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Research Article

Case Report: The Effect of Murottal Therapy of Surah Ar-Rahman on the Stability of Vital Signs in Infants with Severe Asphyxia

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Abstract: Neonatal asphyxia is a critical condition and one of the leading causes of neonatal mortality, especially in developing countries such as Indonesia. This condition is marked by impaired oxygen exchange, leading to hypoxemia, hypercapnia, and metabolic acidosis. Prompt and appropriate management is essential, including the use of non-pharmacological interventions such as Qur'anic murottal therapy. Surah Ar-Rahman is often chosen for its soft and soothing rhythm, which is believed to have a calming physiological effect on infants. This study used a case study design with an interventional approach involving one infant diagnosed with severe asphyxia treated in the NICU of RSUD Tjitrowardoyo Purworejo. The intervention involved playing a recitation of Surah Ar-Rahman for 15–30 minutes daily over five consecutive days. Vital signs monitored included oxygen saturation, heart rate, respiratory rate, and body temperature. Results showed an increase in oxygen saturation from 87% to 100%, a decrease in heart rate from an average of 137 to 127.4 bpm, a reduction in respiratory rate from 53.6 to 44.8 breaths/minute, and a slight temperature decrease from 37.36°C to 37.3°C. These findings suggest that Qur'anic murottal therapy, particularly Surah Ar-Rahman, can contribute to the stabilization of vital signs in neonates with severe asphyxia. This therapy may serve as a supportive intervention in neonatal nursing care and is recommended for use both in clinical settings and at home.

Keywords: neonatal asphyxia, murottal therapy, Surah Ar-Rahman, vital signs, newborn

1. Introduction

Neonatal asphyxia is one of the main factors contributing to the high morbidity and mortality rates among newborns, especially in developing countries. This condition is caused by impaired oxygen exchange, resulting in hypoxemia (lack of oxygen), hypercapnia (increased carbon dioxide levels), and metabolic acidosis [1]. If not treated promptly and appropriately, asphyxia can lead to damage to vital organs, particularly the brain. The management of severe asphyxia typically involves immediate resuscitation, stabilization of the infant's condition, and continued care to prevent long-term complications [2].

Neonatal asphyxia remains one of the leading causes of newborn death in Indonesia. Based on data from several journals and hospitals, the incidence of asphyxia shows a relatively high trend. At Kolonel Abundjani Regional Hospital in Bangko, there were 119 cases of asphyxia in 2019, 108 cases in 2020, and 85 cases in 2021, with asphyxia accounting for 11.4% of total neonatal deaths at the hospital [3]. Meanwhile, at Panembahan Senopati Regional Hospital in Bantul, there were 300 recorded cases of neonatal asphyxia in 2020. A significant number was also found at PKU Muhammadiyah Hospital in Bantul, with 67 cases recorded between January and October 2022 [4]. Nationally, based on the 2017 Indonesia Demographic and Health Survey (IDHS), the infant mortality rate in Indonesia was 24 per 1,000 live births, with asphyxia being one of the leading causes. These data highlight that

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neonatal asphyxia is a serious issue requiring greater attention and improved management across healthcare facilities in Indonesia [5].

While the treatment of asphyxia is usually medical in nature, non-pharmacological approaches such as murottal therapy of the Qur'an are gaining attention as supportive interventions. This therapy involves playing recitations of Qur'anic verses in a melodious and rhythmic manner. Surah Ar-Rahman is often chosen because it conveys messages of God's mercy and has a soothing tone, which is believed to have calming effects and positively influence both physical and psychological conditions of patients. Several studies have shown that murottal therapy can stimulate brain wave activity, reduce stress, stabilize heart rate, and increase oxygen levels in the blood. This approach is considered suitable for patients with severe asphyxia whose nervous systems are highly sensitive, as it provides calming sensory stimulation, supports recovery, improves oxygen saturation, and helps maintain hemodynamic stability. Given its potential, the application of murottal therapy using Surah Ar-Rahman for patients with severe asphyxia may be considered an effective nursing intervention worthy of further investigation.

Although murottal therapy is increasingly used, there is still a lack of research specifically evaluating its effectiveness in neonatal patients with severe asphyxia. Therefore, this study aims to examine the effectiveness of Surah Ar-Rahman murottal therapy as a supportive nursing intervention to improve the clinical condition of infants with asphyxia. The proposed hypothesis is that murottal therapy can help increase oxygen saturation and stabilize the infant's physiological parameters.

