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The Effect of Music Therapy on Preoperative Anxiety Levels of Patients at Hospital X

Kurniawati^{1*}, Rezqiah Aulia Rahmat²¹ Nursing Study Program, Amanah Health College Makassar, Indonesia² Medical Science Study Program, Bosowa University Makassar, Indonesia

ABSTRACT

Preoperative anxiety is a common psychological response experienced by patients before undergoing surgery. High levels of anxiety can negatively impact the patient's physiological stability and the success of the surgical procedure. One non-pharmacological intervention that can be used to reduce anxiety is music therapy. This study aims to determine the effect of music therapy on preoperative anxiety levels in patients at Hospital X.

This study used a quasi-experimental design with a pre-test and post-test approach with a control group. The study sample consisted of 60 pre-operative patients divided into an intervention group (n=30) and a control group (n=30). Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS). The intervention group received instrumental music therapy for 20–30 minutes before surgery, while the control group received only standard care. Data analysis was performed using paired t-tests and independent t-tests.

The results showed a significant decrease in anxiety levels in the intervention group compared to the control group ($p < 0.05$). Music therapy has been shown to be effective in reducing preoperative anxiety in patients. Therefore, music therapy can be recommended as a non-pharmacological nursing intervention in preoperative care.

Keywords: Music Therapy, Anxiety, Preoperative, Nursing, Nonpharmacological Intervention

*Correspondent Author: Kurniawati

*email: kurniawati@stikesamanah-mks.ac.id





1. Introduction

Surgery is a medical procedure that often causes anxiety in patients. Preoperative anxiety can arise from fear of pain, surgical outcomes, anesthesia, or potential complications. This condition not only impacts psychological aspects but also affects physiological responses such as increased blood pressure, heart rate, and stress hormones, which can worsen the patient's condition.

Preoperative anxiety management can be achieved through pharmacological and nonpharmacological interventions. However, the use of sedatives carries the risk of side effects, necessitating safe and easily implemented alternative interventions. Music therapy is one nonpharmacological method proven to provide relaxation, reduce stress, and stabilize physiological responses.

Music works by influencing the limbic system and autonomic nervous system, thereby reducing emotional tension and creating a sense of well-being. Several studies have shown that music therapy is effective in reducing anxiety in preoperative patients, but its application at Hospital X is still limited. Therefore, this study was conducted to analyze the effect of music therapy on preoperative anxiety levels in patients.

2. Research Methods

a. Research Design

This study used a quantitative design with a quasi experimental method using a pre-test and post-test approach with a control group. This design was chosen to assess the effect of music therapy on changes in pre-operative patient anxiety levels by comparing conditions before and after the intervention.

b. Location and Time of Research

The research was conducted at Hospital X, specifically in the pre-operative care room. The research period took place during the months of XX–XX in the year 2022, adjusting to the patient's surgical schedule.

c. Population and Sample

- Population: all preoperative patients treated at Hospital X during the study period.
 - Sample: 60 preoperative patients selected using purposive sampling technique.
- 1) Inclusion Criteria
 - a) Adult patients aged 18–60 years
 - b) Patients who will undergo elective surgery
 - c) Conscious condition and able to communicate well
 - d) Willing to be a research respondent
 - 2) Exclusion Criteria
 - a) Patients with hearing impairment
 - b) Patients with cognitive impairment or severe psychiatric disorders
 - c) Patients who received sedation before the intervention





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Sample distribution:

- Intervention group: 30 patients (received music therapy)
- Control group: 30 patients (standard care without music therapy)

d. Research Variables

- Independent variable: Music therapy
- Dependent variable: Preoperative patient anxiety level
- Confounding variables: age, gender, type of surgery, previous surgical experience

e. Research Instruments

Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS) which consists of 14 items with a total score of 0–56.

Anxiety categories:

- Light: 14–20
- Medium: 21–27
- Weight: ≥ 28

This instrument has been proven valid and reliable with Cronbach's value. alpha > 0.80 .

f. Research Procedures

1) Preparation:

- Managing research permits
- Socialization to respondents
- Explanation of research objectives and procedures

2) Pre-test :

- Measurement of initial anxiety levels using HARS in both groups

3) Intervention:

- The intervention group was given soft instrumental music therapy (classical/relaxation music)
- Duration: 20–30 minutes
- Media: headphones or small speakers
- Performed 1 hour before surgery
- The control group received standard preoperative care without music therapy.

