



Effectiveness of Murottal Therapy of Surah Al-Inshirah on Anxiety and Sleep Quality in Hemodialysis Patients

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ABSTRACT

Background: Hemodialysis patients frequently experience anxiety and sleep disturbances due to long-term treatment dependence and psychosocial stress. Spiritual-based interventions, such as Quranic Murottal therapy, may improve psychological well-being; however, empirical evidence remains limited. **Purpose:** This study aimed to examine the effectiveness of Murottal therapy of Surah Al-Inshirah accompanied by its translation on anxiety and sleep quality among hemodialysis patients. **Methods:** A quasi-experimental pretest-posttest control group design was conducted involving 88 hemodialysis patients selected using simple random sampling. Participants were equally assigned into intervention and control groups. The intervention group received Murottal therapy of Surah Al-Inshirah with Indonesian translation for 10 minutes across four sessions over two weeks, while the control group received healing prayer. Anxiety and sleep quality were measured using the Beck Anxiety Inventory (BAI) and Pittsburgh Sleep Quality Index (PSQI). Data was analyzed using Wilcoxon signed-rank and Mann-Whitney U tests. **Results:** Significant reductions in anxiety and improvements in sleep quality were observed in the intervention group compared with the control group ($p < 0.001$). **Conclusion:** Murottal therapy of Surah Al-Inshirah effectively reduces anxiety and improves sleep quality among hemodialysis patients. **Implications for Nursing:** This intervention may be integrated into holistic spiritual nursing care for hemodialysis patients.

Keywords: Anxiety, Hemodialysis, Quranic murottal therapy, Sleep quality, Surah Al-Inshirah, Spiritual nursing.

What does this paper add?

1. It provides empirical evidence on the effectiveness of Murottal therapy of Surah Al-Inshirah in reducing anxiety and improving sleep quality among hemodialysis patients.
2. It introduces an integrated intervention that combines spiritual auditory exposure with cognitive meaning processing, offering a more comprehensive approach than conventional relaxation techniques.
3. It addresses a critical gap in the literature on spiritually based non-pharmacological interventions for patients with chronic illness, particularly those undergoing hemodialysis.
4. It proposes a contextually relevant, low-cost, and easily implementable intervention for routine clinical practice.
5. It contributes to the development of a holistic

care model that integrates physical, psychological, and spiritual dimensions in patient management.

Introduction

In the global health paradigm advocated by the World Health Organization (WHO), health is not merely defined as the absence of disease, but as a state of complete physical, mental, and social well-being. In the context of chronic illnesses, including end-stage renal disease requiring hemodialysis, psychological dimensions and quality of life are critical determinants of long-term therapeutic success (World Health Organization, 2025). Hemodialysis, as a renal replacement therapy, not only necessitates sustained dependence on medical technology, but also imposes complex psychological stress, including existential anxiety and sleep disturbances, which adversely affect patients' quality of life (Kesyia Ayuni Asnidatama et al., 2024; Putro et al., 2024).

The global burden of chronic kidney disease requiring hemodialysis has been steadily increasing over the past decade. According to WHO data in 2022, approximately 3 million patients worldwide were undergoing hemodialysis. Regionally, the Asian Pacific Society of Nephrology reported over 1.5 million patients in Asia receiving similar therapy, underscoring the high disease burden in developing regions (Alshraifeen et al., 2022; Xie et al., 2025). In Southeast Asia, Indonesia ranks among the top three countries in terms of hemodialysis patient numbers, following the Philippines and Thailand, indicating a substantial contribution to the regional disease burden. However, national data reveals inconsistencies reflecting gaps in patient registration and reporting systems. The Indonesian Ministry of Health reported approximately 40,000 patients undergoing hemodialysis in 2022, whereas the Indonesian Nephrology Association recorded over 80,000 patients during the same period, and the Indonesia Renal Registry reported around 67,000 patients. These disparities highlight significant gaps in chronic kidney disease surveillance in Indonesia (Francis et al., 2024; Gao et al., 2022; Xie et al., 2025).