The main contribution of this study is to provide empirical evidence regarding the benefits of murottal therapy in the context of neonatal nursing, particularly for patients with asphyxia. Additionally, the findings are expected to serve as a foundation for the development of spiritually based non-pharmacological interventions in nursing practice.

This paper is structured as follows: the second section presents a literature review on murottal therapy and interventions for asphyxia; the third section describes the methods used in this study; the fourth section presents results and discussion; the fifth section compares the findings with previous studies; and the sixth section provides conclusions and research recommendations.

2. Literature Review

2.1. Neonatal Asphyxia

Asphyxia is a condition characterized by the failure of spontaneous and regular breathing after birth, resulting in hypoxemia (oxygen deficiency), acidosis, and elevated carbon dioxide levels in the blood. Severe asphyxia can lead to serious neurological damage, including hypoxic-ischemic encephalopathy. According to the WHO, asphyxia accounts for approximately 23% of global neonatal deaths. Management of infants with severe asphyxia involves neonatal resuscitation and intensive organ support, including monitoring of oxygen saturation, heart rate, and neurological function [6].

2.2 Low Birth Weight (LBW)

Low Birth Weight (LBW) is a medical condition characterized by a birth weight of less than 2,500 grams, regardless of gestational age. This condition increases the risk of various health problems in infants, such as metabolic disorders, respiratory complications, and circulatory issues. Moreover, infants with LBW are more likely to experience delays in gross motor development, particularly between the ages of 6 and 24 months [7].

3.3 Management of Asphyxia Using Murottal Therapy of Surah Ar-Rahman

Murottal therapy using Surah Ar-Rahman has been shown to offer health benefits for infants, particularly those with low birth weight. A study demonstrated that the application of murottal therapy can reduce pulse rate and respiratory rate in LBW infants, indicating a calming effect on the infant's nervous system [8].

In addition, another study found that murottal therapy of Surah Ar-Rahman can increase β-Endorphin levels and reduce pain intensity in mothers during the active phase of the first stage of labor. The increase in β-Endorphins provides a natural analgesic effect, which may also benefit the infant [9].

However, regarding the management of infants with asphyxia using murottal therapy of Surah Ar-Rahman, no studies have been found that specifically evaluate its effectiveness.

Therefore, it is recommended to continue adhering to standard medical protocols in the treatment of neonatal asphyxia while considering murottal therapy as a potential complementary intervention that may offer additional benefits [10].

3. Proposed Method

This study was conducted in the PICU NICU ward of Tjitrowardoyo Regional Hospital, Purworejo, from September 25 to 29, 2024, with a primary focus on the Murottal Ar-Rahman therapy for Baby of Mrs. D, who was diagnosed with severe asphyxia. The research method used in this case report was an interventional method. The participant consisted of one patient who met the inclusion criteria: a low birth weight (LBW) infant with asphyxia. Prior to the intervention, the baby's mother or family was given an informed consent form provided by the researcher.

Data collection was carried out using three methods: assessment, intervention, and documentation. The first step, assessment, was conducted to identify complaints experienced by the patient with LBW and severe asphyxia. Data were collected through direct observation and interviews with the baby's mother regarding her complaints and health history during pregnancy. The second stage of data collection involved the intervention, which consisted of administering murottal therapy using Surah Ar-Rahman. Before the therapy was given, the infant's vital signs such as oxygen saturation, temperature, respiratory rate, and heart rate were measured. Then, the researcher played the murottal therapy using a speaker. The Qur'anic recitation of Surah Ar-Rahman was played for 15–30 minutes daily over five consecutive days. The speaker was placed inside the incubator at a distance of 10 cm near the baby's head. Vital signs were measured using a bedside monitor. After the intervention, the baby's vital signs were re-measured to assess the impact of the murottal therapy. The final stage was documentation, during which the researcher recorded all changes in the vital signs of Baby of Mrs. D before and after the Qur'anic murottal therapy over the five-day period.

