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THE EFFECT OF MUROTTAL THERAPY ON ANXIETY IN TYPE 2 DIABETES PATIENTS AT BALARAAJA REGIONAL GENERAL HOSPITAL, TANGERANG REGENCY

Siti Nurul Salsabila[1],Kusniawati[2,] , Siti Wasliyah[3]

[1]Applied Bachelor Study Program In Nursing, Poltekkes Kemenkes Banten, sitinurulsalsabila03@gmail.com
[2]Nursing Departemen, Poltekkes Kemenkes Banten, kusniawati@poltekkesbanten.ac.id
[3]Nursing Departemen, Poltekkes Kemenkes Banten, sitiwasliyah@gmail.com
**Corresponding author:* sitinurulsalsabila03@gmail.com

ABSTRACT

Background:. Diabetes mellitus (DM) is a chronic condition that occurs when the pancreas does not produce enough insulin or when the body is unable to effectively use the insulin it produces. Individuals with diabetes mellitus who experience macrovascular complications such as diabetic foot or diabetic ulcers are at high risk of experiencing psychological distress, commonly in the form of anxiety. Management of this condition involves both pharmacological and non-pharmacological therapies. One non-pharmacological intervention that can be provided is listening to Qur'anic recitation (murottal), which serves to help alleviate anxiety. **Objective:** To determine the effect of murottal therapy on anxiety in patients with type 2 diabetes mellitus at Balaraja Regional General Hospital, Tangerang Regency. **Method:** This research method is quantitative using a quasi-experimental design with a two-group pretest-posttest study. with a purposive sampling technique. The number of samples taken was 46 respondents, the measuring instrument used was the BAI (Back Anxiety Inventory) questionnaire. **Results:** The results of the Wilcoxon test in the intervention group obtained a P-value of 0.000 <0.05. The results of the average difference test in the intervention group 18.87, while the control group 28.13 obtained a Sig. value of 0.019 <0.05. **Conclusion:** There is an effect of murottal therapy on reducing anxiety in patients with type 2 diabetes mellitus at the Balaraja regional general hospital, Tangerang Regency.

Keywords: Murottal Therapy, Anxiety, Type 2 Diabetes Mellitus

INTRODUCTION

Diabetes mellitus (DM) is a chronic condition that occurs when the pancreas doesn't produce enough insulin or the body can't properly use the insulin it produces. High blood sugar, or hyperglycemia, is a symptom of this disorder, which over time can damage several body systems (M Zulfikar, 2023). Hyperglycemia, resulting from poor carbohydrate, fat, and protein metabolism, is a hallmark of the chronic and progressive disease known as diabetes. In this metabolic disease called diabetes mellitus, hyperglycemia can happen due to decreased insulin production, reduced insulin sensitivity, or both (PERKENI, 2019).

Diabetes mellitus is the sixth most common cause of death in the world, according to WHO data (Murtiningsih, Pandelaki and Sedli, 2021). In 2019, the prevalence of diabetes mellitus in adults increased by 8.5%, bringing the total number of people with diabetes mellitus worldwide to nearly 422 million. Most people who die from diabetes complications die before the age of 70, with deaths from this condition estimated at around 2.2 million. Countries with low to middle economic status have the highest prevalence of this disease (WHO, 2019). According to the International Diabetes Federation (IDF), the global diabetes population is expected to reach 537 million in 2021, 643 million in 2030, and 783 million in 2045. The number of people (aged 20 to 70) expected to die from diabetes is 6.7 million (IDF, 2021). Around 19.47 million people in Indonesia are living with this condition, putting the country in fifth place globally. The prevalence of diabetes in Indonesia is 10.6%, out of a total population of 179.72 million. So, Indonesia plays a big role in the rising diabetes cases in Southeast Asia (Mukhtar, Adhiwijaya and Ismayanti, 2022).