A sharper upward trend is observed in healthcare financing data. Kesehatan reported that 134,057 patients received hemodialysis services throughout

2024, representing a substantial increase compared with previous data and indicating rising prevalence and national healthcare costs. Regionally, this trend is also evident; Central Java recorded a surge in hemodialysis procedures up to 2025, with 30,597 procedures in Semarang and 2,392 services contributed by Demak Regency (Antara News Jateng, 2025).

Alongside the increasing patient numbers, the accompanying psychological challenges of hemodialysis have become increasingly complex. Anxiety and sleep disturbances are two predominant manifestations that simultaneously exacerbate patients' clinical conditions. Preliminary data from Sultan Agung Islamic Hospital Semarang indicated that among 10 interviewed patients (from a total of 127 active patients), most experienced anxiety triggered by fear of death, witnessing the mortality of fellow patients during dialysis, and perceptions of lifelong dependence on hemodialysis machines. Additionally, patients reported sleep disturbances, including difficulty maintaining sleep, frequent nocturnal awakenings, and inability to return to sleep. These findings reveal a gap between patients' psychosocial needs and the interventions currently available in clinical practice.

This issue is compounded by the limited scope of interventions, which predominantly focus on pharmacological approaches that, in many cases, are not fully effective and may carry long-term side effects (Dewi et al., 2024; Hambali et al., 2024). Non-pharmacological interventions, such as general relaxation therapy or psychological counseling, often fail to incorporate spiritual dimensions as a critical construct in patients' coping mechanisms, particularly in populations with strong religious backgrounds (Alivian et al., 2022; Rohadi & Maliya, 2025). Existing literature indicates growing interest in spiritual-based approaches; however, empirical evidence specifically examining the effectiveness of Quranic Murottal interventions on anxiety and sleep quality in hemodialysis patients remains limited, creating a significant research gap (Rohmawati et al., 2024).

Within this framework, Murottal therapy of Surah Al-Inshirah offers a multidimensional therapeutic approach encompassing auditory, cognitive, and spiritual components (Curtiss et al., 2021). Conceptually, Surah Al-Inshirah conveys messages

of tranquility, hope, and ease following hardship, which may modulate stress and anxiety responses through neuropsychological and spiritual mechanisms (Sha & Xiu, 2024). Furthermore, the combination of auditory recitation and comprehension of the verse meanings can enhance internalization of religious messages, thereby increasing intervention efficacy in reducing anxiety and improving sleep quality. The novelty of this study lies in integrating a spiritual approach based on sacred text with cognitive meaning-making as a comprehensive intervention, which has been scarcely explored in the context of hemodialysis patients (Agustiyowati et al., 2022; Ramadhan, 2026).

Consequently, this study holds significant value in advancing a holistic intervention paradigm that integrates biopsychosocial and spiritual aspects in clinical practice. The findings are expected to contribute not only to the development of spiritually-based nursing and health sciences, but also to offer practical implications for improving hemodialysis patients' quality of life through contextual, non-invasive, and sustainable interventions.

Research Questions

1. Does Murottal therapy of Surah Al-Inshirah, including its meaning, lead to a greater reduction in anxiety levels compared to a control condition among patients undergoing hemodialysis?
2. Does Murottal therapy of Surah Al-Inshirah, including its meaning, lead to a greater improvement in sleep quality compared to a control condition among hemodialysis patients?
3. What is the effect size of the intervention on anxiety reduction and sleep quality improvement following the intervention period?

Hypotheses

- H1: Hemodialysis patients receiving Murottal therapy of Surah Al-Inshirah, including its meaning, will demonstrate a greater reduction in anxiety levels compared to those in the control group.
- H2: Hemodialysis patients receiving Murottal therapy of Surah Al-Inshirah, including its meaning, will demonstrate a greater improvement in sleep quality compared to those in the control group.
- H3: The reduction in anxiety levels will be significantly associated with improvements in

sleep quality following the intervention.

