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The Application of Al-Qur'an Surah Ar-Rahman Recitation Therapy on Hemodynamic Status in Stroke Patients at Dr. Soediran Mangun Sumarso Regional General Hospital, Wonogiri

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Abstract

Background: Stroke is a disruption of blood flow to the brain that can cause hemodynamic instability, leading to complications and even death. Its prevalence is high in Indonesia, including at Dr. Soediran Mangun Sumarso Regional General Hospital, Wonogiri. Stroke management can be supported with non-pharmacological therapies, such as listening to the recitation (murottal) of the Qur'an. Surat Ar-Rahman is believed to have a relaxing effect and help stabilize bodily functions. **Objective**: To determine the application of Qur'anic Murottal Therapy (Surat Ar-Rahman) on hemodynamic status in stroke patients in Dr. Soediran Mangun Sumarso Regional General Hospital, Wonogiri. **Method**: This study used a descriptive case study with a pre-test and post-test design. The therapy was applied to two respondents for 15–20 minutes over three days. **Results**: The results showed decreased hemodynamic parameters after implementing Qur'anic Murottal Therapy (Surat Ar-Rahman). This therapy can be considered a non-pharmacological technique or an independent nursing intervention for inpatients in the stroke unit with unstable hemodynamic status. **Conclusion**: Qur'anic Murottal Therapy of Surat Ar-Rahman can serve as a non-pharmacological or independent intervention for improving hemodynamic status in stroke unit inpatients.

Keywords: Stroke, Recitation Therapy, Surah Ar-Rahman, Hemodynamics

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1. BACKGROUND

Stroke is a cerebrovascular disease characterized by the sudden and rapid onset of localized or global neurological deficits that persist for more than 24 hours. It results from an interruption in cerebral blood flow, either due to hemorrhage or occlusion, with clinical manifestations corresponding to the affected region of the brain. Stroke outcomes vary and may include complete recovery, recovery with residual disability, or death (Mutiarasari,

2019). A significant complication associated with stroke is hemodynamic instability, which refers to impaired regulation of systemic blood flow and perfusion. This condition arises from disrupted cerebral autoregulation, occlusion of cerebral arteries, high-grade stenosis, systemic hypotension, or vascular rupture. The resulting reduction in cerebral perfusion leads to inadequate oxygen and nutrient delivery to brain tissue, causing hypoxia, altered levels of consciousness, and disturbances in vital physiological parameters, including oxygen saturation (Ariprativi et al., 2020).

Globally, stroke remains a significant public health concern. According to the World Stroke Organization, approximately 13.7 million new stroke cases are reported annually, with around 5.5 million deaths attributed to stroke worldwide each year (Ministry of Health, 2020). In the United States, stroke is the fifth leading cause of mortality, following heart disease, cancer, and chronic lower respiratory diseases (Alifudin & Ediati, 2023). In Indonesia, stroke is one of the leading causes of hospital-based mortality, accounting for 14.5% of all deaths. In 2020, an estimated 1,636,825 individuals were diagnosed with stroke, of whom 80% had ischemic stroke (Mutiarasari, 2019). The prevalence of stroke in Central Java Province has shown a concerning upward trend, increasing from 7.0% to 10.9% over five years, highlighting the growing burden of this condition in the region.

Regional data further illustrate the severity of the issue. According to the Central Java Provincial Health Profile Report (2020), Wonogiri Regency reports a hemorrhagic stroke prevalence of 454 per 4,000 population, while non-hemorrhagic stroke affects 2,819 per 10,000 individuals. At Dr. Soediran Mangun Sumarso Regional General Hospital, medical records indicate that 176 stroke cases were treated in the Stroke Unit (Anyelir 2 Room) in 2024. By January 10, 2025, an additional 31 cases had already been recorded, underscoring the persistent demand for specialized stroke care.

Hemodynamic instability in stroke patients poses a critical risk for life-threatening complications, including secondary brain injury, organ dysfunction, and poor clinical outcomes. Management in intensive care settings typically involves pharmacological interventions, often complemented by non-pharmacological strategies such as deep breathing exercises, music therapy, foot massage, aromatherapy, and spiritual-based interventions like Al-Qur'an recitation

therapy (Murottal) (Irman et al., 2021). These adjunctive therapies aim to modulate autonomic nervous system activity, reduce physiological stress, and promote hemodynamic stability.

