

The effect of murottal auditory therapy on anxiety and comfort levels in patients with cardiovascular disease

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Abstract

Patients with cardiovascular disease often experience anxiety and discomfort, which can negatively affect their outcomes. The purpose of this study was to examine the effect of murottal auditory therapy on anxiety and comfort levels in hospitalized patients with cardiovascular disease. This quasi-experimental study

included 45 patients in both the intervention and control groups, selected through purposive sampling. Participants met criteria such as consciousness, effective communication skills, Muslim faith, and no hearing impairments. Anxiety was assessed using the Zung Self-Rating Anxiety Scale, while comfort was evaluated with the General Comfort Questionnaire. The Mc Nemar test was employed to determine the effect of the intervention. The findings indicate that a substantial number of patients in the intervention group reported mild anxiety (91.1%) and increased comfort (95.6%) following murottal therapy. Significant differences in anxiety and comfort levels were observed between the control and intervention groups, with p-values of 0.004 and 0.000, respectively. In conclusion, murottal auditory therapy, specifically Surah Ar-Rahman, effectively reduces anxiety and enhances comfort among patients with cardiovascular disease. These results underscore the potential of murottal auditory therapy as a complementary approach to expedite patients' recovery during treatment.

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Introduction

Cardiovascular disease, a non-communicable disease, demonstrates a significant annual increase and stands as the primary cause of mortality in developing countries. In Indonesia, it contributes to approximately 3,299 and 2,555 deaths annually.¹ This condition necessitates extended and intensive care, given its severity and the likelihood of relapses.^{2,3} Patients dealing with cardiovascular disease experience a range of physical, mental, social, and emotional discomfort, often leading to anxiety and other psychological challenges.^{4,5}

Throughout their treatment, patients frequently dealing with anxiety and discomfort, which can detrimentally affect their physical well-being.⁶ Feelings of helplessness, physical distress, and anxiety can be particularly pronounced during treatment, posing a risk of sudden death.⁷ Unfamiliarity with the treatment environment can further lead to physical complications and extended recovery periods.⁸ Comfort, a fundamental human need, encompasses holistic elements, including the physical, psychospiritual, environmental, and social dimensions.

Nurses play a pivotal role in the management of cardiovascular disease, providing not only medication but also essential comfort during various stages of care.^{9–11} Holistic nursing interventions, tailored to individual patient needs, aim to deliver comfort and can span physiological, social, cultural, psychological, spiritual, environmental, and physical domains.¹²

To enhance patient comfort, a range of interventions, such as deep breathing, guided imagery therapy, progressive muscle relaxation, and music therapy, can be employed.¹³ Murottal auditory therapy, involving the listening of recorded Qur'an recitations by a Qari, holds the potential to instill comfort, tranquility, and serenity.¹⁴ By reducing stress and promoting a calmer state of mind, this auditory therapy alleviates stress responses, augments alpha wave

production, and aids in pain and stress alleviation. The activation of alpha waves contributes to heart synchronization, facilitating recovery during the homeostatic period.^{15,16} Previous research conducted in the Intensive Care Unit (ICU) showed that murottal auditory therapy significantly increased comfort levels in heart disease patients.¹⁷ Nevertheless, patients afflicted by cardiovascular disease often require recurrent care and extended recovery periods if not adequately addressed. Thus, this study aimed to examine the effect of murottal auditory therapy on anxiety and comfort levels in hospitalized patients with cardiovascular disease.

Materials and Methods

Research design

This study utilized a pre-post quasi-experimental design with a control group to analyze the effects of murottal auditory therapy on anxiety and comfort levels in patients with cardiovascular disease.

Study participants

Data collection took place from November 2022 to February 2023 at Sultan Agung Islamic Hospital in Semarang, Central Java, Indonesia. The sample size was calculated using the Lameshow formula, resulting in a total of 90 patients, with 45 participants in the control group and 45 in the intervention group. Purposive sampling was employed to select patients with specific criteria: individuals with cardiovascular diseases who were conscious, possessed good communication skills, identified as Muslims, and had no hearing impairments. Patients with unstable hemodynamics and cognitive impairments were excluded. Informed consent was obtained from all participants and their families before data collection.

