

Middle East Research Journal of Nursing ISSN 2789-8679 (Print) & ISSN: 2958-2016 (Online) Frequency: Bi-Monthly DOI: https://doi.org/10.36348/merjn.2024.v04i06.006



The Effect of Listening to the Holy Quran on Life Findings in Coma Patients Hospitalized in Surgical Intensive Care Unit

Şerafettin Okutan^{1*}, Mehmet Tahir Huyut², Berfin Taraman³

¹Department of Nursing, Bitlis Eren University, Faculty of Health Sciences, Bitlis, Türkiye ²Department of Basic Medical Sciences, Erzincan Binali Yıldırım University, Faculty of Medicine, Erzincan, Türkiye ³Department of Nursing, Undergraduate Student, Bitlis Eren University, Bitlis, Türkiye

Abstract: The effect of listening to the Quran on the vital signs of coma patients in surgical intensive care was investigated. This study was conducted as a relational and descriptive research. The sample size is 72. Data were collected in surgical intensive care clinics in a province. Demographic characteristics form, vital sign follow-up form and Glasgow Coma Scale were used to collect data. The average pulse rate of the patients before music therapy (Quran) was 88, and the average pulse rate after the intervention was 85, and the difference was significant (p=0.017). The mean systolic blood pressure of the patients before music therapy (Quran) was determined as 129.50 mmHg, and the mean systolic blood pressure after the intervention was determined as 125 mmHg, and the difference was significant (p=0.021). In comatose patients hospitalized in surgical intensive care, listening to the Holy Quran with headphones had a positive effect on vital signs.

Research Paper*Corresponding Author:Serafettin OkutanDepartment of Nursing, Bitlis Eren University,
Faculty of Health Sciences, Bitlis, TürkiyeHow to cite this paper:Serafettin Okutan et al (2024). The Effect of
Listening to the Holy Quran on Life Findings
in Coma Patients Hospitalized in Surgical
Intensive Care Unit. Middle East Res J
Nursing, 4(6): 109-115.Article History:| Submit: 03.11.2024 || Accepted: 02.12.2024 || Published: 07.12.2024 |

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited

INTRODUCTION

Surgical intensive care is a care unit where patients with serious dysfunction in their organs or systems due to surgery, trauma, falls, burns, accidents, injuries, etc. are monitored and treated [1, 2]. The consciousness levels of patients in surgical intensive care units vary. The patients' status of consciousness are categorized from full consciousness to lethargy, confusion, stupor, and coma [3]. Coma is a state in which the patient does not respond purposefully to environmental stimuli [4]. Level of consciousness is related to a patient's alertness, awareness, and ability to respond. In surgical intensive care units, it is important to assess and classify the status of consciousness of patients. The Glasgow Coma Scale (GCS) is widely used to classify the level of consciousness. The GCS evaluates eye opening, motor response, and verbal response [3-5]. The scale is interpreted using numerical data. The highest score is 15 points. The patient is conscious, fully oriented and awake. The lowest score is 3 points. The patient is in a deep coma. Scores of 7 and below indicate that the patient is in a coma [3-6].

Painful procedures, treatments, care and applications performed by health professionals cause some painful stimuli on intensive care patients. It is stated that sensory processes such as pain and hearing are functional in coma patients [7, 8]. In addition to pharmacological treatments, non-pharmacological treatments are also applied to control the problems experienced in the sensory processes of patients in intensive care [8-10]. Alternative and complementary practices are applied to support pharmacological treatment in order to increase the patient's standard of living, reduce the length of hospital stay and increase the quality of patient care [8-11]. One of these complementary treatment applications is music therapy. Music therapy has a supporting role in meeting the psychological, physiological, social and mental needs of people and in healing emotions through sounds and melodies. It is a method that complements the disease or treatment [8-13].

Music therapy is used in intensive care patients, perioperatively, pediatric and psychiatric patients, burn care, palliative care patients and many nursing care areas [8-12]. Studies show that music reduces the need for analgesics and pain by increasing the level of endorphin hormones, and has a positive effect on the health of patients by releasing endogenous analgesics [8-14]. Music affects the sympathetic nervous system, reducing adrenergic activity and neuromuscular arousal, stomach acidity, metabolic rate, and tension [13]. Music is an important tool that reduces patients' respiratory rate, blood pressure, body temperature and heart rate, provides post-operative relaxation, distracts the patient, and improves the quality of life of terminal and intensive care patients [8, 9].

