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The effect of murottal Al-Quran therapy on pain intensity and oxygen saturation in active phase parting women

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ABSTRACT

Anxiety in women increases with the start of labor and has a negative impact on mothers and newborns. The aim of this study was to determine the effect of listening to *murottal* Al-Quran on increasing oxygen saturation and reducing pain in mothers in the active phase of labor. This research was quantitative research with a quasi-experimental design and a pre-experimental design one-group pretest-posttest. This study was conducted at the Kendari City Hospital. The sample was determined as a total population, considering that the number of mothers during the first active phase was only 30. The data analysis technique in this study went through two calculation stages: the data normality test by Kolmogorov-Smirnov, Paired Sample Statistics, and all calculations using SPSS. The results of the statistical tests using the Wilcoxon test yielded a p-value of 0.000. Statistically, it can be concluded that there are differences in oxygen saturation values before and after the administration of *murottal* intervention. It was also found that 27 respondents experienced an increase in oxygen saturation after receiving *murottal* intervention. In conclusion, *murottal* intervention increased oxygen saturation.

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1. INTRODUCTION

Women experience psychological and physiological changes during pregnancy and childbirth, which cause stress [1]. Women's anxiety increases as labor begins, which has a negative impact on mothers and newborns [2]. The incidence of anxiety in pregnant women is higher than in the general population (27% vs. 5%), and the complication rate in women experiencing anxiety is much higher [1]. The presence of anxiety during labor can lead to prolonged labor and increased need for medical interventions such as epidurals or cesarean sections. It is important for healthcare providers to address and manage anxiety in pregnant women to ensure a positive birthing experience and optimal outcomes for both mother and baby.

There are several dangers of high levels of stress in mothers giving birth in the active phase, including premature birth, low birth weight [3], obesity, metabolic dysfunction, and more illnesses and antibiotic treatments [4]. Stress during pregnancy is also associated with unhealthy offspring [5], including low birth weight [6], shorter gestational age [7], [8]. It is important for expectant mothers to prioritize stress management techniques and seek support to minimize these potential risks [9].

Most relaxants and antidepressants cross the placental barrier and have negative effects on the fetus. Therefore, it is important to establish alternative non-pharmaceutical interventions to reduce anxiety among pregnant women [10]. The most recent systematic review showed that music-based interventions can reduce

anxiety during pregnancy [11], [12]. However, evidence regarding the efficacy of musical interventions during labor in reducing anxiety is inconclusive. One study showed that music interventions have a significant positive effect on anxiety and pain during the latent phase of labor [13], [14].

Murottal is a voice recording of the Al Quran sung by a *qori* (reader of the Al-Quran) [15]. *Murottal* is a type of music that has a positive influence on listeners [16]. Listen to the verses of the Al-Quran which if read tartil and correctly, will bring peace to the soul. The chanting of the verses of the Al-Quran physically contains human elements which is the easiest healing instrument and tool reachable. Sound can reduce stress hormones, activating the Natural endorphin hormone, increase feelings of relaxation, and improves the system's body chemistry thereby lowering blood pressure and slowing down breathing, heart rate, pulse, and brain wave activity [17].

One of the non-pharmacological therapies that can be used to reduce pain is distraction techniques using the holy verses of the Al-Quran, which can stimulate delta waves that cause the listener to be in a calm, peaceful, and comfortable state [18]. Relaxation combined with the factor of faith can create strength from within, which helps a person relax by analogizing that reading the Al-Quran has a slow, regular, and gentle tempo and can also be a factor of Islamic religious belief, so it is hoped that listening to Al-Quran recitation can cause relaxation [19].

The lack of research examining the Al-Quran as a therapeutic alternative for controlling the emotions of pregnant women is an initial problem that needs to be addressed. The novelty of this research is that it utilized Al-Quran therapy to reduce stress, which has an impact on pain intensity and oxygen saturation in pregnant women. This has not been previously reported by other researchers. Because music has been widely researched and has shown positive results, researchers have taken the initiative to use *murottal* Al-Quran to have a relaxing effect on pregnant women, so that it can increase oxygen saturation and reduce pain.

2. METHOD

This research was quantitative research with a quasi-experimental design and a pre-experimental design using a one-group pretest-posttest approach. In this design, a pre-test was conducted before treatment, and a post-test was conducted after treatment. This study was conducted at the Kendari City Hospital. The population in this study consisted of mothers during the first active phase, totaling 30 pregnant women. The sample was determined as a total population, this taken into account the number of mothers during the first active phase was only 30. So, the total population is taken as a sample.

The data were collected using a checklist. Grouping was performed by calculating a total score for each component. Monitoring results on normal oxygen saturation: 95–100% Low oxygen saturation: below 95%, The intensity of pain felt by the mother in the first stage of the active phase using the Bourbannis measuring scale, Faces Rating Scala with mild pain measuring results (1-3), moderate pain (4-6), severe pain (7-9), very severe pain (10), Stage I of the active phase begins with opening the cervix 4 cm to 10 cm, by measuring through the vaginal tube using the index finger and middle finger inserted into the vagina to assess the opening of the cervix by the midwife, and therapy is carried out by listening to the *murottal* Al-Quran Surah Arrahman verses 1-78 read by Syed Sadaqat Ali until the verse was finished for 25 minutes was using an ADVANCE DUO-04 brand digital player and MD-1 earphones with a sound volume of 5.

