B. Pengaruh Terapi Musik Klasik Terhadap Kecemasan Pasien Pre Operasi Di Instalasi Bedah Pusat Rsup H. Adam Malik Medan Tahun 2018. *Jurnal Keperawatan Priority*. 2019;2(2):41-50.
- (4) Rahmayati E, Handayani Rs. Perbedaan Pengaruh Terapi Psikoreligius Dengan Terapi Musik Klasik Terhadap Kecemasan Pasien Pre Operatif Di Rsud Dr. H. Abdul Moeloek Provinsi Lampung. *Jurnal Kesehatan*. 2017;8(2):191-8.
- (5) Sulaiman L, Amrullah M. Pengaruh Kombinasi Terapi Murottal Al-Quran Dengan Relaksasi Nafas Dalam Terhadap Penurunan Tingkat Kecemasan Pada Pasien Pre Operasi Bedah Umum Di Rsud Provinsi Ntb. *Jurnal Kesehatan Qamarul Huda*. 2019;7(1):18-26.
- (6) Rokawie Aon, Sulastri S, Anita A. Relaksasi Nafas Dalam Menurunkan Kecemasan Pasien Pre Operasi Bedah Abdomen. *Jurnal Kesehatan*. 2017;8(2):257-62.
- (7) Riniasih W, Natassia K. Efektivitas Tehnik Relaksasi Napas Dalam Dan Dzikir Terhadap Penurunan Tingkat Kecemasan Pada Pasien Pre Operasi Bph Di Rsud Dr. Raden Soedjati Soemodiardjo Purwodadi. *The Shine Cahaya Dunia S-1 Keperawatan*. 2016;1(1).
- (8) Mulfiroh S, Wahyuningsih W. Penerapan Terapi Musik Terhadap Penurunan Kecemasan Pada Pasien Pre Operasi Fraktur Di Rumah Sakit Darah Krmt Wongsonegoro. *Jurnal Manajemen Asuhan Keperawatan*. 2018;2(1):34-45.
- (9) Anggreny Y. Pengaruh Terapi Musik Klasik Terhadap Respon Fisiologis Pada Pasien Yang Mengalami Kecemasan Praoperatif Ortopedi. *Jurnal Kesehatan Komunitas*. 2012;1(4):205-9.
- (10) Nurdin Ro, Sariman Pardosi D. Pengaruh Teknik Relaksasi Nafas Dalam Dan Aromaterapi Lavender Untuk Penurunan Tingkat Kecemasan Pasien Pre Operasi Apendiksitis. *Jurnal Media Kesehatan*. 2018;11(1):079-84.
- (11) Manengkey O, Tudu A. Pengaruh Teknik Relaksasi Napas Dalam Terhadap Tingkat Kecemasan Pasien Pre Operasi Di Ruang Igd Ok Cito Rsup Prof. Dr. Rd Kandou Manado. *Journal Of Community And Emergency*. 2017;5(1):50-3.
- (12) Maliya A, Faradisi F, Editors. Perbedaan Efektivitas Pemberian Terapi Murotal Dengan Terapi Musik Klasik Terhadap Penurunan Tingkat Kecemasan Pada Pasien Pre Operasi Fraktur Ekstremitas Di Rumah Sakit Dr. Moewardi Surakarta. *Prosiding Seminar Nasional & Internasional*; 2011.
- (13) Donsu Jd, Amini R. Perbedaan Teknik Relaksasi Dan Terapi Musik Terhadap Kecemasan Pasien Operasi Sectio Caesarea. *Jurnal Vokasi Kesehatan* <https://doi.org/10.30602/jvk.v3i2>. 2017;113.
- (14) Suwanto S, Basri Ah, Umalekhoa M. Efektivitas Klasik Musik Terapi Dan Murrotal Terapi Untuk Menurunkan Tingkat Pasien Kecemasan Pre Operasi Operation (Effectiveness Of Classical Music Therapy And Murrotal Therapy To Decrease The Level Of Anxiety Patients Pre Surgery Operation). *Journals Of Ners Community*. 2016;7(2):173-87.
- (15) Savitri W, Fidayanti N, Subiyanto P. Terapi Musik Dan Tingkat Kecemasan Pasien Preoperasi. *Media Ilmu Kesehatan*. 2016;5(1):1-6.