Null Hypotheses (H0)

- H0₁: There is no significant difference in anxiety reduction between the intervention and control groups.
- H0₂: There is no significant difference in sleep quality improvement between the intervention and control groups.
- H0₃: There is no significant association between changes in anxiety levels and sleep quality.

Methods

This study employed a quasi-experimental design with a pretest-posttest control group approach to evaluate the effectiveness of Murottal therapy of Surah Al-Inshirah, including its meaning, on anxiety and sleep quality among hemodialysis patients. The study was conducted in the hemodialysis unit of a hospital setting.

Several strategies were implemented to minimize potential bias and confounding factors. First, participant recruitment used simple random sampling within each hemodialysis schedule group to ensure equal opportunity for participant selection. Second, the intervention and control groups were separated based on different hemodialysis schedules (morning vs. afternoon shifts) to reduce contamination bias and interaction between participants.

Although this study used a quasi-experimental design, allocation concealment was maintained by conducting participant selection through a lottery-based procedure performed after eligibility screening. Baseline demographic and clinical characteristics between groups were also evaluated to ensure comparability.

To reduce confounding variables related to auditory perception and psychological responses, patients with hearing impairment, severe cognitive disorders, and psychotropic medication use were excluded. In addition, all intervention sessions were standardized regarding duration, environment, and audio delivery procedures.

Participants were recruited using predefined inclusion criteria: age ≥ 18 years, undergoing routine hemodialysis for more than six months, being cooperative and able to communicate effectively, experiencing anxiety and sleep quality disturbances, and willingness to participate. Only Muslim participants were included, because the intervention

involved listening to Quranic recitation. Patients with hearing impairment, severe cognitive disorders, incomplete intervention attendance, hospitalization requiring invasive procedures, and those receiving psychotropic medications, such as benzodiazepines or anxiolytic agents, were excluded to minimize confounding factors.

The sample in this study represented a portion of the target population selected to reflect the characteristics of hemodialysis patients undergoing treatment in the study setting. A simple random sampling technique was employed, ensuring that every eligible member of the population had an equal probability of being selected as a study participant. Randomization was conducted using a lottery-based procedure to minimize subjective bias and enhance sample representativeness (Polit & Beck, 2021).

The total population consisted of 127 active hemodialysis patients. To minimize contamination bias between groups, participants were first separated according to hemodialysis schedules. The intervention group included patients undergoing hemodialysis during morning shifts (Monday-Thursday and Wednesday-Saturday), while the control group consisted of patients attending afternoon shifts (Tuesday-Friday and Wednesday-Saturday). This separation was intended to reduce interaction and intervention exposure between groups.

Sample size determination was performed using G*Power software based on statistical power analysis. Prior to calculation, the effect size was estimated from previous related studies. According to Cohen's standard classification, a large effect size ($d = 0.8$) was applied (Sullivan & Feinn, 2012). Using a significance level of 0.05 and statistical power of 80%, the minimum required sample size was calculated. After adding an anticipated 10% dropout rate, the final sample consisted of 88 respondents, with 44 participants allocated to each group.

Within each group, eligible participants were selected through simple random sampling. Participants who met the inclusion criteria were assigned labels of "respondent" and "non-respondent," followed by random lottery selection until the required sample size was achieved.

The intervention group received Murottal therapy of Surah Al-Inshirah accompanied by its Indonesian-language translation through earphones. The audio recording was designed in a sequential format, where

each Arabic verse was immediately followed by its corresponding Indonesian translation. This sequence continued until the entire Surah was completed. Therefore, participants simultaneously listened to both the Quranic recitation and its meaning directly through the audio device without additional verbal explanation from the researchers.

The intervention was delivered using an MP3 player connected to earphones with a standardized audio intensity of approximately 41-60 dB. The recitation employed tartil rhythm and moderate tempo to optimize relaxation effects and listening comfort during hemodialysis sessions. Earphones were individually provided to participants during the intervention sessions to minimize environmental noise interference within the hemodialysis unit.