According to Basic Health Research (RISKESDAS, 2018), Banten province is one of the top 10 provinces with the most diabetes cases in Indonesia, at 2.2%. In 2020, the number of diabetes patients in Banten province was: 8,000 in Serang Regency, 10,000 in Lebak Regency, 12,000 in Pandeglang Regency, 48,000 in Tangerang Regency, 70,000 in Tangerang City, 8,000 in Cilegon City, 6,000 in Serang City, and 28,000 in South Tangerang City. Based on this data, Tangerang City saw the biggest increase (Banten Province Health Profile, 2021).

Type 2 diabetes mellitus is an autoimmune disorder that worsens over time. This disease can lead to serious problems if it's not managed and monitored with regular blood sugar tests. There are two main categories of complications for people with diabetes: microvascular complications, which include nerve damage, eye damage, and kidney problems, and macrovascular complications, which include diabetic foot, heart disease, stroke, and peripheral artery disease (Andriyanny Putri N, 2024). Diabetics who experience macrovascular complications like diabetic foot or diabetic ulcers are at high risk of psychological stress, commonly anxiety. Worries about disease complications, strict lifestyle control, and uncertainty about long-term prognosis can all contribute to anxiety in diabetes patients. Because feelings of anxiety are common in humans, everyone experiences anxiety at different levels. However, excessive anxiety can disrupt quality of life and requires effective anxiety treatment to prevent negative impacts on psychological and physiological well-being (Andriyanny Putri N, 2024). Anxiety management strategies that take spiritual aspects into account are also important and have been proven helpful in reducing anxiety (Syafyusari and Afnuhazi, 2022).

Ways to handle anxiety in patients include using both pharmacological and non-pharmacological therapies. Using medications is known as pharmacological therapy, while relaxation methods are an example of non-pharmacological therapy. The basis of relaxation therapy is to restore the balance between the parasympathetic and sympathetic autonomic nervous systems. Some forms of relaxation therapy include massage, aromatherapy, classical music therapy, and spiritual therapy involving the recitation of the Quran (Mariani, Nuracmah and Agung Waluyo, 2021). Listening to the recitation of verses from the Holy Qur'an is a form of non-pharmacological intervention that has been proven to alleviate symptoms of anxiety and provide inner peace to individuals who experience it. This therapy draws on the spiritual and psychological aspects of Quranic recitation, which is believed to have the power to soothe the heart, reduce emotional tension, and improve mood. Listeners experience a calming effect when listening to music accompanied by the recitation of verses from the Quran (Arum,2021).

According to a study by Mukhtar et al. (2022), a person's anxiety level is influenced by changes in their health status. Patients with diabetes mellitus may feel more anxious if their health continues to deteriorate. The factors causing anxiety in people with diabetes may originate from within themselves. The study showed that before the intervention, the average respondent experienced severe anxiety. However, after the intervention, the respondents' anxiety levels decreased to mild and moderate levels. A study conducted by Syafyusari and Afnuhazi (2022) found that individuals with diabetes mellitus experienced a significant decrease in anxiety levels after undergoing Al-Qur'an recitation therapy. Anxiety levels differed significantly before and after the Al-Qur'an recitation therapy intervention, as indicated by a P-value of 0.000. The results indicate that Qur'an recitation therapy is a viable non-pharmacological method for managing anxiety in people with diabetes. As a form of sound therapy, the aesthetic recitation of the Qur'an can help alleviate anxiety and improve physical health and mental well-being. Listening to the Qur'an recited aloud has a calming effect and triggers the limbic system to release more endorphins. Through the sensory cortex, neocortex, limbic system, hypothalamus, and autonomic nervous system, sound can influence every physiological system in the body (Tambunan, 2018).

Based on the phenomenon observed, patients with diabetes mellitus may experience anxiety due to the complications they face, thus requiring effective problem-solving mechanisms to reduce or overcome their anxiety. Based on the background described above, the researcher is interested in conducting a study on "The Effect of Murottal Therapy on Anxiety in Type 2 Diabetes Mellitus Patients at the Balaraja Regional General Hospital in Tangerang Regency."