This study aimed to investigate the effects of listening to the Quran on pulse, saturation, systolic and diastolic blood pressure, fever, and respiration in patients in surgical intensive care. The unique value of this study is that, unlike other types of music, the Quran (Surah Rahman) was listened to by the patients.

MATERIALS AND METHODS

This study was conducted on inpatients in two public hospitals in a province in Turkey between January 2023 and December 2023. The research design is a pretest-post-test single-group experimental design. The sample size was clarified using the G-Power program. According to the power analysis measurement, which had a representation power of 95%, a confidence interval of 0.95, an effect size of 0.7, and a margin of error of 0.05, it was determined that there should be 72 patients. The study group was created by simple random sampling method. 12 patients did not meet the inclusion criteria. 8 patients were excluded from the study because they did not agree to participate in the study (patient relatives were consulted for consent).

Inclusion and Exclusion Criteria for Participants

Inclusion criteria for the study were being a surgical intensive care patient, being over 18 years of age, having a Glasgow coma score of 8 or less, and being Muslim. Exclusion criteria for the study were being under 18 years of age, having a Glasgow coma scale score of more than 8, and having emerged from a coma during the study.

Data Collection Tools Patient Introduction Form:

This form, consisting of a total of 8 questions recording the medical and sociodemographic characteristics of the patients, was prepared by the researchers [8, 9].

Vital Signs Form:

This form, which records pulse, temperature, oxygen saturation, systolic-diastolic blood pressure and respiration findings, was prepared by researchers [8, 9].

Glasgow Coma Scale:

This form is used to evaluate the status of consciousness of patients. It is a scale in which the status of consciousness of patients is scored according to their verbal response level, motor responses and eye movements to stimuli. According to the scale, patients are evaluated as 3 points coma, 3-8 points pericoma, 8-

13 points stupor, 13-14 points confused and 15 points oriented [7-12].

Data Collection

Data were collected in the surgical intensive care unit between January 2023 and December 2023. No adverse events were recorded during the study period. Verbal and written consent was obtained from the relatives of comatose patients in the intensive care unit.

Intervention

A patient identification form was applied to patients with a Glasgow coma score of 8 points or less. Before music therapy (Quran) was applied, fever, pulse, systolic-diastolic blood pressure, respiration, oxygen saturation values were measured and recorded on the vital signs follow-up form. The 55th chapter of the Quran, Surah Rahman, was listened to by the patients in Arabic, the original language of the Quran, for 20 minutes. After the procedure, vital signs were measured again. Over-the-ear headphones were used while the patients listened to the Quran. The headphones were disinfected with cotton alcohol to prevent crosscontamination between patients. In adults, fever of 36.5-37.5 °C; pulse of 60-100 beats; respiration of 16-24; blood pressure of 120/80 mmHg; SpO2 of 95-100% were considered normal.

Data Analysis

Data coding and statistical analyses were performed on the computer using the SPSS 25.0 (Statistical Package for Social Science) package program. Mean, standard deviation and percentage tests were used in the analysis of demographic data. Shapiro-Wilk test and Wilcoxon signed rank tests were used in the comparison of vital findings before and after the application. The results were evaluated at a significance level of p < 0.05 and a confidence interval of 95%.

Limitations of the Study

The fact that the research data were obtained from two centers and therefore cannot be generalized to the universe constitutes the limitation of this study. However, it can be used for comparison with the results of other studies.

Ethical Considerations

This study was approved by the Health and Sports Sciences Ethics Committee for Human Research at XXX University. (Date: 31/01/2023, Decision No: 01/09). Clinical trial registration and number: NCT06326541. The purpose of the study was explained to the relatives of the participants by the researchers. Those who agreed to participate in the study signed the "participant's voluntariness and informed consent form". Participants were informed that all patient information would be kept confidential. The principles of the Declaration of Helsinki were followed.

RESULTS

54.2% of the patients were female and 45.8% were male. 61.1% of the patients were illiterate and 52.8% were housewives. 58.3% of the patients received sedation. 47.6% of the patients who received sedation received minimal level sedation. The mean age of the patients was 74.20 \pm 12.36 (Table 1).

