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COMPARISON OF PHYSIOLOGICAL RESPONSES BETWEEN CONSCIOUS AND UNCONSCIOUS ICU PATIENTS AFTER RECEIVING AL-MA'TSURAT DHIKR THERAPY

Moch. Achwandi[1], Zulfa Khusniyah[2]
[1]Lecture Universitas Bina Sehat PPNI Mojokerto
[2]Lecture Universitas Pesantren Tinggi Darul 'Ulum Jombang
Corresponding Email: achppni72@gmail.com

ABSTRACT

Patients in the Intensive Care Unit (ICU) experience physiological instability due to stress, anxiety, and critical illness conditions that activate the autonomic nervous system and the hypothalamic–pituitary–adrenal (HPA) axis (Langouche et al., 2023;Ghasemi et al., 2024). Spiritual-based interventions, such as Al-Ma'tsurat dhikr therapy, have been proposed as complementary approaches to promote relaxation responses through parasympathetic activation. This study aimed to analyze and compare physiological responses between conscious and unconscious ICU patients following Al-Ma'tsurat dhikr therapy. This study employed a quasi-experimental pretest–posttest design without a control group. A total of 60 ICU patients (30 conscious and 30 unconscious) were selected using consecutive sampling. The intervention consisted of standardized Al-Ma'tsurat dhikr audio recitations administered twice daily (morning and afternoon) for 35 minutes using bedside speakers at a controlled volume (50–60 dB). Physiological parameters, including systolic and diastolic blood pressure (mmHg), heart rate (beats per minute), and respiratory rate (breaths per minute), were measured 30 minutes before and after the intervention. Data were analyzed using the Wilcoxon Signed Rank Test and Mann–Whitney U test, with effect size calculations. In conscious ICU patients, respiratory rate showed a consistent and statistically significant reduction ($p < 0.05$), while systolic blood pressure and heart rate demonstrated significant changes during afternoon measurements. In unconscious ICU patients, significant reductions were observed in systolic blood pressure, diastolic blood pressure, and respiratory rate during morning measurements ($p < 0.05$). Comparative analysis indicated that respiratory rate was the most consistently affected parameter across both groups. In conclusion, Al-Ma'tsurat dhikr therapy may influence physiological responses in ICU patients, particularly respiratory rate. However, due to methodological limitations, including the absence of a control group and potential confounding factors, these findings should be interpreted cautiously. Further controlled studies are required.

Keywords

Al-Ma'tsurat Dhikr Therapy; ICU Patients; Physiological Responses

INTRODUCTION

Patients admitted to the Intensive Care Unit (ICU) are generally in critical conditions characterized by physiological instability and the need for continuous monitoring and intensive interventions (Voiriot et al., 2022). The ICU environment, which includes advanced medical technology, alarm sounds, invasive procedures, and limited mobility, may act as significant stressors that affect both physiological and psychological conditions of patients (Wung et al., 2025). These stressors are experienced not only by conscious patients but also by unconscious patients, as the body continues to respond physiologically to environmental stimuli (Halvorsen et al., 2022; Chu et al., 2024).

Stress and anxiety in ICU patients activate the sympathetic nervous system and the hypothalamic–pituitary–adrenal (HPA) axis, leading to increased heart rate, blood pressure, and respiratory rate (Langouche et al., 2023; Ghasemi et al., 2024). While these responses are adaptive in acute conditions, prolonged activation may negatively affect hemodynamic stability, increase myocardial oxygen demand, and contribute to complications, thereby worsening patient outcomes (Alotiby, 2024). Therefore, effective stress management is an essential component of critical care, and approaches that rely solely on pharmacological therapy may be insufficient to address the complexity of these responses.