4. Results and Discussion

4.1. Research Results

This case study was conducted on Baby of Mrs. D, a 2-day-old female infant with asphyxia, delivered spontaneously. The baby weighed 2,205 grams at birth, with a head circumference of 33 cm, chest circumference of 29 cm, upper arm circumference of 10 cm, and body length of 46 cm. The newborn's APGAR score was recorded as 2/3/6. The baby was found to be crying weakly, somewhat drowsy, and supported with CPAP at FiO_2 of 25%. The infant showed weak movements, poor muscle tone, and diminished reflexes in both fingers and toes, with a tense facial expression. The baby's breathing was rapid (tachypnea) with chest wall retractions, no chest deformities, and symmetrical right and left chest movements. The recorded vital signs were: heart rate 139 beats/min, temperature 36.5°C, respiratory rate 56 breaths/min, and oxygen saturation (SpO_2) of 87%. The infant was receiving D5 ¼ NS infusion via micro drip. The identified nursing problem in this case was impaired gas exchange due to ventilation-perfusion imbalance [11].

The intervention was implemented according to the predefined plan, namely the Qur'anic Murottal Therapy using Surah Ar-Rahman, aimed at stabilizing the patient's vital signs. The therapy was administered for 15–30 minutes over five consecutive days. On the first day, prior to the intervention, the infant's SpO_2 was 87%, which increased to 99% after the therapy. On the following days, the researcher continued with follow-up observations.

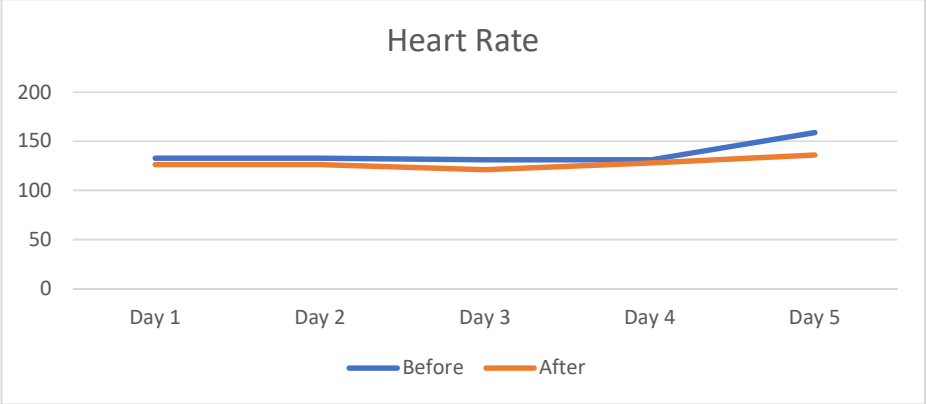

Figure 1. Changes in Heart Rate Following the Murottal Therapy Intervention Using Surah Ar-Rahman

Fig. 1 shows a decrease in the patient's heart rate after the intervention with Qur'anic murottal therapy of Surah Ar-Rahman. The average heart rate decreased from 137 bpm to 127.4 bpm, reflecting a reduction of 9.6 bpm.

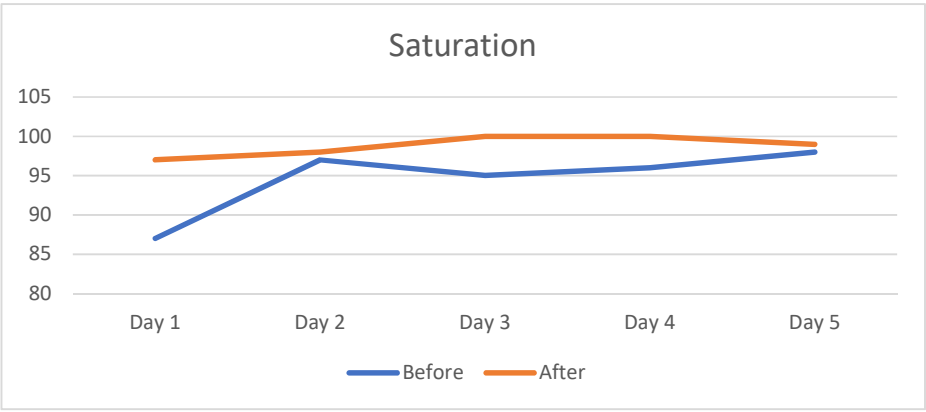

Figure 2. Changes in Oxygen Saturation (SpO_2) Following the Murottal Therapy Intervention Using Surah Ar-Rahman

Fig. 2 shows an increase in the patient's oxygen saturation (SpO_2) after the intervention. The SpO_2 level improved from 92% before the intervention to 100% after five consecutive days of therapy.