Participants listened to the Murottal audio for approximately 10 minutes during each hemodialysis session. The intervention was repeated across four sessions over a two-week period. All intervention procedures were administered directly by the researchers.

Anxiety levels were measured using the Beck Anxiety Inventory (BAI), while sleep quality was assessed using the Pittsburgh Sleep Quality Index (PSQI). Data was collected at baseline (pretest) and after completion of the intervention (posttest). Demographic and clinical characteristics were also recorded to assess group comparability and potential confounding factors.

Data analysis was performed using statistical software. Within-group changes were analyzed using the Wilcoxon signed-rank test, while between-group differences in change scores were assessed using the Mann-Whitney U test. In addition, effect sizes (r) were calculated to quantify the magnitude of the intervention effect. Correlation analysis was conducted to examine the association between changes in anxiety levels and sleep quality. A significance level of $p < 0.05$ was applied.

Prior to inferential analysis, data normality was assessed using the Shapiro-Wilk test. The distribution of anxiety and sleep quality scores was found to be non-normal ($p < 0.05$); therefore, non-parametric statistical tests were applied. The Wilcoxon signed-rank test was used to evaluate within-group differences between pretest and posttest scores, because the data was paired and not normally distributed. Meanwhile, the Mann-

Whitney U test was employed to compare post-intervention differences between the intervention and control groups, as the two groups were independent and the assumptions for parametric testing were not met.

Ethical approval was obtained from the institutional research ethics committee. All participants provided written informed consent prior to data collection. Confidentiality and anonymity were strictly maintained throughout the study.

Data Collection

Ethical approval for this study was obtained from the Health Research Ethics Committee of RS Islam Sultan Agung Ethics Committee (Approval No. 33/KEPK-RSISA/II/2025), valid from February 17, 2025, to February 17, 2026. Institutional permission was secured prior to data collection.

Eligible participants were approached directly during their scheduled hemodialysis sessions. Each participant received a standardized explanation of the study objectives, procedures, potential benefits, and risks. Written informed consent was obtained before enrollment. Participation was voluntary, and confidentiality and anonymity were strictly maintained throughout the study.

Data collection was conducted in three sequential phases: pre-intervention, intervention, and post-intervention. In the pre-intervention phase,

baseline data was collected, including demographic and clinical characteristics, as well as baseline measurements of anxiety and sleep quality using validated instruments.

During the intervention phase, participants in the intervention group received Murottal therapy of Surah Al-Inshirah, including its meaning, according to the predefined protocol. The control group received a structured healing prayer intervention with equivalent duration and frequency to ensure comparability of exposure. All sessions were conducted under controlled conditions within the clinical setting to maintain consistency.

In the post-intervention phase, outcome measurements were repeated using the same instruments and procedures as the baseline assessment. Data collection procedures were standardized across both groups to minimize measurement bias and ensure data reliability.

Results

This section presents the results of data analysis obtained from patients undergoing hemodialysis, focusing on sociodemographic characteristics, anxiety levels, and sleep quality. The findings are based on measurements conducted before and after the administration of Murottal therapy of Surah Al-Inshirah with its translation in the intervention group, and healing prayer in the control group.

Table 1. Sociodemographic characteristics of hemodialysis patients

Characteristic	Intervention Group (n = 44)	Control Group (n = 44)
Age (years), n (%)		
19-30	1 (2.3)	2 (4.5)
31-40	7 (15.9)	7 (15.9)
41-50	11 (25.0)	15 (34.1)
51-60	15 (34.1)	12 (27.3)
>60	10 (22.7)	8 (18.2)
Gender, n (%)		
Male	19 (43.2)	20 (45.5)
Female	25 (56.8)	24 (54.5)
Educational Level, n (%)		
Primary (Elementary School)	15 (34.1)	12 (27.3)
Secondary (Junior-Senior High School)	24 (54.5)	26 (59.0)
Higher (Diploma-Bachelor)	5 (11.4)	6 (13.6)
Duration of Hemodialysis (days)		
Mean $\pm$ SD	854.32 $\pm$ 674.13	658.64 $\pm$ 339.53
Median (Min. - Max.)	645 (210-2,730)	585 (210-1,650)
Health Insurance, n (%)		
National Health Insurance (JKN/BPJS)	44 (100.0)	44 (100.0)