In modern nursing practice, holistic care emphasizes that patients are bio-psycho-social-spiritual beings. Spiritual interventions have been increasingly recognized as complementary approaches that may reduce anxiety, enhance coping mechanisms, and improve physiological stability (Badanta et al., 2022). Among Muslim patients, dhikr therapy, particularly Al-Ma'tsurat recitations, represents a structured and meaningful form of spiritual practice. As an auditory stimulus, dhikr may influence the central nervous system by promoting parasympathetic activity and reducing sympathetic dominance, thereby inducing relaxation responses (Dimitriev et al., 2023).

Interestingly, advances in neuroscience indicate that auditory stimuli may still be processed in patients with impaired consciousness through subcortical pathways (Tivadar et al., 2021). This suggests that unconscious patients may also exhibit physiological responses to auditory stimulation, although the mechanisms may differ from those in conscious patients (Çevik & Namik, 2018). However, existing evidence regarding the effectiveness of auditory or spiritual interventions in ICU settings remains variable and context-dependent.

Despite growing interest in spiritual-based interventions, studies that specifically compare physiological responses between conscious and unconscious ICU patients following dhikr therapy remain limited. Most previous studies have focused on a single level of consciousness or different types of auditory interventions, resulting in a lack of comprehensive comparative evidence.

Therefore, this study aims to analyze and compare the physiological responses of conscious and unconscious ICU patients after receiving Al-Ma'tsurat dhikr therapy. This study is expected to contribute to the development of evidence-based spiritual nursing interventions and to strengthen holistic approaches in critical care nursing practice.

METHOD

This study employed a quasi-experimental design with a pretest–posttest approach without a control group. The study was conducted in the Intensive Care Unit (ICU) from November to December 2025.

The population consisted of ICU patients with varying medical diagnoses and levels of consciousness. The sampling technique used was consecutive sampling, in which all patients who met the inclusion criteria during the study period were recruited until

the required sample size was achieved (Spolarich, 2023). A total of 60 patients participated in this study, consisting of 30 conscious patients and 30 unconscious patients.

The inclusion criteria were as follows: adult patients aged ≥ 18 years; patients with a level of consciousness categorized as conscious (Glasgow Coma Scale [GCS] score 13–15) or unconscious (GCS ≤ 8); patients who had been admitted to the ICU for at least 24 hours with relatively stable hemodynamic conditions; patients of Islamic faith; and patients or family members who provided informed consent. The exclusion criteria included patients with severe hearing impairment; patients receiving high-dose sedation or continuous anesthesia; patients with severe neurological disorders affecting respiratory and cardiovascular centers; patients experiencing cardiac arrest or emergency deterioration during the intervention; and patients or family members who withdrew from the study.

The intervention consisted of standardized audio recordings of Al-Ma'tsurat dhikr recitations administered twice daily, at 05:00 a.m. and 05:00 p.m., for a duration of 35 minutes. The audio was delivered through bedside speakers placed near the patient, with a controlled volume of approximately 50–60 dB to ensure adequate audibility without causing discomfort. Efforts were made to minimize environmental noise during the intervention period.

Physiological parameters measured in this study included systolic and diastolic blood pressure (mmHg), heart rate (beats per minute), and respiratory rate (breaths per minute). Measurements were taken 30 minutes before and 30 minutes after each intervention session using standard ICU monitoring equipment.

Data analysis was performed using SPSS software. A normality test was conducted prior to inferential analysis. As most data were not normally distributed, non-parametric statistical tests were applied. The Wilcoxon Signed Rank Test was used to analyze differences in physiological responses before and after the intervention within each group, while the Mann–Whitney U test was used to compare differences between conscious and unconscious patient groups. Effect size (r) was calculated to assess the magnitude of the intervention effect.

Several potential confounding variables, including the use of sedatives, vasopressors, mechanical ventilation, and underlying disease severity, were not fully controlled in this study. These factors were considered in the interpretation of the results.

This study adhered to ethical principles, and informed consent was obtained from patients or their legal representatives prior to data collection.

RESULTS

Respondent Characteristics

A total of 60 ICU patients participated in this study, consisting of 30 conscious patients and 30 unconscious patients. All participants were in relatively stable hemodynamic conditions prior to the intervention.
Table 1 presents the general characteristics of the respondents in both groups.