MATERIALS AND METHODS

This study employed a quantitative method with a quasi-experimental design and a two-group pretest-posttest design, utilizing two groups: an intervention group and a control group. The population for this study consisted of patients with type 2 diabetes mellitus experiencing anxiety at the Balaraja Regional General Hospital in Tangerang Regency, with a sample size of 46 respondents. The sampling technique used was purposive sampling. This study was conducted in March 2025 at the Balaraja Regional General Hospital

in Tangerang Regency. Data were analyzed using univariate and bivariate analyses. Univariate analysis was presented in the form of frequencies and percentages, while bivariate analysis used the Wilcoxon and Mann-Whitney tests.

RESULTS

Table 1 Distribution of Mean Anxiety Scores Before and After in the Intervention and Control Groups at the Balaraja Regional General Hospital, Tangerang Regency (n=46)

Intervensi Group				
Variabel	**Mean**	**SD**	**Min-Max**	**95% CI**
Pretest	29,48	6,940	22-39	26,48-32,82
Posttest	23,87	9,147	13-37	19,91-27,82
Kontrol Group				
Variabel	**Mean**	**SD**	**Min-Max**	**95% CI**
Pretest	27,30	6,657	20-39	24,43-30,18
Posttest	26,87	6,476	20-39	24,07-29,67

Table 1shows that the mean anxiety score in the intervention group before receiving murottal therapy was 29.48, with a standard deviation of 6.940. The lowest score was 22 and the highest was 39. Based on a 95% confidence interval estimate, the mean score is estimated to fall within the range of 26.48 to 32.82. Meanwhile, the mean score after the intervention was 23.87 with a standard deviation of 9.147. The score range was from a low of 13 to a high of 37; the 95% confidence interval estimate indicates that the mean lies between 19.91 and 27.82, and the pretest-posttest difference for the intervention group was found to be 5.61.

The mean score for the control group before the intervention was 27.30 with a standard deviation of 6.657; the lowest score was 20 and the highest was 39. The 95% confidence interval is estimated to be between 24.43 and 30.18. Meanwhile, the posttest mean for the control group was 26.87 with a standard deviation of 6.476; the lowest value was 20 and the highest was 39, and the estimated 95% confidence interval was determined to be between 24.07 and 29.67. The difference between the pretest and posttest scores for the control group was 0.43.

Table 2 Results of the Normality Test for Pre-test and Post-test Anxiety in Type 2 Diabetes Mellitus Patients at the Balaraja Regional General Hospital, Tangerang Regency (n=46)

Variabel	***Shapiro-Wilk***		
Intervensi Group	**Statistic**	**Df**	**Siq.**
Pre Test	0,796	23	0,000
Post Test	0,797	23	0,000
Kontrol Group			
PreTest	0,855	23	0,003
Post Test	0,835	23	0,001

Table 2 the results of the normality test for the intervention group revealed a pre-test Sig. value of 0.000 and a post-test Sig. value of 0.000. In the control group, the Sig. value for the pretest was 0.003 and the Sig. value for the posttest was 0.001. From these results, it can be concluded that Sig. < 0.05, meaning that the research data are not normally distributed.

Table 3 Results of the Wilcoxon Sign-Rank Test for Anxiety Before and After in the Intervention and Control Groups at the Balaraja Regional General Hospital (n=46)

Variabel	**N**	**Mean rank**	**Sum of rank**	**(*P-value*) Sig.**

Postest-Pretest Kelompok Intervensi	Negative Ranks	22[a]	11,50	253,00	0,000
	Postitve Ranks	0[b]	0,00	0,00	
	Ties	1[c]			
	Total	23			
Posttest-Pretest Kelompok Kontrol	Negative Ranks	4[a]	3,25	13,00	0,131
	Positive Ranks	1[b]	2,00	2,00	
	Ties	18[c]			
	Total	23			

Table 3 shows that in the intervention group, there were 22 respondents with negative ranks, 1 respondent with a tie, and a P-value of 0.000 < 0.05, meaning the hypothesis is accepted; therefore, there is an effect of murottal therapy on anxiety in patients with type 2 diabetes mellitus. Meanwhile, in the control group, the results showed negative ranks for 4 respondents, a positive rank for 1 respondent, and ties for 18 respondents, with a P-value of 0.131 > 0.05, meaning no effect was found in the control group.