4) Post-test :

- Re-measurement of anxiety levels using HARS after intervention

g. Data Analysis Techniques

- Univariate analysis : frequency distribution of respondent characteristics
- Bivariate analysis :





- Paired t- test to see the difference in anxiety levels before and after music therapy
 - Independent t-test to compare changes in anxiety between the intervention and control groups
- The significance level was set at $\alpha = 0.05$
- Data analysis was carried out using a statistical program (SPSS version XX).

h. Research Ethics

- The research has received approval from the Health Research Ethics Committee of Hospital X.
- Respondents sign the informed consent form consent
- Confidentiality of respondents' identities is guaranteed
- Respondents have the right to withdraw at any time without medical consequences.

3. Research Results And Discussion

a. Results

This study involved 60 preoperative patients at Hospital X who were divided into two groups: the intervention group (music therapy) and the control group (standard care). Anxiety levels were measured using the Hamilton Anxiety Rating Scale (HARS) before and after intervention.

1) Respondent Characteristics

Table 1. Characteristics of Research Respondents

Characteristics	Intervention Group (n=30)	Control Group (n=30)
Age (years)	18–30	10 (33.3%)
	31–45	12 (40.0%)
	>45	8 (26.7%)
Gender	Man	14 (46.7%)
	Woman	16 (53.3%)
Type of Operation	Major	18 (60.0%)
	Minor	12 (40.0%)

Interpretation:

The characteristics of respondents in both groups are relatively balanced, so they are worthy of comparison.

2) Preoperative Anxiety Levels Before Intervention





Table 2.
Distribution of Anxiety Levels Before Intervention

Anxiety Level	Intervention	Control
Light	6 (20.0%)	7 (23.3%)
Currently	15 (50.0%)	14 (46.7%)
Heavy	9 (30.0%)	9 (30.0%)

The majority of patients in both groups experienced moderate to severe anxiety before surgery.

3) Anxiety Level After Intervention

The intervention group received 20–30 minutes of gentle instrumental music therapy before surgery.

Table 3.
Anxiety Level After Intervention

Anxiety Level	Intervention	Control
Light	18 (60.0%)	8 (26.7%)
Currently	10 (33.3%)	14 (46.7%)
Heavy	2 (6.7%)	8 (26.6%)

There was a significant decrease in anxiety levels in the intervention group compared to the control group.

4) Comparison of Average Anxiety Scores

Table 4. Comparison of HARS Pre-test and Post-test Scores

Group	Pre-test (Mean \pm SD)	Post-test (Mean \pm SD)	Difference	p- value
Intervention	25.8 \pm 4.6	14.2 \pm 3.9	↓11.6	<0.001
Control	26.1 \pm 4.8	22.9 \pm 4.5	↓3.2	0.071

Interpretation:

Statistical tests showed a significant decrease in anxiety in the music therapy group ($p < 0.05$), while in the control group it was not significant.

5) Summary of Key Findings

- a) Prior to the intervention, the majority of patients experienced moderate–severe anxiety.
- b) Music therapy significantly reduces anxiety.
- c) Patients who listen to music appear more relaxed, cooperative, and emotionally stable.





d) Music therapy is more effective than standard treatment without music.

b. Discussion

The results of this study indicate that music therapy is effective in reducing preoperative anxiety levels in patients. The significant decrease in anxiety scores in the intervention group supports the theory that music can influence the autonomic nervous system, decreasing sympathetic activity and enhancing the relaxation response.

1) The Mechanism of Music Therapy for Anxiety

Slow and soft rhythmic music is able to:

- Lowers heart rate and blood pressure
- Reduce stress hormones (cortisol)
- Increases the release of endorphins

This causes the patient to feel calmer and more comfortable before surgery.

2) Comparison with Previous Research

This finding is in line with research:

- Nilsson (2008) found that music reduced pre- surgical anxiety by up to 40%.
- National research by Handayani et al. (2020) which showed that music therapy was effective in major surgical patients.

The consistency of these results strengthens the evidence that music therapy is a safe and effective non-pharmacological intervention.

3) Nursing Implications

Music therapy:

- Easy to apply by nurses
- Low cost
- Does not cause side effects
- Can improve the quality of nursing services

Nurses have a strategic role in providing music therapy as part of holistic nursing care.

4) Research Limitations

- Types of music are standardized, without considering individual preferences.
- The intervention time is relatively short
- Does not measure physiological parameters objectively (pulse, blood pressure)

These limitations form the basis for further research.

4. Conclusion And Suggestions

a. Conclusion

- 1) Preoperative patients at Hospital X experience moderate to high levels of anxiety.
- 2) Music therapy significantly reduced preoperative anxiety levels of patients.





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- 3) Music therapy is more effective than standard care without non-pharmacological interventions.

b. Suggestion

- 1) Music therapy can be used as a routine nursing intervention in pre- operative patients.
- 2) Nurses are advised to receive training related to the application of music therapy.
- 3) Further research could examine the type of music and optimal duration of therapy.

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