Variable, instrument and data collection

The independent variable was murottal auditory therapy, while the dependent variables were anxiety and comfort levels. Respondent characteristics, including age, gender, education, occupation, medical diagnosis, and illness duration, were also collected. The participants were cardiovascular patients undergoing treatment at the hospital, divided into two groups: the control group and the intervention group. A pretest was conducted to measure anxiety and comfort levels in both groups.

Anxiety levels were assessed using the Zung Self-Rating Anxiety Scale (ZRAS), which consists of 20 items - 15 to evaluate somatic symptoms and 5 to assess affective symptoms. The ZRAS was validated in a previous study for its sensitivity and specificity in Indonesia, with an ROC value of 0.706, indicating its effectiveness in measuring anxiety in adult patients.¹⁸ Comfort levels were measured using the Shortened General Comfort Questionnaire (SGCQ) with 28 items. The Indonesian version of the questionnaire was tested for its validity and reliability, resulting in a Cronbach's alpha value of 0.769.¹⁹

The independent variable, murottal auditory therapy, was administered for 15-20 minutes once a day for three days. The therapy was provided to the intervention group from the first to the third day, and the post-test was conducted on the fourth day. In contrast, the control group received regular treatment without murottal auditory therapy intervention, with their post-test also conducted on the fourth day. Patients were equipped with an MP3 player and earphones to listen to Surahs Al-Fatihah and Ar-Rahman, recited by Muzamil Hasballah.²⁰ The sound level of the murottal was set at 50 decibels (<60), ensuring listener comfort and positive effects.²¹ The earphones allowed patients to listen to the murottal audio within a frequency range of 5 Hz to 22,000 Hz, which optimally influenced brainwave patterns to reduce stress.²²

Table 1. Demographic and clinical characteristics of participants in each group (N=45).

Characteristics	Control group		Intervention group	
	Mean (SD)	n (%)	Mean (SD)	n (%)
Age (years)	53.33±7.813		56.36±7.805	
Illness duration	15.38±8.269		12.67±9.945	
Gender				
Male		25 (55.6)		25 (55.6)
Female		20 (44.4)		20 (44.4)
Education				
Elementary		10 (22.2)		15 (33.3)
Junior high		17 (37.8)		17 (37.8)
Senior high		13 (28.9)		12 (26.7)
Higher education		5 (11.1)		1 (2.2)
Employment				
Private sector worker		9 (20.0)		10 (22.2)
Employee		7 (15.6)		3 (6.7)
Merchant		7 (15.6)		6 (13.3)
Teacher		1 (2.2)		4 (8.9)
Unemployed		21 (46.6)		22 (48.9)
Diagnosis				
Congestive heart failure		30 (66.7)		37 (82.2)
Atherosclerotic heart disease		9 (20.0)		4 (9.0)
Hypertension		6 (13.3)		1 (2.2)
Angina Pectoris		0		1 (2.2)
Postoperative Coronary Artery Bypass Graft (CABG)		0		2 (4.4)

Data analysis

The Mc Nemar test was employed to assess the impact of murottal auditory therapy, while the Mann-Whitney test was utilized to compare anxiety and comfort levels between the control and intervention groups. Socio-demographic data of participants were presented using descriptive statistical methods, including frequency distribution, percentage, mean, and standard deviation. Statistical significance was determined by a p-value of 0.05 or lower. Data analysis was conducted using SPSS software version 23.

Results

Demographic and clinical characteristics of participants

Table 1 provides an overview of the demographic and clinical characteristics of the participants. The mean age of participants in the control and intervention groups was 53 and 56, respectively. The average duration of illness was 15 months in the control group and 12 months in the intervention group. In both groups, 55.6% of participants were male, and 37.8% had completed junior high school. Similarly, the majority of participants in both groups were unemployed, accounting for 46.7% in the control group and 48.9% in the intervention group. Clinically, congestive heart failure was the most common diagnosis in both the control group (66.7%) and the intervention group (82.2%).

Anxiety and comfort levels in control and intervention groups

Table 2 illustrates the anxiety and comfort levels in the control and intervention groups. During the pretest, the majority of participants in the control group experienced mild anxiety (55.6%), whereas in the intervention group, the prevailing level of anxiety was moderate (53.3%). Following the post-test, anxiety levels in the control group decreased, with 57.8% experiencing mild anxiety. Notably, in the intervention group, 91.1% of respondents reported mild anxiety after the intervention.