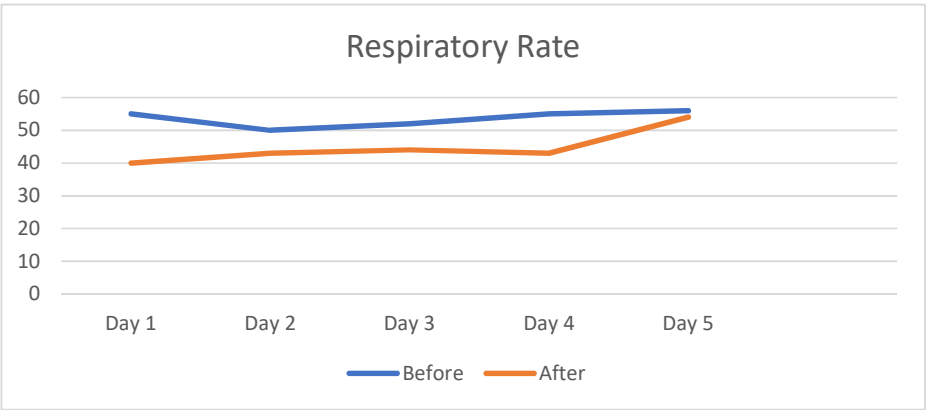

Figure 3. Changes in Respiratory Rate Following the Murottal Therapy Intervention Using Surah Ar-Rahman

Fig. 3 illustrates a decrease in the respiratory rate after the murottal therapy intervention. The average respiratory rate decreased from 53.6 breaths/min to 44.8 breaths/min, showing a reduction of 8.8 breaths/min.

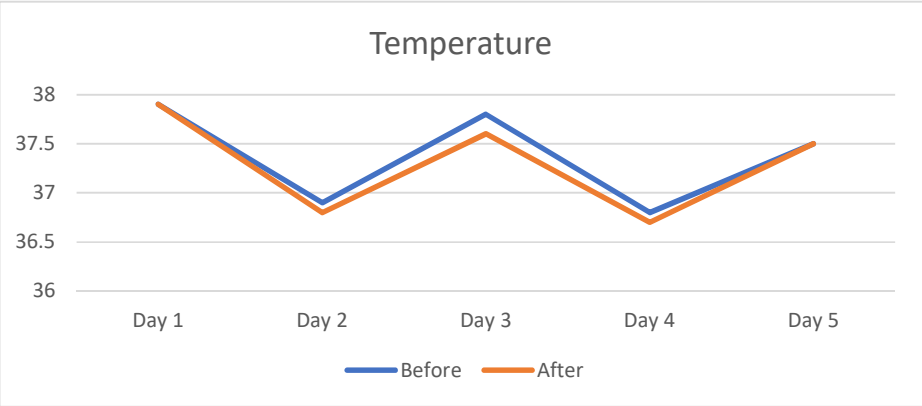

Figure 4. Changes in Temperature Following the Murottal Therapy Intervention Using Surah Ar-Rahman

4.1. Results

Based on the nursing care provided over five days, it was found that the application of Murottal therapy using Surah Ar-Rahman from the Qur'an was effective in stabilizing vital signs in neonates diagnosed with severe asphyxia. In cases of severe asphyxia, infants exhibit respiratory distress, bradycardia, hypotonia, and impaired consciousness. This is a critical condition that requires immediate intervention and intensive support. Surah Ar-Rahman is known as a "comforter of the heart" due to its calming content and soft, rhythmic recitation.

Murottal therapy has effects similar to music therapy. Its steady and repetitive sound waves can decrease sympathetic nervous system activity (which is active during stress) and enhance parasympathetic system activity (which works when the body is relaxed). Its effects include lowered heart rate and stabilized respiration. Several studies show that Murottal recitation can reduce blood cortisol levels, a stress hormone. In infants, stress can worsen hypoxia. By reducing stress, Murottal therapy helps improve metabolic function and tissue oxygenation. The soft and rhythmic sound stimulates the limbic system in the brain, which regulates emotions and physiological stability. This helps calm the infant, which is reflected in stabilized vital signs such as a normal heart rate, improved oxygen saturation, and more regular breathing patterns (Amalu et al., 2022).

From a spiritual perspective, the Qur'an is believed to bring mercy and healing (shifa') as stated in Surah Al-Isra: 82. Although infants may not yet comprehend the meaning, the vibration of the sacred verses is believed to have a positive spiritual impact. The steady rhythm and deep tone make Surah Ar-Rahman especially suitable for sound therapy. The recurring phrase "Fabi ayyi ālā'i rabbikumā tukadzdibān" induces a relaxing effect and conveys Allah's mercy, offering a calming suggestion not only to the baby but also to the listening parents.