Among non-pharmacological interventions, the Al-Qur'an (Murottal) recitation holds significant potential. The Al-Qur'an is regarded as a spiritual guide and a source of healing for both physical and psychological ailments. Nurani (2022) emphasizes that the Al-Qur'an functions as syifa' (healing) and ruqyah (spiritual remedy), offering holistic benefits. Scientific studies have demonstrated that listening to recitations of Surah Ar-Rahman, particularly by Qori Ahmad Haidar Arramadhani, for 15 minutes and 13 seconds at a moderate volume (92–104 dB), can induce a relaxation response. Electroencephalographic (EEG) findings show increased delta wave activity in both cerebral hemispheres' frontal and central regions, indicating deep relaxation and improved neural regulation (Pujianto et al., 2023).

From a physiological perspective, relaxation induced by auditory stimuli such as Qur'anic recitation can modulate the autonomic nervous system. It suppresses the release of stress hormones like epinephrine and norepinephrine, inhibits angiotensin formation, reduces heart rate, dilates peripheral blood vessels, decreases systemic vascular resistance, and ultimately lowers cardiac output. These changes improve arterial pressure regulation and enhance hemodynamic stability (Nurqalbi & Kamaruddin, 2019). During relaxation, the hypothalamus reduces sympathetic nervous system activity and enhances parasympathetic tone, promoting internal homeostasis and optimal organ function (Nihla & Sukraeny, 2023).

For Muslim patients, listening to the Al-Qur'an is therapeutic and a form of worship, reinforcing spiritual connection and emotional comfort. Surah Ar-Rahman, known for its themes of divine mercy, compassion, and gratitude, is particularly impactful. Its repetitive refrain—"Fa-bi-ayyi ālā'i rabbikumā tukadhdhibān" (Then which of the favors of your Lord would you deny?)—appears 31 times, serving to deepen reflection, affirm monotheism (tawhid), and encourage gratitude in all circumstances (Sukmalara & Fitria, 2021). This rhythmic and melodic repetition may further enhance its calming and cognitive effects.

Preliminary observations in the Stroke Unit on January 18, 2025, revealed that patients are typically monitored for

approximately seven days before being deemed hemodynamically stable. However, those who stabilize earlier may be transferred to general wards. Routine monitoring includes assessment of pain, respiration, pulse, oxygen saturation (SpO_2), and mean arterial pressure (MAP). Patients in the unit often present with decreased consciousness and require continuous surveillance, titrated medication, life-support devices, and, in some cases, blood transfusion planning.

Interviews with the head nurse indicated that no non-pharmacological therapies are currently integrated into standard care protocols to support hemodynamic stability. Furthermore, nursing staff have not systematically implemented Al-Qur'an recitation therapy despite the potential benefits. Given the high volume of stroke cases and the absence of integrative, patient-centered interventions, there is a clear opportunity to explore evidence-based complementary therapies.

Based on this context, the researcher is motivated to conduct a study entitled: "The Application of Al-Qur'an Surah Ar-Rahman Recitation Therapy on Hemodynamic Status in Stroke Patients in the Stroke Unit at Dr. Soediran Mangun Sumarso Regional General Hospital, Wonogiri." This study aims to evaluate the potential of spirituality-based therapy as an adjunctive intervention to improve physiological stability and support holistic recovery in stroke patients.

2. METHODS

The research method used in this application is a descriptive case study with pre-test and post-test design, aimed at describing how the implementation of Al-Qur'an Surah Ar-Rahman recitation therapy affects hemodynamic status in stroke patients in the Stroke Unit at Dr. Soediran Mangun Sumarso Regional General Hospital, Wonogiri. This therapy application is intended to describe the hemodynamic condition before and after the administration of Surah Ar-Rahman recitation therapy. The therapy was conducted over three days, each 15–20 minutes session involving two respondents.

The subjects of this study were two stroke patients experiencing decreased consciousness in the Stroke Unit selected based on the following criteria: inclusion criteria included being Muslim, having no hearing impairments, aged between 35–75 years, having a GCS score of 3–14, and diagnosed with non-hemorrhagic stroke. Exclusion criteria included a history of

hearing disorders, presence of blood or pus from the ears or nose, undergoing surgery such as craniotomy or ventriculoperitoneal shunt placement, being on ventilator support or receiving opioid medication, and having a history of code blue (cardiac arrest) during hospitalization.