Regarding comfort levels, the pretest results indicated that most participants in the control group experienced discomfort (66.7%), while in the intervention group, the majority reported feeling comfortable (68.9%). After the post-test, most participants in the control group continued to feel uncomfortable (64.4%). In contrast, the intervention group saw a significant increase, with 95.6% of respondents reporting feeling comfortable.

Differences in anxiety and comfort levels between the control and intervention groups

This study demonstrated a notable disparity in anxiety levels between the control and intervention groups, with a p-value of 0.004 ($p < 0.05$). The Mann-Whitney test indicated that the mean anxiety level in the control group was 53.29, while in the intervention group, it was 37.71, reflecting a significant difference. There was also a significant difference in comfort levels between the control and intervention groups, with a p-value of 0.000 ($p < 0.05$). The Mann-Whitney test results showed that the mean post-test comfort level in the control group was 27.58, while in the intervention group, it was 63.42.

Discussion

Patients diagnosed with cardiovascular diseases often experience feelings of anxiety and discomfort²³. The hospital care environment presents a unique set of challenges for cardiovascular patients, affecting their comfort and anxiety levels. The factors influencing patient comfort encompass the extent to which their treatment needs are met, environmental conditions, disease-related factors, and the patient's perception of their illness²⁴. These factors can induce psychological changes, including anxiety, stress, and fear, and impact the immune response, often accompanied by alterations in stress hormones that affect hemodynamic stability²⁵.

Anxiety is a prevalent psychological symptom among patients with cardiovascular diseases, including those with conditions like congestive heart disease (CHD) and post-elective percutaneous coronary intervention (PCI)²⁶. Anxiety during heart treatments can jeopardize long-term treatment outcomes, as anxious patients are at a significantly higher risk of requiring repeat revascularization, compared to their less anxious counterparts²⁷. Patients experiencing excessive anxiety due to cardiovascular diseases often seek to improve treatment adherence and behavioral changes to avoid repeat revascularization. Anxiety-prone patients also tend to exhibit more severe disease symptoms²⁸. This underscores the importance of cooperation between nurses and patients with heart diseases, aimed at achieving better prognoses through treatments that enhance comfort and reduce anxiety².

Islamic spirituality nursing interventions, such as prayer and Quranic recitation (dhikr), have a profound impact on patients' spiritual well-being^{29,30}. This study's findings align with the observed significant difference in anxiety and comfort levels among participants in the intervention group after undergoing murottal auditory therapy, with p-values of 0.004 and 0.000, respectively. Another study has reported that intensive care patients experience reduced stress, anxiety, and depression when exposed to music therapy, demonstrating its effectiveness as a complementary treatment.

Table 2. Frequency distribution of anxiety and comfort levels of pretest and post-test in the control and intervention groups.

Control group	Control group n (%)	Intervention group n (%)
Anxiety level		
Pretest		
Mild	25 (55.6)	21 (46.7)
Moderate	20 (44.4)	24 (53.3)
Total	45 (100)	45 (100)
Post-test		
Mild	26 (57.8)	41 (91.1)
Moderate	19 (42.2)	4 (8.9)
Total	45 (100)	45 (100)
Comfort level		
Pretest		
Discomfort	30 (66.7)	14 (31.1)
Comfort	15 (33.3)	31 (68.9)
Total	45 (100)	45 (100)
Post-test		
Discomfort	29 (64.4)	2 (4.4)
Comfort	16 (35.6)	43 (95.6)
Total	45 (100)	45 (100)

Nurses play a pivotal role in providing comprehensive care to patients. Nurses with strong self-resilience exhibit a positive correlation with self-efficacy in delivering care to patients³¹. Their ability to implement holistic care management, including complementary therapies like acupressure, yoga, reiki, breathing relaxation, guided imagery, aromatherapy, and music therapy, is crucial. The melodious murottal auditory therapy positively impacts patient relaxation and tranquility³². Positive perceptions derived from murottal therapy, with its slow tempo, stimulate the hypothalamus to release endorphins, inducing feelings of happiness. The amygdala activates and regulates autonomic nerves, encompassing the sympathetic and parasympathetic branches that innervate the heart, ultimately reducing anxiety levels^{14,17}.