Table 1 presents the characteristics of respondents in both the intervention and control

groups. A total of 88 hemodialysis patients participated in this study, with an equal distribution between the two groups (44 participants each). The majority of respondents in both groups were female, comprising 25 individuals (56.8%) in the intervention group and 24 individuals (54.5%) in the control group.

In terms of age, most respondents were within the 41-60 years range. The educational level of

participants was predominantly secondary education (junior to senior high school) in both groups. The mean duration of undergoing hemodialysis was 854.32 days in the intervention group and 658.64 days in the control group. All respondents in both groups were covered by the national health insurance program (JKN/BPJS), which facilitated regular access to hemodialysis services throughout the study.

Table 2. Differences in anxiety levels before and after intervention (Wilcoxon Signed-rank test)

Group	Mean Pre $\pm$ SD	Mean Post $\pm$ SD	Z	p-value
Intervention (Murottal)	49.93 $\pm$ 3.12	23.66 $\pm$ 2.61	-5.87	0.000
Control (Prayer)	49.59 $\pm$ 3.08	28.82 $\pm$ 3.14	-4.91	0.000

Table 2 shows the results of the Wilcoxon Signed-rank test assessing anxiety levels in both groups. In the intervention group, the mean anxiety score decreased from 49.93 before the intervention to 23.66 after the intervention, indicating a

statistically significant reduction ($p = 0.000$).

Similarly, in the control group, the mean anxiety score decreased from 49.59 to 28.82 following the administration of healing prayer, with the difference also being statistically significant ($p = 0.000$).

Table 3. Differences in sleep quality before and after intervention (Wilcoxon Signed-rank test)

Group	Mean Pre $\pm$ SD	Mean Post $\pm$ SD	Z	p-value
Intervention (Murottal)	16.00 $\pm$ 3.09	6.89 $\pm$ 1.79	-5.94	0.000
Control (Prayer)	15.27 $\pm$ 2.17	12.25 $\pm$ 2.98	-3.88	0.000

Table 3 presents the results of the Wilcoxon Signed-rank test for sleep quality in both groups. In the intervention group, the mean sleep quality score decreased from 16.00 before the intervention to 6.89 after the intervention, indicating a significant

improvement in sleep quality ($p = 0.000$).

In the control group, the mean score also decreased from 15.27 to 12.25 after the healing prayer intervention, with the difference being statistically significant ($p = 0.000$).

Table 4. Differences in anxiety levels and sleep quality between groups after intervention (Mann-Whitney U test)

Variable	Group	Mean $\pm$ SD	Z	p-value
Anxiety	Intervention (Murottal)	23.66 $\pm$ 2.61	-6.457	0.000
	Control (Prayer)	28.82 $\pm$ 3.14		
Sleep Quality	Intervention (Murottal)	6.89 $\pm$ 1.79	-6.777	0.000
	Control (Prayer)	12.25 $\pm$ 2.98		

Table 4 presents the comparison of post-intervention anxiety levels and sleep quality between the intervention and control groups using the Mann-Whitney U test. The findings indicate that the mean anxiety score in the intervention group (Murottal therapy) was substantially lower than that in the control group (23.66 vs. 28.82). Similarly, the mean sleep quality score in the intervention group was lower than in the control group

(6.89 vs. 12.25), indicating better sleep quality among participants receiving the Murottal intervention.

Statistical analysis demonstrated that these differences were highly significant for both anxiety and sleep quality variables ($p = 0.000$). These results suggest that Murottal therapy is more effective than prayer alone in reducing anxiety levels and improving sleep quality.