Data collection was carried out through interviews and observations. Interviews gathered patient identities, main complaints, and medical histories. Observations included general condition, level of consciousness, and measurements such as respiratory rate, oxygen saturation, oxygen support, body temperature, systolic blood pressure, pulse, and level of consciousness before and after therapy.

Data analysis followed qualitative descriptive methods. It began during data collection and continued until all data were compiled. Analysis involved presenting facts, comparing findings with existing theories, and drawing conclusions. The process included data reduction, data presentation, and conclusion-making, aligned with nursing care processes and innovative therapy steps such as assessment, diagnosis, intervention, implementation, and evaluation.

Ethical considerations were strictly adhered to throughout the study. Ethical principles included informed consent, anonymity, confidentiality, respect for persons, beneficence, non-maleficence, and justice. These ensured that participants understood the purpose of the study, their privacy was protected, and they were treated fairly and respectfully throughout the research process without any risk of harm.

3. RESULTS

The case study was conducted at Dr. Soediran Mangun Sumarso Regional General Hospital in Wonogiri, Central Java Province. The intervention was administered over three consecutive days, with each session lasting 15 to 20 minutes, and involved two patients.

Table 1. Hemodynamic status of stroke patients before receiving Surah Ar-Rahman Al-Qur'an recitation therapy

Hemodynamic Status	Mr. S	Mrs. M
Blood Pressure	156/114 mmHg	215/134 mmHg
MAP	128 mmHg	161 mmHg
Pulse	104 bpm	120 bpm
Respiration (RR)	28 bpm	26 bpm
Oxygen Saturation (SpO_2)	99%	96%
Note	Abnormal MAP	Abnormal MAP

The hemodynamic assessment of patient Mr. S on the first day before receiving Surah Ar-Rahman Al-Qur'an recitation therapy showed a blood pressure of 156/114 mmHg, MAP of 128 mmHg, pulse rate of 104 bpm, respiratory rate of 28 bpm, and oxygen saturation of 99%. For patient Mrs. M, the results were: blood pressure of 215/134 mmHg, MAP of 161 mmHg, pulse rate of 120 bpm, respiratory rate of 26 bpm, and oxygen saturation of 96%.

Table 2. Hemodynamic status of stroke patients after receiving Surah Ar-Rahman Al-Qur'an recitation therapy

Hemodynamic Status	Mr. S	Mrs. M
Blood Pressure	136/90 mmHg	180/100 mmHg
MAP	105 mmHg	126 mmHg
Pulse	97 bpm	113 bpm
Respiration (RR)	26 bpm	28 bpm
Oxygen Saturation (SpO_2)	99%	99%
Note	Abnormal MAP	Abnormal MAP

The hemodynamic assessment of patient Mr. S on the second day after receiving Surah Ar-Rahman Al-Qur'an recitation therapy showed a blood pressure of 136/90 mmHg, MAP of 105 mmHg, pulse rate of 97 bpm, respiratory rate of 26 bpm, and oxygen saturation of 99%. For patient Mrs. M, the results were: blood pressure of 180/100 mmHg, MAP of 126 mmHg, pulse rate of 113 bpm, respiratory rate of 28 bpm, and oxygen saturation of 99%.

Table 3. Development of hemodynamic status in stroke patients before and after receiving Surah Ar-Rahman Al-Qur'an recitation therapy

Hemodynamic Status	Day 1		Day 2		Day 3	
	Pre test	Post test	Pre test	Post test	Pre test	Post test
			Mr. S			
Blood Pressure	156/114 mmHg	147/100 mmHg	150/100 mmHg	136/90 mmHg	137/90 mmHg	110/98 mmHg
MAP	128 mmHg	115 mmHg	116 mmHg	105 mmHg	105 mmHg	102 mmHg
Note	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP
			Mrs. M			
Blood Pressure	215/134 mmHg	200/120 mmHg	190/108 mmHg	180/100 mmHg	160/100 mmHg	150/100 mmHg
MAP	161 mmHg	146 mmHg	135 mmHg	126 mmHg	120 mmHg	116 mmHg
Note	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP	Abnormal MAP

Table 3 presents the progression of hemodynamic parameters over three consecutive days in two stroke patients (Mr. S and Mrs. M) before and after the administration of Surah Ar-Rahman Al-Qur'an recitation therapy. The data

demonstrate a consistent trend toward hemodynamic improvement, particularly in blood pressure and mean arterial pressure (MAP), suggesting a cumulative positive effect of the intervention.