Reciting the Qur'an has various positive effects, including improving blood circulation, stabilizing heart rate, and influencing blood oxygen levels distributed to the skin. Besides inducing calmness, listening to Qur'anic recitation is also believed to nurture a love for Allah SWT from an early age, which will positively influence the child's spiritual life both in this world and the hereafter (Devi, 2021). When an infant listens to Qur'anic recitation performed with proper tajweed and makhraj, it activates neural pathways in the brain. Specifically, for infants with severe asphyxia, Murottal therapy conducted for 15 to 30 minutes showed significant improvements in their condition. Nevertheless, this therapy should still be supported by appropriate medical care according to each patient's clinical needs.

5. Comparison

Comparison with state-of-the-art interventions is an important element in highlighting the significance of this study. Previous research has explored the effects of murottal therapy in various clinical settings, particularly for low birth weight (LBW) infants. For example, Putriana et al. (n.d.) demonstrated that murottal therapy can significantly reduce pulse and respiratory rates in LBW infants, suggesting a calming effect. Likewise, Susiloningtyas et al.

(2022) found that murottal therapy increased β-endorphin levels and reduced pain intensity during labor, indirectly indicating its potential for stress modulation.

However, these studies did not focus specifically on neonates with asphyxia. The current research fills this gap by presenting empirical evidence on the application of Surah Ar-Rahman murottal therapy for an infant with severe asphyxia. In contrast to earlier findings that addressed general relaxation or pain reduction, this study shows improvements in measurable physiological parameters directly linked to respiratory and circulatory function—namely oxygen saturation, heart rate, respiratory rate, and temperature stabilization.

This indicates a more specific and potentially life-supportive application of murottal therapy in critical care settings, particularly for neonates experiencing impaired gas exchange. While previous literature has advocated murottal as a spiritual or psychological intervention, the present study offers evidence of its physiological benefits in neonatal intensive care, making it a noteworthy contribution to the field of pediatric and neonatal nursing.

Given the limited research focusing on this patient population and the observed clinical improvements, the findings of this study provide a solid foundation for further exploration and validation through controlled trials with larger sample sizes.

6. Conclusions

Based on the results and discussion of the case study titled "The Effect of Murottal Therapy of Surah Ar-Rahman on the Stability of Vital Signs in Infants with Severe Asphyxia", it can be concluded that the nursing care assessment was carried out comprehensively and led to the identification of a nursing diagnosis of impaired gas exchange due to ventilation-perfusion imbalance. The nursing intervention, which involved administering murottal Al-Qur'an therapy for 15 minutes over five consecutive days, showed a positive impact on stabilizing the infant's vital signs, including improved oxygen saturation, heart rate, breathing pattern, and body temperature. These findings support the effectiveness of murottal therapy as a non-pharmacological approach to complement medical care for infants with severe asphyxia. These results carry significant implications for both healthcare providers and parents. Nurses can implement murottal therapy as a complementary intervention in the Neonatal Intensive Care Unit (NICU), while parents are encouraged to continue this therapy at home as a stimulus to support the infant's motor development and physiological stability. However, this study has limitations, as it was conducted on a single subject over a limited period. Therefore, further research is recommended using a stronger design and a larger sample size to validate the effectiveness of murottal therapy and to allow broader application in clinical practice.

Author Contributions: Conceptualization: A.I.F.; Methodology: A.I.F.; Validation: F.A.Y. and Y.P.; Formal analysis: A.I.F.; Investigation: A.I.F.; Resources: A.I.F.; Data curation: A.I.F.; Writing—original draft preparation: A.I.F.; Writing—review and editing: F.A.Y. and Y.P.; Supervision: F.A.Y. and Y.P.; Project administration: A.I.F.

A.I.F. (Athaya Intan Fitriani) conducted the patient assessment, developed the nursing care plan, implemented the intervention by playing Surah Ar-Rahman, documented the process, and drafted the manuscript. F.A.Y. (Falasifah Ani Yuniarti) supervised and guided the manuscript writing, reviewed the manuscript, and provided past research examples as references. Y.P. (Yetty Purnamaningsih) supervised the intervention implementation at the hospital, reviewed, and revised the manuscript.

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Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request. Due to patient privacy and ethical restrictions, the data are not publicly available.

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Conflicts of Interest: This research was conducted as part of the requirements for completing the professional nursing program at Universitas Muhammadiyah Yogyakarta. The authors declare no conflict of interest.

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