Discussion

The findings of this study indicate that Murottal therapy of Surah Al-Inshirah has a significant effect on reducing anxiety and improving sleep quality among hemodialysis patients. Although both the intervention and control groups showed statistically significant improvements ($p < 0.001$), the intervention group experienced a greater reduction in anxiety (23.66 vs. 28.82) and a more optimal improvement in sleep quality (6.89 vs. 12.25) compared to the control group. Between-group comparisons were also significant, suggesting a superior effect of Murottal therapy over healing prayers (Chin et al., 2021; Ikbali & Sari, 2021).

The effectiveness of Surah Al-Inshirah Murottal therapy in alleviating anxiety can be explained through interacting neuropsychological and spiritual mechanisms. Physiologically, rhythmic recitation may activate the parasympathetic nervous system, thereby decreasing sympathetic activity associated with stress and anxiety responses. Repetitive auditory stimulation may also trigger the release of neurotransmitters, such as serotonin and endorphins, which are involved in emotional regulation (Maharani & Mustofa, 2024; Siregar et al., 2023). Understanding the meaning of Surah Al-Inshirah contributes to cognitive restructuring, particularly in interpreting suffering and uncertainty associated with chronic illness. The concept of “ease after hardship” serves as a cognitive stimulus, reinforcing adaptive coping mechanisms. For hemodialysis patients facing long-term therapy dependence and existential fears, the integration of auditory recitation and spiritual meaning becomes a critical determinant in reducing anxiety and improving sleep quality (Sanad et al., 2023).

From a neurophysiological perspective, the therapeutic effect of Murottal may also be explained through the Relaxation Response Theory and Gate Control Theory. Auditory spiritual stimulation activates parasympathetic nervous system responses, leading to reduced sympathetic arousal, lower cortisol secretion, decreased heart rate, and enhanced relaxation. Simultaneously, calming auditory input may modulate sensory processing pathways and emotional perception within the central nervous system, thereby reducing anxiety perception and facilitating improved sleep quality (Suparman Rustam, 2021).

Sleep quality improvements in the intervention group can also be attributed to the relaxation effects induced by Murottal, which reduce hyperarousal a key

factor in sleep disturbances. Simultaneous anxiety reduction contributes to enhanced sleep latency and continuity, suggesting a bidirectional causal relationship between anxiety and sleep quality (Rahmah et al., 2025; Rustam, 2021).

These results align with Wirayanti & Houghty (2024), who demonstrated that spiritually and religiously based interventions positively affect mental health in patients with chronic illnesses. Previous studies have reported that Quranic Murottal therapy effectively reduces anxiety and stress in both inpatient and chronic patient populations. The findings further reinforce the notion that audio-religious interventions provide relaxation effects comparable to music therapy or mindfulness, with the added dimension of spiritual meaning (Jumala & Junaidanur, 2022).

Surah Al-Inshirah was specifically selected, because its thematic content emphasizes emotional relief, hope, and reassurance after hardship, which are highly relevant to the psychological burden experienced by hemodialysis patients. Previous studies have demonstrated that different Quranic surahs may produce varying psychological effects depending on thematic meaning and emotional resonance. For example, Surah Ar-Rahman has been associated with physiological relaxation and anxiety reduction through repetitive rhythmic patterns, whereas Surah Al-Inshirah provides stronger cognitive reassurance related to coping and emotional resilience (Jumala & Junaidanur, 2022; Dewi et al., 2024).

While the control group receiving prayers also showed significant improvement, the results indicate that Murottal therapy with comprehension of meaning achieves higher efficacy, suggesting that cognitive engagement (meaning-based processing) is the primary differentiating factor compared to passive spiritual interventions (Yuwono et al., 2024).