In Mr. S, systolic and diastolic blood pressure showed a gradual decline across all measurement points. On Day 1, his pre-intervention blood pressure was 156/114 mmHg (elevated), which decreased to 147/100 mmHg post-intervention. On Day 2, pre-therapy readings were 150/100 mmHg, further dropping to 136/90 mmHg after therapy. By Day 3, blood pressure decreased from 137/90 mmHg pre-therapy to 110/98 mmHg post-therapy, indicating a marked reduction in both systolic and diastolic values over the intervention period. Correspondingly, MAP decreased from 128 mmHg to 115 mmHg on Day 1, from 116 mmHg to 105 mmHg on Day 2, and from 105 mmHg to 102 mmHg on Day 3. Despite this improvement, MAP remained in the abnormal range throughout the observation period, reflecting underlying hemodynamic instability typical in acute stroke.

Similarly, Mrs. M exhibited a steady decline in blood pressure and MAP. Her initial pre-therapy blood pressure on Day 1 was severely elevated at 215/134 mmHg, which decreased to 200/120 mmHg after the first session. On Day 2, it further declined from 190/108 mmHg pre-therapy to 180/100 mmHg post-therapy. By Day 3, blood pressure reduced from 160/100 mmHg to 150/100 mmHg. MAP followed a parallel downward trend, decreasing from 161 mmHg to 146 mmHg on Day 1, from 135 mmHg to 126 mmHg on Day 2, and from 120 mmHg to 116 mmHg on Day 3. Like Mr. S, Mrs. M's MAP remained classified as abnormal at all time points, though the consistent reduction suggests improved perfusion regulation and reduced afterload.

The repeated observation of "Abnormal MAP" across all time points highlights the severity of hemodynamic dysregulation in both patients during the acute phase of stroke. However, the progressive reduction in both blood pressure and MAP indicates a positive response to the auditory spiritual intervention. This trend may reflect the therapy's role in modulating autonomic nervous system activity, specifically by reducing sympathetic overactivity and enhancing parasympathetic tone through the calming and rhythmic nature of the Qur'anic recitation.

Overall, the data suggest that daily application of Surah Ar-Rahman recitation therapy is associated with incremental improvements in hemodynamic parameters. The observed changes support the potential of this non-pharmacological

intervention as an adjunctive strategy to promote cardiovascular stability and support neuroprotective care in stroke patients undergoing intensive treatments.

Table 4. Comparison of final hemodynamic status in stroke patients before and after Surah Ar-Rahman Al-Qur'an recitation therapy

Hemodynamic Status	Day 1 (Pre)	Day 3 (Post)
Blood Pressure and MAP		
Mr. S	BP: 156/114 mmHg; MAP: 128 mmHg	BP: 110/98 mmHg; MAP: 102 mmHg
Mrs. M	BP: 215/134 mmHg; MAP: 161 mmHg	BP: 150/100 mmHg; MAP: 116 mmHg
Pulse Rate		
Mr. S	104 bpm	96 bpm
Mrs. M	120 bpm	110 bpm
Respiratory Rate or RR		
Mr. S	28 bpm	26 bpm
Mrs. M	26 bpm	28 bpm
Oxygen Saturation or SpO_2		
Mr. S	99%	99%
Mrs. M	96%	99%

The data presented in Table 6 illustrate the changes in hemodynamic parameters before and after the application of Surah Ar-Rahman Al-Qur'an recitation therapy over a three-day intervention period in two stroke patients: Mr. S and Mrs. M. The comparison between Day 1 (pre-intervention) and Day 3 (post-intervention) reveals notable improvements in several key hemodynamic indicators, particularly in blood pressure, mean arterial pressure (MAP), and pulse rate.

With regard to blood pressure and MAP, both patients exhibited significant reductions. Mr. S's blood pressure decreased from 156/114 mmHg (hypertensive range) to 110/98 mmHg, with a corresponding drop in MAP from 128 mmHg to 102 mmHg, indicating improved perfusion pressure and reduced cardiovascular strain. Mrs. M, who presented with more severe hypertension, showed a marked decline from 215/134 mmHg to 150/100 mmHg, with MAP decreasing from 161 mmHg to 116 mmHg—representing a clinically meaningful reduction in afterload and cerebrovascular risk.

In terms of pulse rate, both patients demonstrated a downward trend, reflecting decreased sympathetic activity and improved autonomic regulation. Mr. S's heart rate decreased from 104 bpm to 96 bpm, while Mrs. M's declined from 120 bpm (tachycardic) to 110 bpm, indicating a partial normalization of cardiac response despite persistent tachycardia in the latter.