The mean pulse rate of the patients before the application was 88, while it was 85 after the application. The difference was found to be statistically significant (p=0.017). The mean systolic blood pressure of the patients before the application was 129.50, while it was 125.00 after the application. The difference was found to be statistically significant (p=0.021) (Table 2).

The mean body temperature of the female patients after the application was found to be lower than the male patients (p=0.045). The decrease in the average pulse rate of male patients after the application was found to be statistically significant compared to female patients (p=0.019). The average systolic blood pressure of male patients after the application was found to be lower than that of female patients (p=0.037) (Table 3).

The average pulse rate after the application was found to be higher in patients who did not receive sedation (p=0.047). The decrease in systolic blood pressure after the application was found to be statistically significant in patients who received sedation (p=0.026) (Table 4).

		n	%
Gender	Female	39	54.2
	Male	33	45.8
Educational Status	Illiterate	44	61.1
	Literate	17	23.6
	Primary School	9	12.5
	Secondary School	0	0.0
	High School	1	1.4
	University	1	1.4
	Housewife	38	52.8
Occupation	Self-Employed	7	9.7
	Retired	8	11.1
	Other	19	26.4
Sedation Status	Yes	42	58.3
	No	30	41.7
Sedation Level	Minimal	20	47.6
	Moderate Sedation	11	26.2
	Dissociation	5	11.9
	Deep Sedation	5	11.9
	General Anesthesia	1	2.4
Age	Mean±SD		
	74.20±12.36		

Table 1: Descriptive Characteristics of Patients (n:72)

•	Min	Q1	Median	Q3	Max
Pre-application fever	33.60	36.30	36.50	36.90	96.00
Post-application fever	33.60	36.30	36.50	36.80	37.80
*р			.911		
Pre-application pulse	48.00	73.00	88.00	100.50	137.00
Post-application pulse	50.00	77.50	85.00	104.00	163.00
*р			.017		
Pre-application respiration	12.00	16.00	21.00	25.00	125.00
Post-application respiration	12.00	17.00	20.00	23.50	45.00
*р			.343		
Pre-application systolic blood pressure	83.00	108.50	129.50	145.50	230.00
Post-application systolic blood pressure	85.00	110.00	125.00	137.00	226.00
*р			.021		
Pre-application diastolic blood pressure	9.00	64.50	73.50	87.00	134.00
Post-application diastolic blood pressure	44.00	65.00	73.00	84.50	126.00

	Min	Q1	Median	Q3	Max
*р			.504		
Pre-application saturation	82.00	93.00	96.00	98.50	100.00
Post-application saturation	86.00	94.00	96.00	99.00	100.00
*p			.410		

Şerafettin Okutan et al; Middle East Res J Nursing, Nov-Dec, 2024; 4(6): 109-115

*p shows the result of Wilcoxon signed rank analysis. Min: Minimum, Max: Maximum, Q1: 1st quarter, Q3: 3rd quarter.

Table 3: Comparison of Patients' Vital Signs Before and After Application According to Gender (n:72)

	Female					Male					
	Min	Q1	Median	Q3	Max	Min	Q1	Median	Q3	Max	*p
Pre-application	33.60	36.30	36.50	36.80	96.00	33.80	36.30	36.70	37.00	37.60	.257
fever											
Post-	33.60	36.30	36.40	36.60	37.40	33.80	36.30	36.70	37.00	37.80	.045
application											
fever											
**p			.316					.264			
Pre-application	48.00	68.00	88.00	99.00	122.00	64.00	76.00	89.00	103.00	137.00	.342
pulse											
Post-	50.00	72.00	84.00	102.00	163.00	65.00	80.00	88.00	110.00	141.00	.304
application											
pulse											
**p			.283					.019			
Pre-application	13.00	17.00	22.00	26.00	125.00	12.00	16.00	20.00	23.00	43.00	.135
Dest	12.00	18.00	20.00	24.00	21.00	12.00	17.00	18.00	22.00	45.00	120
Post-	15.00	18.00	20.00	24.00	51.00	12.00	17.00	18.00	25.00	45.00	.129
respiration											
**n			270					900			
Pre application	96.00	110.00	133.00	152.00	230.00	83.00	105.00	122.00	140.00	160.00	073
systolic blood	20.00	117.00	155.00	152.00	250.00	05.00	105.00	122.00	140.00	107.00	.075
pressure											
Post-	91.00	115.00	126.00	145.00	226.00	85.00	107.00	121.00	134.00	154.00	.037
application	21.00	110.00	120.00	1 10:00	220.00	02.00	107.00	121.00	15 1.00	10 1100	
systolic blood											
pressure											
**p			.104					.063			
Pre-application	49.00	65.00	76.00	87.00	134.00	35.00	61.00	72.00	87.00	133.00	.288
diastolic blood											
pressure											
Post-	47.00	68.00	74.00	87.00	126.00	44.00	61.00	73.00	83.00	110.00	.258
application											
diastolic blood											
pressure											
**p			.585					.613			
Pre-application	82.00	93.00	96.00	98.00	100.00	87.00	95.00	97.00	99.00	100.00	.085
saturation											
Post-	89.00	94.00	96.00	99.00	100.00	86.00	95.00	98.00	99.00	100.00	.275
application											
saturation											
**p			.065	1	1			.486			