However, previous studies have shown variability in the effectiveness of spiritual interventions, influenced by contextual factors, such as individual religiosity, intervention duration, and patients' clinical conditions (Manisei et al., 2023; Setyawan et al., 2025; Suparman Rustam, 2021). Therefore, the present study provides additional empirical justification for the effectiveness of Murottal therapy in the hemodialysis patient population.

Implications for Nursing

Implications for Nursing Practice

The findings suggest that Murottal therapy of Surah

Al-Inshirah can be integrated as a complementary intervention in nursing practice, particularly for hemodialysis patients experiencing anxiety and sleep disturbances. This intervention is non-invasive, easily implemented, and free from side effects, making it suitable for routine clinical application. Nurses providing holistic care can utilize this therapy as part of spiritually based nursing interventions, contributing to improved patient quality of life. Furthermore, implementing this intervention can strengthen the therapeutic nurse-patient relationship through a more empathetic and contextually relevant approach.

Implications for Nursing Education

The results underscore the importance of incorporating spiritual care into nursing education curricula. Nursing programs should develop students' competencies not only in clinical and technical skills, but also in providing evidence-based spiritual care. Murottal therapy can serve as an example of a complementary nursing intervention taught in courses on holistic or community nursing. Additionally, these findings encourage educational institutions to enhance students' critical thinking skills in evaluating and implementing non-pharmacological interventions tailored to patients' cultural and religious backgrounds.

Implications for Nursing Policy

From a policy perspective, healthcare institutions may consider integrating spiritual audio interventions into standard hemodialysis care protocols. Hemodialysis units could provide designated "quiet zones" or spiritual audio devices as part of supportive patient care facilities. In addition, hospitals may develop standardized spiritual care guidelines and provide training for nurses regarding evidence-based spiritual interventions. These strategies may strengthen holistic patient-centered care while supporting psychological well-being among patients undergoing long-term hemodialysis therapy.

Limitations

This study has several limitations that should be considered when interpreting results and generalizing findings:

1. The research design did not fully control for confounding variables, such as individual religiosity, baseline psychological status, social support, and adherence to the intervention, which may influence

anxiety and sleep outcomes.

2. The relatively short duration of the intervention limited the ability to evaluate long-term effects of Surah Al-Inshirah Murottal therapy. Longitudinal studies are needed to assess the sustainability of therapeutic effects on anxiety and sleep quality.
3. Self-report instruments used to measure anxiety and sleep may introduce subjectivity, including perception bias and social desirability bias, potentially affecting data accuracy, particularly in interventions with spiritual dimensions.
4. The sample was drawn from a single healthcare institution, limiting generalizability to broader populations. Cultural, religious, and healthcare system differences may yield non-comparable results in other settings.
5. This study did not thoroughly investigate the causal mechanisms underlying Murottal therapy effectiveness from neurophysiological or psychospiritual perspectives.

Another limitation is the inability to fully blind participants due to the nature of the spiritual auditory intervention, which may introduce expectancy effects.

Recommendations for Future Research

Future studies are recommended to include larger sample sizes and be conducted across multiple hemodialysis centers. Research with longer intervention and follow-up periods is needed to assess the sustainability of Murottal therapy effects. Additionally, future studies may combine subjective measurements with physiological indicators, such as heart rate variability or stress hormone levels, to strengthen evidence on the mechanisms underlying the therapeutic effects of Murottal therapy.

Conclusion

This study demonstrates that Murottal therapy of Surah Al-Inshirah is effective in reducing anxiety and improving sleep quality among hemodialysis patients. The intervention yielded superior outcomes compared to control approaches, highlighting its potential as a practical complementary therapy. These findings underscore the importance of integrating spiritual care into nursing practice to holistically enhance patients' quality of life.

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Conflict of Interests

The authors declare no conflict of interest.

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Author Contributions

Study Design: **ZM, DRS, S**. Data Collection: **ZM**. Data Analysis: **ZM**. Study Supervision: **DRS, S**. Manuscript Writing: **ZM**. Critical Revision for Important Intellectual Content: **DRS, S, EM**.

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