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Regarding respiratory rate (RR), Mr. S showed a slight improvement from 28 breaths per minute to 26 breaths per minute, approaching the upper limit of normal. Mrs. M's respiratory rate increased slightly from 26 to 28 breaths per minute, which may suggest transient respiratory effort or underlying pulmonary compromise; however, this change was not accompanied by a decline in oxygenation.

Critically, oxygen saturation (SpO_2) remained stable in Mr. S at 99%, reflecting adequate oxygenation throughout the intervention. In contrast, Mrs. M showed an improvement in SpO_2 from 96% (mild hypoxemia) to 99% (normal range), indicating enhanced oxygen delivery and utilization following the therapy.

Overall, the findings suggest that the application of Surah Ar-Rahman recitation therapy was associated with favorable hemodynamic trends, particularly in blood pressure, MAP, heart rate, and oxygen saturation. These physiological changes may reflect the therapy's role in promoting relaxation, reducing stress-induced sympathetic activation, and supporting autonomic balance in stroke patients. While individual variations exist, the collective improvement underscores the potential of Al-Qur'an recitation as a complementary non-pharmacological intervention in the management of hemodynamic instability in the stroke unit.

4. DISCUSSION

Hemodynamic Status of Stroke Patients Prior to Surah Ar-Rahman Al-Qur'an Recitation Therapy

Prior to the intervention, both patients exhibited significant hemodynamic instability, consistent with the acute phase of stroke. Mr. S presented with elevated blood pressure (156/114 mmHg), a mean arterial pressure (MAP) of 128 mmHg, tachycardia (104 bpm), tachypnea (28 breaths per minute), and normal oxygen saturation (99%). Mrs. M demonstrated even more pronounced hypertension (215/134 mmHg), a markedly elevated MAP of 161 mmHg, severe tachycardia (120 bpm), tachypnea (26 breaths per minute), and mild hypoxemia (SpO_2: 96%). These findings reflect a state of heightened sympathetic activation, commonly observed in stroke patients due to stress, pain, cerebral ischemia, or disrupted autoregulation.

These results align with Hanafi (2023), who reported that critically ill patients in intensive care units often present with unstable hemodynamics, characterized by elevated MAP, heart rate (HR), respiratory rate (RR), and reduced

oxygen saturation. The pre-therapy condition of both patients underscores the physiological stress associated with acute stroke, necessitating interventions that can modulate autonomic nervous system activity and promote physiological stabilization.

The pathophysiological basis for such instability involves dysregulation of catecholamineswhich stimulate the renin-angiotensin system, leading to vasoconstriction, increased vascular resistance, elevated cardiac output, and consequently, heightened blood pressure (Nurqalbi & Kamaruddin, 2019). In this hyperaroused state, the sympathetic nervous system dominates, impairing homeostasis and increasing the risk of secondary brain injury.

Non-pharmacological interventions, such as audio-based Al-Qur'an recitation therapy using Surah Ar-Rahman, offer a complementary approach to restoring balance. Administered once daily for 15–20 minutes using a mobile device playing a recitation by Muzammil Hasballah, this intervention was introduced as a relaxation technique aimed at reducing physiological arousal. The researcher posits that the rhythmic intonation, melodic structure, and spiritual meaning of Surah Ar-Rahman may induce a calming effect, thereby facilitating parasympathetic reactivation and contributing to hemodynamic improvement. Given its non-invasive nature, absence of side effects, and cultural acceptability among Muslim patients, this therapy presents a feasible adjunct in managing hypertension and stress in stroke care.

Hemodynamic Status After Implementation of Surah Ar-Rahman Al-Qur'an Recitation Therapy

Following the 15-minute recitation therapy, both patients showed measurable improvements in key hemodynamic parameters. Mr. S's blood pressure decreased to 147/100 mmHg, MAP to 115 mmHg, pulse rate to 98 bpm, respiratory rate to 26 bpm, and SpO_2 remained stable at 97%. Mrs. M also demonstrated improvement, with blood pressure decreasing to 200/120 mmHg, MAP to 146 mmHg, pulse rate to 118 bpm, respiratory rate increasing slightly to 28 bpm, and SpO_2 improving to 97%.