*p values show the results of Mann-Whitney U test. **p values show the results of Wilcoxon signed rank analysis. Min: Minimum, Max: Maximum, Q1: 1st quartile, Q3: 3rd quartile

					Sedatio	n Status					
			Yes					No			
	Min	Q1	Median	Q3	Max	Min	Q1	Median	Q3	Max	*p
Pre-application	33.60	36.30	36.60	36.90	37.90	35.00	36.30	36.50	36.80	96.00	.819
fever											
Post-	33.60	36.30	36.55	36.90	37.80	35.30	36.30	36.50	36.70	37.20	.359
application											
fever											
**p			.743					.765			
Pre-application	48.00	71.00	86.50	95.00	137.00	51.00	73.00	90.00	110.00	128.00	.174
pulse											
Post-	51.00	74.00	83.50	96.00	163.00	50.00	78.00	92.00	114.00	138.00	.127
application											
pulse											
**p			.156					.047			
Pre-application	12.00	16.00	20.00	24.00	43.00	12.00	16.00	21.50	25.00	125.00	.470
respiration											
Post-	12.00	17.00	19.00	22.00	45.00	12.00	18.00	22.00	25.00	31.00	.085
application			-,								
respiration											
**p			.207					.977			
Pre-application	83.00	107.00	134.00	150.00	169.00	90.00	110.00	126.50	136.00	230.00	.293
systolic blood											
pressure											
Post-	90.00	110.00	127.50	138.00	173.00	85.00	112.00	122.50	132.00	226.00	.385
application											
systolic blood											
pressure											
**p			.026					.344			
Pre-application	35.00	66.00	74.50	87.00	120.00	49.00	63.00	73.00	81.00	134.00	.685
diastolic blood											
pressure											
Post-	44.00	66.00	75.50	87.00	115.00	48.00	65.00	72.50	80.00	126.00	.398
application											
diastolic blood											
pressure											
**p			.272					.968			
Pre-application	87.00	94.00	97.00	99.00	100.00	82.00	93.00	96.00	98.00	100.00	.199
saturation											
Post-	86.00	95.00	96.50	99.00	100.00	89.00	92.00	95.50	98.00	100.00	.078
application			-					-			
saturation											
**p			.200					.961			

Table 4: Com	parison of Patients'	Pre- and Post-Application	Vital Signs According	g to Sedation Status (na	:72)
		G 1 (*	G ()		

*p values show the results of Mann-Whitney U test. **p values show the results of Wilcoxon signed rank analysis. Min: Minimum, Max: Maximum, Q1: 1st quartile, Q3: 3rd quartile

Discussion

Music therapy is a non-invasive procedure used as a non-pharmacological intervention in solving and treating health-related problems [14]. Music therapy, one of the non-pharmacological treatment methods, is effective in reducing fear, anxiety, worry and stress levels by activating the parasympathetic nervous system in the brain [12]. Since hearing is the last sense to be lost in patients in intensive care, unconscious patients continue to hear. Therefore, patients in intensive care can hear the sound of music. The results of this study, which was conducted to examine the effect of the Quran played on vital signs of comatose patients in surgical intensive care, were discussed with the relevant literature.