Table 1. General Characteristics of Respondents (n=60)

Characteristics	Conscious Patient (n = 30)	Unconscious Patient (n = 30)
Baseline hemodynamic condition	Stable	Stable
Level of consciousness	Conscious	Unconscious
ICU Care	Yes	Yes

Descriptive analysis showed a general decrease in physiological parameters after the administration of Al-Ma'tsurat dhikr therapy in both groups.

Physiological Responses of Conscious ICU Patients

The results of physiological responses in conscious ICU patients before and after the intervention are presented in Table 2.

Table 2. Changes in Physiological Responses Before and After Al-Ma'tsurat Dhikr Therapy in Conscious ICU Patients (n = 30).

Parameter	Morning (p-value)	Afternoon (p-value)
Systolic blood pressure	0.083	0.005
Diastolic blood pressure	0.684	1.000
Heart rate	0.106	0.002
Respiratory rate	0.001	0.016

The Wilcoxon Signed Rank Test showed that during the morning measurement, only respiratory rate demonstrated a statistically significant reduction ($p = 0.001$). During the afternoon measurement, systolic blood pressure ($p = 0.005$), heart rate ($p = 0.002$), and respiratory rate ($p = 0.016$) showed statistically significant reductions.

Physiological Responses of Unconscious ICU Patients

The results of physiological responses in unconscious ICU patients before and after the intervention are presented in Table 3.

Table 3. Changes in Physiological Responses Before and After Al-Ma'tsurat Dhikr Therapy in Unconscious ICU Patients (n = 30)

Parameter	Morning (p-value)	Afternoon (p-value)
Systolic blood pressure	0.043	0.940
Diastolic blood pressure	0.038	0.891
Heart rate	0.339	0.516
Respiratory rate	0.001	0.000

In unconscious ICU patients, the Wilcoxon Signed Rank Test showed that during the morning measurement, systolic blood pressure ($p = 0.043$), diastolic blood pressure ($p = 0.038$), and respiratory rate ($p = 0.001$) decreased significantly. During the afternoon measurement, only respiratory rate showed a statistically significant reduction ($p = 0.000$).

Comparison of Physiological Responses Between Conscious and Unconscious ICU Patients

The comparison of physiological responses between conscious and unconscious ICU patients is presented in Table 4.

Table 4. Comparison of Physiological Responses Between Conscious and Unconscious ICU Patients After Al-Ma'tsurat Dhikr Therapy (n = 60)

Parameter	p-value
Systolic blood pressure	<0.05
Diastolic blood pressure	>0.05
Heart rate	>0.05
Respiratory rate	<0.05

The Mann–Whitney U test indicated that systolic blood pressure and respiratory rate showed statistically significant differences between groups ($p < 0.05$), whereas diastolic blood pressure and heart rate did not show statistically significant differences ($p > 0.05$).

DISCUSSION

Physiological Responses in Conscious ICU Patients

This study suggests that Al-Ma'tsurat dhikr therapy may influence physiological responses in conscious ICU patients, particularly in reducing respiratory rate and, to a lesser extent, cardiovascular parameters. The findings showed that physiological changes became more evident during the afternoon measurements, indicating a gradual and cumulative effect of the intervention.

This pattern may be explained by the ability of conscious patients to cognitively and emotionally engage with dhikr recitation. As an auditory–spiritual stimulus, dhikr may promote relaxation by enhancing parasympathetic activity and

reducing sympathetic dominance (Dimitriev et al., 2023; (Bakar et al., 2020). In addition, spiritual engagement may function as a coping mechanism that reduces anxiety and psychological stress, which are commonly experienced in ICU settings (Badanta et al., 2022). The observed reduction in respiratory rate supports the concept that respiratory regulation is highly sensitive to emotional and autonomic changes.