These post-intervention changes suggest a positive physiological response to the auditory spiritual stimulus. The reduction in blood pressure and MAP indicates decreased systemic vascular resistance and afterload, which are critical in preventing further cerebrovascular complications. The observed decline in

pulse rate reflects reduced sympathetic tone and enhanced parasympathetic activity, consistent with a relaxation response.

These findings are supported by Kurniawan (2019), who reported statistically significant improvements in RR, BP, MAP, and SaO_2 following Surah Ar-Rahman recitation ($p = 0.000$), although no significant change was observed in HR ($p = 0.826$), suggesting that while autonomic modulation occurs, full normalization may require repeated or prolonged exposure.

Further, studies by Gunawan and Mariyam (2022) emphasize that listening to Al-Qur'an recitations reduces psychological stress and induces physical relaxation, thereby positively influencing physiological recovery. This is reinforced by Mutiah and Dewi (2022), who highlight the unique psychospiritual role of the Qur'an in Islamic culture. The harmonious recitation (murottal) exerts a soothing effect on the central nervous system, promoting emotional calmness and reducing anxiety—factors known to exacerbate hemodynamic instability.

The mechanism behind blood pressure reduction likely involves downregulation of stress hormones, inhibition of angiotensin formation, vasodilation, and reduced cardiac workload (Nurqalbi & Kamaruddin, 2019). Murottal therapy appears to act as a neuromodulatory stimulus, enhancing parasympathetic dominance and contributing to autonomic balance.

Additionally, Tarigan (2021) notes that murottal therapy can stabilize pulse frequency by reducing stress-induced sympathetic overactivity. The calming auditory input helps regulate autonomic function, supporting both physiological and spiritual healing processes. Similarly, Hidayati and Lubis (2022) report that murottal therapy positively influences respiratory regulation by enhancing parasympathetic nerve activity, leading to more controlled breathing patterns and improved physiological stability.

Regarding oxygenation, Wulandari and Samara (2023) explain that reduced anxiety and enhanced relaxation improve lung ventilation and gas exchange efficiency, thereby increasing oxygen delivery to vital organs, including the brain. In Mrs. M, the rise in SpO_2 from 96% to 99% suggests improved tissue oxygenation, possibly due to better ventilation and reduced metabolic demand following relaxation.

The researcher hypothesizes that Qur'anic recitation stimulates the release of endogenous endorphins, promoting a sense of well-being, diverting attention from

distress, and rebalancing neurochemical activity. This cascade leads to slower heart and respiratory rates, reduced blood pressure, and calmer brain wave patterns, hallmarks of deep relaxation.

Progression of Hemodynamic Status Before and After Therapy

Longitudinal assessment over three days revealed a consistent trend toward hemodynamic improvement in both patients. In Mr. S, blood pressure progressively declined from 156/114 mmHg on Day 1 to 110/98 mmHg on Day 3, with MAP decreasing from 128 to 102 mmHg. His pulse rate decreased from 104 to 96 bpm, respiratory rate stabilized at 26 bpm, and SpO_2 returned to 99%. Mrs. M showed a similar trajectory: BP decreased from 215/134 mmHg to 150/100 mmHg, MAP from 161 to 116 mmHg, pulse from 120 to 110 bpm, and SpO_2 improved from 96% to 99%, despite a persistently elevated respiratory rate of 28 bpm.

These progressive changes suggest a cumulative effect of repeated murottal therapy sessions, reinforcing autonomic regulation and promoting sustained physiological relaxation. Nurani (2022) supports this, stating that regular exposure to Qur'anic recitation influences hemodynamic parameters by reducing MAP, pulse, and respiratory frequency. The stimulation of the hypothalamus by the recitation may trigger endorphin release, inducing feelings of happiness and activating the amygdala to modulate autonomic nervous system activity, specifically by suppressing sympathetic overdrive and enhancing parasympathetic tone.

The reduction in pulse rate in both patients reflects a shift toward parasympathetic dominance, indicating decreased physiological stress and improved hemodynamic stability (Tarigan, 2021). While normal adult respiratory rate ranges from 16–24 breaths per minute, values above this (tachypnea) often indicate hypoxia, pain, or anxiety. Although both patients remained tachypneic, the stabilization of RR in Mr. S and the absence of deterioration in Mrs. M suggest a mitigating effect of the therapy on respiratory distress.