Table 4 Results of the Mann-Whitney U Test for Differences in Means Between the Intervention Group and the Control Group at the Balaraja Regional General Hospital, Tangerang Regency (n=46)

Kelompok	**N**	**Mean**	**(P-value) Sig.**
Intervensi	23	18.87	0.019
Kontrol	23	28.13	

Table 4 shows that the intervention group had a mean anxiety score of 18.87, with 23 respondents. Meanwhile, the control group showed a mean of 28.13 with the same number of respondents. The statistical test results showed a P-value of 0.019 < 0.05. Based on these results, it can be concluded that there is a statistically significant difference between the intervention group and the control group regarding anxiety in patients with type 2 diabetes mellitus at Balaraja Regional General Hospital, Tangerang Regency.

DISCUSSION

1. Mean anxiety scores before and after the intervention in the intervention and control groups

   Based on the results of the Wilcoxon test, it was concluded that the null hypothesis (HA) was rejected with a p-value of 0.000 < 0.05, indicating that the murottal therapy intervention had a significant effect on reducing anxiety in patients with type 2 diabetes mellitus at Balaraja Regional General Hospital in Tangerang Regency. This is supported by the fact that out of a total of 23 respondents in the intervention group, there was a decrease in anxiety scores between the pre-test and post-test, with mean scores of 23.87 and 27.30, respectively, a difference of 5.61. This is consistent with the study by Mukhtar, Adhiwijaya, and Ismayanti (2022), which states that murottal therapy can reduce anxiety in patients with type 2 diabetes mellitus.

   Listening to the recitation of the Qur'an has a calming effect on patients. This method induces a state of relaxation and clear mental imagery, which in turn enhances a person's emotional well-being (Mukhtar, Adhiwijaya, and Ismayanti, 2022). Based on the results of the post-intervention validation, respondents reported feeling calm and at ease while listening to the recitation of the Qur'an. The recitation of these sacred verses has a psychologically calming effect, thereby helping to alleviate anxiety and create a more stable mood.

2. Difference in Mean Anxiety Scores Between the Intervention and Control Groups

   Based on the mean scores using the Mann-Whitney U test, the control group scored 28.13, while the intervention group scored 18.87, with a p-value of 0.019 < 0.05.

   The relaxing effect derived from the Qur'an recitation treatment may explain the significant difference observed in the intervention group. Several participants in the intervention group reported feeling relaxed and calm while listening to the recitation of the Holy Qur'an. This is supported by research by Andriyanny Putri N. (2024), which shows that listening to the therapeutic recitation of the

Qur'an can cause the brain to release a chemical compound called a neuropeptide. This compound interacts with the body's receptor system and induces a calm and comfortable physiological state.

Participants in the intervention group who underwent Quranic recitation therapy were required to focus completely during the recitation. When a person focuses intensely on the sacred words of the Quran, the brain is able to absorb their meaning, which then manifests as feelings of calm, comfort, and relaxation. Because anxiety levels significantly affect blood sugar levels—with changes in behavior, emotions, and even physical reactions that can increase glucocorticoid and catecholamine hormones—listening attentively to the recitation of the sacred verses of the Qur'an can soothe the heart and reduce anxiety (Syafyusari and Afnuhazi, 2022).

CONCLUSION

1. The mean anxiety score for the intervention group was 29.48 on the pretest and 23.87 on the posttest, with a difference of 5.6. The mean anxiety score for the control group was 27.30 on both the pretest and the posttest, with a difference of 0.43
2. The difference in means between the intervention group and the control group was found to be 18.87 for the intervention group (with 23 respondents) and 28.13 for the control group (with 23 respondents), with a p-value of 0.019. It can be concluded that there is a significant difference in anxiety scores between the intervention and control groups because the significance value is 0.019 < 0.05.

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