In this study, 58.3% of the patients were sedated (Table 1). When we look at the literature, there are many studies in which patients received sedation and those in

Şerafettin Okutan et al; Middle East Res J Nursing, Nov-Dec, 2024; 4(6): 109-115

which they did not [9-15]. The mean age of the patients in this study was 74.20±12.36 (Table 1). The mean age of the patients in the Tsuruta et al., study was 73 [5]. In the study by Aghaie et al., the mean age of the patients was 57.32±5.94 [15]. In the study by Dalli et al., the mean age of the patients was 54.50±13.50 [9]. In the study by Naseri et al., the mean age of the patients was 45.6±7.2 [16]. When we look at the literature, the average age of the patients varies. The patients who participated in this study constitute the oldest group. We think that this result may be related to hospitalizations.

In this study, a decrease in the patients' pulse and systolic blood pressure values was detected after the application (Table 2). Similar results are available in the literature. Froutan et al., in a clinical study examining the effects of music therapy on the physiological parameters of patients with traumatic brain injury in the ICU, they reported a decrease in pulse, blood pressure and respiration [13]. Zolfaghari et al., investigated the effect of music on vital signs in patients in the ICU. They reported a decrease in blood pressure and an increase in pulse [17]. Lin Han et al., reported that music has a positive effect on vital signs in patients with mechanical ventilation in the ICU [18]. Qolizadeh et al., made newborn ICU patients listen to the Quran. While the pulse, blood pressure and respiratory rate decreased in the patients, the saturation rate increased [8]. Naseri et al., reported that listening to the Ouran increased the consciousness level of coma patients in the ICU [16]. The music played in the studies varies. In this study, the Quran was played. This result is important in terms of the positive effect of the Quran on the vital signs of patients with Islamic beliefs. We think that the Quran relaxes patients physically because it increases their spiritual power.

In this study, the average body temperature of female patients after the application was found to be lower than that of male patients (p=0.045, Table 3). In this study, the decrease in the average pulse and systolic blood pressure of male patients after the application was found to be more significant than that of female patients (p=0.019, Table 3).

When the literature is examined, it is seen that the gender factor is not addressed. In this study, the change in vital signs of male patients shows that they are more affected by the Ouran. In this study, the average pulse rate was found to be higher in patients who did not receive sedation after the application (p=0.047, Table 4). In this study, the decrease in systolic blood pressure after the application was found to be more significant in patients who received sedation (p=0.026, Table 4). There are studies with similar results in the literatüre [19, 20]. The decrease in pulse and systolic blood pressure values observed after the application in the patient group receiving sedation shows that listening to the Quran is effective. In this study, most of the patients received

minimal and moderate sedation. This situation can be explained by the fact that the music (the Quran) was felt more intensely.

CONCLUSION

It was observed that listening to the Quran in patients in the surgical intensive care unit had a positive effect on vital signs (pulse, systolic blood pressure). Health institutions should increase their spiritual care efforts for patients. It is recommended that listening to the Quran be performed for patients in the intensive care unit within the scope of improving spiritual health. Similar and comprehensive studies are needed for listening to the Quran in intensive care patients to be included among nursing practices.

Conflict of Interests: The authors declare that there is no conflict of interest in the study.

Financial Disclosure: The authors declare that they have received no financial support for the study.

Ethical Approval

Ethical approval for the study was received from Erzincan University Human Research Health and Sports Sciences Ethics Committee dated 31.01.2023 and numbered No:01/09.

REFERENCES

- 1. Delaney, J. W., & Downar, J. (2016). How is life support withdrawn in intensive care units: a narrative review. Journal of critical care, 35, 12-18.
- 2. Bulut, T. Y., Çekiç, Y., & Altay, B. (2023). The effects of spiritual care intervention on spiritual well-being, loneliness, hope and life satisfaction of intensive care unit patients. Intensive and Critical Care Nursing, 77, 103438.
- 3. Zhang, J. K., Dinh, T. U., Teasdale, G., Mercier, P., & Mattei, T. A. (2024). The message of the Glasgow Coma Scale: a comprehensive bibliometric analysis and systematic review of clinical practice guidelines spanning the past 50 years. World neurosurgery.
- Fathi, M., Moghaddam, N. M., Jame, S. Z. B., 4. Darvishi, M., & Mortazavi, M. (2022). The association of Glasgow Coma Scale score with characteristics of patients admitted to the intensive care unit. Informatics in Medicine Unlocked, 29, 100904.
- Tsuruta, R., Oda, Y., Shintani, A., Nunomiya, S., 5. Hashimoto, S., Nakagawa, T., ... & Yabe, S. (2014). Delirium and coma evaluated in mechanically ventilated patients in the intensive care unit in Japan: A multi-institutional prospective observational study. Journal of Critical Care, 29(3), 472-e1.
- 6. Nunn, A. M., & Lee, A. (2024). Management of endocrine disorders in the surgical intensive care unit. Curr Ther Trauma Surg Crit Care, 733-740.e1.