Murottal auditory therapy is known to impart positive energy, affecting the body's chemical systems that influence blood pressure in response to internal and external conditions³³. This therapy stimulates auditory organs and the limbic system. The hypothalamus is prompted to release alpha brainwaves, which, in turn, stimulate the release of neurotransmitters such as serotonin and endorphins, inducing a state of relaxation in patients³⁴. Murottal auditory therapy serves as a valuable complementary approach to alleviate anxiety and foster tranquility and comfort among patients, which are integral to the overall healing process. Research findings reveal that patients exhibit an increase in alpha brainwave activities, indicative of a calmer and more relaxed state, after listening to murottal auditory therapy. Other studies have demonstrated that listening to the Quran or engaging in murottal therapy induces alpha brainwaves, contributing to relaxation, reduced anxiety levels, and an enhanced sense of comfort³⁵⁻³⁷.

Research focusing on patients with congestive heart failure and murottal auditory therapy has shown increased patient awareness of Allah, a deeper understanding of the meanings within the murottal, and the positive impact of alpha brainwaves (7-14Hz) on brain function and anxiety reduction. These findings align with the results of the current study, where patients in the intervention group exhibited decreased anxiety and increased comfort after listening to Surah Al-Fatihah and Ar-Rahman. Such outcomes resonate with other studies that report relaxation effects in patients with chronic heart failure (CHF), leading to reduced anxiety levels³⁸. Surah Ar-Rahman's content emphasizes Allah's blessings and the signs of His creation, stimulating the hypothalamus and inducing a relaxation effect that increases endorphin secretion. Patients become more relaxed after murottal therapy³⁹.

The murottal auditory therapy featuring Surah Ar-Rahman (verses 1-30) and Al-Fatihah boasts a beautiful melody. Reciting these Quranic verses induces tranquility and reduces anxiety by lowering anxiety-related hormones. Listening to these verses can enhance endorphin secretion, leading to feelings of relaxation and control over anxiety and fear. The content of Surah Ar-Rahman, highlighting Allah's profound care for all creatures, especially those who believe in the Hereafter, conveys messages and warnings to humans and jinn. It illustrates the abundant blessings and the consequences for those who deny the truth. Listening to the murottal auditory therapy encourages participants to focus on the verses, resulting in a peaceful and serene state of mind, ultimately reducing anxiety and enhancing comfort^{40,41}.

Listening to murottal auditory therapy has been demonstrated to positively impact blood pressure, heart rate, and respiration rate, leading to decreased anxiety levels. It has also proven effective in promoting patient comfort, particularly before heart surgery⁴². Murottal therapy's more structured rhythm and soothing elements contribute to its greater efficacy in alleviating anxiety in patients with coronary heart disease, compared to religious lectures⁴³.

Table 3. Differences in anxiety and comfort levels between the control and intervention groups.

Variable	Group	Mean post-test	p
Anxiety	Control group	53.29	0.004
	Intervention group	37.71	
Comfort	Control group	27.58	0.0001
	Intervention group	63.42	

These findings align with the results of the present study in the intervention group, where murottal therapy significantly reduced anxiety levels and improved patient comfort. This study establishes that murottal auditory therapy effectively reduces anxiety and promotes comfort in patients undergoing treatment for cardiovascular diseases. Anxiety and discomfort are significant concerns for cardiovascular patients during treatment. Murottal auditory therapy can serve as a valuable complementary therapy alongside pharmacological treatments. Nurses play an indispensable role in minimizing patient anxiety and discomfort, thereby contributing to faster patient recovery. However, it is essential to acknowledge the limitations of this study. Firstly, the anxiety and comfort levels were not assessed daily, so the results only reflect the first and last days of the intervention. Secondly, the researchers did not use randomization in the sampling procedure, limiting the representation of a heterogeneous sample. Future research should explore factors influencing the implementation of murottal auditory therapy and the combination of other relaxation techniques with it to strengthen the connection with Allah, providing peace of mind and supporting more effective recovery (Table 3).

Conclusions

This study has demonstrated a substantial difference in anxiety and comfort levels among patients undergoing treatment for cardiovascular diseases, following the implementation of murottal auditory therapy. The notable disparities observed in anxiety and comfort levels between the control and intervention groups suggest that murottal therapy is an effective means of reducing anxiety and improving comfort in these patients. Murottal auditory therapy can be regarded as a valuable complementary nursing intervention for individuals with cardiovascular diseases. Nevertheless, it is imperative for nurses to conduct periodic assessments of patients' anxiety and comfort levels to ensure that treatment is optimized, ultimately expediting the recovery process.

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