Fitriani (2022) found significant reductions in RR and HR among ICU patients after murottal therapy, reinforcing its role in autonomic modulation. Similarly, Hidayati and Lubis (2022) emphasize that murottal therapy reduces sympathetic activity and enhances parasympathetic tone, leading to lower heart rate, blood pressure, and respiratory rate.

Oxygen saturation, a critical indicator of tissue perfusion and pulmonary function, improved notably in Mrs. M, rising from 96% to 99%. This improvement may be attributed to reduced anxiety, enhanced relaxation, and more efficient breathing patterns. While baseline physiological conditions influence outcomes, the trend supports the therapeutic potential of murottal in optimizing oxygenation (Wulandari & Samara, 2023; Kurniawati, 2019; Muzaki, 2020).

Final Comparison of Hemodynamic Status Before and After Intervention

The final comparison between baseline and post-intervention measurements demonstrates a clinically significant improvement in hemodynamic parameters. Mr. S experienced a 46/16 mmHg reduction in BP and a 26 mmHg drop in MAP. Mrs. M showed even greater absolute reductions—65/34 mmHg in BP and 45 mmHg in MAP—indicating a substantial decline in systemic vascular resistance and afterload. These changes are consistent with enhanced parasympathetic activity and reduced sympathetic dominance, contributing to improved cerebral perfusion and reduced risk of secondary complications (Fitriani, 2022).

Pulse rate decreased in both patients: from 104 to 96 bpm in Mr. S and from 120 to 110 bpm in Mrs. M, reflecting improved autonomic balance and reduced cardiac workload (Suhartono, 2020). Respiratory rate decreased slightly in Mr. S but remained elevated in Mrs. M, highlighting individual variability in response, possibly influenced by baseline severity, comorbidities, or psychological factors (Hanafi, 2023).

Notably, SpO_2 remained stable in Mr. S and improved significantly in Mrs. M, indicating enhanced oxygenation and ventilatory efficiency following repeated therapy sessions.

Overall, the application of Surah Ar-Rahman Al-Qur'an recitation therapy was associated with favorable hemodynamic trends across multiple parameters. These findings are supported by Aprilliani et al. (2024) and Fitriani (2022), who affirm the efficacy of murottal therapy as a non-pharmacological nursing intervention in critical care settings. Given its safety, ease of implementation, and cultural relevance, Surah Ar-Rahman recitation therapy holds promise as an integrative strategy to support hemodynamic stability and holistic recovery in stroke patients. Future research with larger samples and controlled designs is recommended to further validate these outcomes.

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5. CONCLUSION

Surah Ar-Rahman Al-Qur'an recitation therapy in stroke patients at the Stroke Unit of Dr. Soediran Mangun Sumarso Regional General Hospital positively impacted hemodynamic stability over a three-day intervention period.

At baseline, both patients exhibited significant hemodynamic instability. Mr. S had elevated blood pressure (156/114 mmHg), tachycardia (104 bpm), tachypnea (28 breaths/min), and high MAP (128 mmHg), while Mrs. M presented with severe hypertension (215/134 mmHg), marked tachycardia (120 bpm), and mild hypoxemia (SpO_2: 96%). Following daily exposure to Surah Ar-Rahman recitation for 15–20 minutes, progressive improvements were observed in both patients.

By day three, Mr. S's blood pressure decreased to 110/98 mmHg, MAP to 102 mmHg, and pulse rate to 96 bpm, with stable respiratory rate (26 breaths/min) and SpO_2 (99%). Mrs. M also showed substantial improvement, with blood pressure reduced to 150/100 mmHg, MAP to 116 mmHg, pulse rate to 110 bpm, and SpO_2 normalized to 99%. These trends indicate a consistent reduction in sympathetic activation and improved autonomic regulation, particularly in blood pressure, MAP, and oxygenation.

The findings suggest that Surah Ar-Rahman recitation therapy can serve as an effective non-pharmacological intervention to support hemodynamic stabilization in stroke patients. The rhythmic and melodic qualities of the recitation, combined with its spiritual significance, likely contribute to relaxation, reduced stress, and enhanced parasympathetic activity.

AUTHOR CONTRIBUTIONS

The author contributes in conceptualization, data collection and analysis Damayyanti Nur Khotimah, Eska Dwi Prajayanti, and Sumardi. Writing and manuscript revisions: Damayyanti Nur Khotimah.

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CONFLICT OF INTEREST

The authors declare that there are no conflicts of interest in this research.

DATA AVAILABILITY STATEMENT

The data are available from the corresponding author upon reasonable request.

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