114 © 2024 Middle East Research Journal of Nursing | Published by Kuwait Scholars Publisher, Kuwait

- Kim, H., & Kim, J. H. (2013). Evaluation of the clinical usefulness of critical patient severity classification system and Glasgow coma scale for neurological patients in intensive care units. *Asian Nursing Research*, 7(1), 8-15.
- Qolizadeh, A., Myaneh, Z. T., & Rashvand, F. (2019). Investigating the effect of listening to the Holy Quran on the physiological responses of neonates admitted to neonatal intensive care units: A pilot study. *Advances in Integrative Medicine*, 6(4), 159-162.
- Dallı, Ö. E., Yıldırım, Y., Aykar, F. Ş., & Kahveci, F. (2023). The effect of music on delirium, pain, sedation and anxiety in patients receiving mechanical ventilation in the intensive care unit. *Intensive and Critical Care Nursing*, 75, 103348.
- 10. Toprak, Ç., Ozcan, P. E., Demirbolat, İ., Kalaycioglu, A., & Akyuz, N. (2024). The effect of lavender and bergamot oil applied via inhalation on the anxiety level and sleep quality of surgical intensive care unit patients. *Explore*.
- 11. Rababa, M., & Al-Sabbah, S. (2023). The use of islamic spiritual care practices among critically ill adult patients: A systematic review. *Heliyon*, 9(3).
- Yekefallah, L., Namdar, P., Azimian, J., Mohammadi, S. D., & Mafi, M. (2021). The effects of musical stimulation on the level of consciousness among patients with head trauma hospitalized in intensive care units: A randomized control trial. *Complementary Therapies in Clinical Practice*, 42, 101258.
- Froutan, R., Eghbali, M., Hoseini, S. H., Mazloom, S. R., Yekaninejad, M. S., & Boostani, R. (2020). The effect of music therapy on physiological parameters of patients with traumatic brain injury: A triple-blind randomized controlled clinical trial. *Complementary therapies in clinical practice*, 40, 101216.
- 14. Head, J., Gray, V., Masud, F., & Townsend, J. (2022). Positive stimulation for medically sedated

patients: a music therapy intervention to treat sedation-related delirium in critical care. *Chest*, 162(2), 367-374.

- Aghaie, B., Rejeh, N., Heravi-Karimooi, M., Ebadi, A., Moradian, S. T., Vaismoradi, M., & Jasper, M. (2014). Effect of nature-based sound therapy on agitation and anxiety in coronary artery bypass graft patients during the weaning of mechanical ventilation: A randomised clinical trial. *International Journal of Nursing Studies*, 51(4), 526-538.
- 16. Naseri-Salahshour, V., Varaei, S., Sajadi, M., Tajdari, S., Sabzaligol, M., & Fayazi, N. (2018). The effect of religious intervention on the level of consciousness of comatose patients hospitalized in an intensive care unit: a randomized clinical trial. *European Journal of Integrative Medicine*, 21, 53-57.
- Zolfaghari, M., Ajri Khameslou, M., Zaherimogadam, M., & Ajri Khameslou, E. (2015). The effect of preferred music on physiological parameters of pain in. *Adv Nurs Midwifery*, 24(86), 1–8.
- Han, L., Li, J. P., Sit, J. W., Chung, L., Jiao, Z. Y., & Ma, W. G. (2010). Effects of music intervention on physiological stress response and anxiety level of mechanically ventilated patients in China: a randomised controlled trial. *Journal of clinical nursing*, *19*(7-8), 978-987.
- da Silva, T. A., Schujmann, D. S., da Silveira, L. T. Y., Caromano, F. A., & Fu, C. (2017). Effect of therapeutic Swedish massage on anxiety level and vital signs of Intensive Care Unit patients. *Journal* of bodywork and movement therapies, 21(3), 565-568.
- 20. Mermer, E., & Arslan, S. (2024). The effect of audiobooks on sleep quality and vital signs in intensive care patients. *Intensive and Critical Care Nursing*, 80, 103552.