However, changes in cardiovascular parameters such as blood pressure and heart rate were less consistent. This may be due to the complex physiological regulation of these parameters, which is influenced by multiple clinical factors, including medication use, pain, and underlying disease conditions. Therefore, while dhikr therapy may contribute to improved physiological stability, its effects on cardiovascular parameters may be variable (Okviasanti et al., 2023).

Physiological Responses in Unconscious ICU Patients

In unconscious ICU patients, this study found that Al-Ma'tsurat dhikr therapy was also associated with measurable physiological changes, particularly in respiratory rate and blood pressure during the early phase of intervention. These findings suggest that auditory–spiritual stimulation may influence physiological regulation even in the absence of conscious awareness.

This phenomenon may be explained by the ability of auditory stimuli to be processed through subcortical pathways, which remain active despite impaired consciousness (Tivadar et al., 2021). Through these pathways, auditory input may influence the limbic system and hypothalamus, which play key roles in autonomic regulation (Qu et al., 2019). As a result, dhikr therapy may modulate physiological responses through non-cognitive mechanisms.

Nevertheless, similar to the findings in conscious patients, cardiovascular responses were less consistent over time. This inconsistency may be influenced by clinical factors commonly present in unconscious ICU patients, such as the use of sedatives, vasopressors, mechanical ventilation, and the severity of illness. These factors may alter autonomic responsiveness and potentially mask the effects of the intervention (Weng et al., 2021).

Comparison of Physiological Responses Between Conscious and Unconscious ICU Patients

The comparison between conscious and unconscious ICU patients revealed differences in the pattern and timing of physiological responses to Al-Ma'tsurat dhikr therapy. Conscious patients demonstrated more gradual and cumulative changes, particularly in the afternoon measurements, whereas unconscious patients showed more immediate responses during the morning measurements.

These differences may reflect distinct underlying mechanisms. In conscious patients, the effects of dhikr therapy are likely mediated through a combination of cognitive, emotional, and autonomic processes (Juniarni et al., 2022). In contrast, in unconscious patients, the effects may be primarily mediated through subcortical and autonomic pathways without cognitive involvement (Okviasanti et al., 2023).

Despite these differences, respiratory rate emerged as the most consistent parameter affected in both groups. This finding highlights the sensitivity of the respiratory system to auditory–spiritual stimulation and supports its potential use as a primary indicator of intervention effectiveness (Brabant, 2018; Walter & Altorfer, 2022). In contrast, cardiovascular parameters showed more variable responses, likely due to their complex regulation and susceptibility to external clinical factors.

Overall, these findings should be interpreted with caution. The absence of a control group limits causal inference, and the relatively small sample size reduces generalizability. Additionally, potential

confounding variables such as medication use and disease severity were not fully controlled. Despite these limitations, this study provides preliminary evidence supporting the potential role of Al-Ma'tsurat dhikr therapy as a complementary intervention in critical care nursing, particularly in promoting physiological stability through respiratory regulation (Nazir, 2023).

CONCLUSIONS

This study suggests that Al-Ma'tsurat dhikr therapy may influence physiological responses in ICU patients, both conscious and unconscious, particularly in reducing respiratory rate as the most consistent parameter. Differences in response patterns were observed between the two groups, where conscious patients showed more gradual and cumulative changes, while unconscious patients demonstrated more immediate responses in certain physiological parameters.

However, due to methodological limitations, including the absence of a control group and potential confounding factors, these findings should be interpreted with caution. Further well-designed controlled studies are required to confirm the effectiveness of Al-Ma'tsurat dhikr therapy as a complementary intervention in critical care settings.

LIMITATIONS

This study has several limitations. First, the absence of a control group limits the ability to establish causal relationships. Second, the relatively small sample size may reduce the generalizability of the findings. Third, important confounding variables such as the use of sedatives, vasopressors, mechanical ventilation, and variations in disease severity were not fully controlled. Finally, the short duration of the intervention may not adequately reflect long-term physiological effects. Therefore, future studies using randomized controlled designs with larger sample sizes are recommended.

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