The data analysis technique in this research involved two calculation stages, namely the data normality test with Kolmogorov-Smirnov, paired sample t-test (paired sample statistics), and all calculations using statistical product and service solutions (SPSS) software for Windows.19.0. A paired t-test was used for data on oxygen saturation and pain intensity before and after administering *murottal* Al-Quran therapy to mothers in the first active phase. The effect of providing Al-Quran Surah Arrahman *murottal* therapy on oxygen saturation and pain intensity was analyzed using the t-test. However, before testing with the t-test, a normality assumption test was first carried out to show whether the oxygen saturation and pain intensity data before and after administering *murottal* Al-Quran therapy were normally distributed. If the oxygen saturation and pain Intensity data were normally distributed, the testing process was performed using the t-test. However, if the data were not distributed normally Wilcoxon test was used.

This research has received an ethical test from the Kendari Ministry of Health Polltekkes with number LB.02.01/Etik-021. This ethical test ensures that this research meets applicable research ethical standards. Number LB.02.01/Etik-021 indicates that this research has gone through an evaluation and approval process from the authorized institution in terms of research ethics.

3. RESULTS AND DISCUSSION

The characteristics of the respondents were maternal age, education, gestational age, and parity. Of the 30 respondents, most were aged 20-35 years, namely 23 (76.7%). The highest level of education of the respondents was secondary education, namely 15 respondents (50%). The gestational age of all respondents was 37-42 weeks of gestation. More than a portion of all respondents fell into parity category 1 (n=17.

56.7%). While the rest were mothers with parity 2-4, namely 13 respondents (43.3%). Overall, the majority of respondents in this study were between the ages of 20-35 years, with secondary education being the most common level of education. Additionally, a significant number of respondents were first-time mothers with parity category 1, the details are presented in Table 1.

Table 2 shows that oxygen saturation before the intervention was mostly in the low category (24 respondents, 80%). A difference was observed after the intervention: oxygen saturation was higher in the normal category (22 respondents, 73.3%). The frequency of respondents who had pain intensity before the intervention was higher in the moderate and severe categories, namely 16 respondents (53.3%) and 14 respondents (46.7%), respectively, whereas there was no mild category. Different things were shown after the intervention; pain intensity was actually higher in the mild category (53.3%) and moderate (46.7), while there was no severe category. The intervention effectively improved oxygen saturation levels for the majority of respondents. Pain intensity decreased significantly in the moderate and severe categories following the intervention.

Analysis of the difference in saturation oxygen before and after the *murottal* intervention is shown in Table 3, where the median value after the intervention was 95.0, with a minimum value of 92 and a maximum value of 97, which is very different from before the intervention, where the median value was 93.0 with a minimum value of 88 and a maximum value of 98. The median pain intensity before the intervention was 6.00 with a minimum value of 1 and a maximum of 6. The median value of intensity after the intervention was 3.00 with a minimum value of 5 and a maximum of 9. A comparison of the median value between the two data groups before and after the intervention can be seen; there was a difference in value. The median pain intensity before *murottal* intervention was higher than that after *murottal* intervention. The p-values for oxygen saturation and pain intensity were both p=0.000. Statistically, it can be concluded that there is a difference in oxygen saturation values before and after the intervention, and that there is a difference in pain intensity before and after the intervention. Overall, the results suggest that *murottal* intervention had a significant impact on both oxygen saturation levels and pain intensity. These findings support the effectiveness of *murottal* intervention in improving patient outcomes.

Table 1. Respondent frequency distribution

Variable		Frequency	%
Age	<20	4	13.3
	20-35	23	76.7
	>35	3	10.0
Education	High	6	20.0
	Middle	15	50.0
	Low	9	30.0
Gestational age	<37 weeks	0	0
	37-42 weeks	30	100.0
	>42 weeks	0	0
Parity category	Parity 1	17	56.7
	Parity 2-4	13	43.3
	Parity >4	0	0

Table 2. Frequency distribution of respondents based on oxygen saturation categories and pain intensity before and after intervention

Checklist		Before intervention		After intervention	
		n	%	n	%
Oxygen saturation category	Normal	6	20.0	22	73.3
	Low	24	80.0	8	26.7
	Total	30	100.0	30	100.0
Pain intensity	Low	0	0	16	53.3
	Middle	16	53.3	14	46.7
	High	14	46.7	0	0
	Total	30	100.0	30	100.0

Table 3. Analysis of differences in oxygen saturation and pain intensity before and after the intervention was tested using the Wilcoxon test

Variable	Median (Min-Max)	p-value
Oxygen saturation_Befor	93.0 (88-98)	0.000*
Oxygen saturation_After	95.0 (92-97)	
Pain Intensity_Before	6.00 (5-9)	0.000*
Pain Intensity_After	3.00 (1-6)	

Based on the results of bivariate analysis using the Wilcoxon Test, the p-value=0.000<(0.05) shows that there is a significant effect of *murottal* Al-Quran Surah Arrahman therapy on increasing oxygen saturation in women giving birth in the active phase. The results of this study show that there are differences in oxygen saturation values before and after administration of Ar-Rahman murottal therapy. The increase in oxygen saturation can be seen from the measurement results before *murottal* therapy was given, namely 93.00 and after therapy it was 95.00. From the results of the saturation measurements, it was found that oxygen saturation increased by 2.00 and occurred in almost all respondents (27 out of 30 respondents). Thus, it is concluded that Al-Quran Surah Arrahman *murottal* therapy has an influence on increasing oxygen saturation in mothers giving birth in the active phase. These findings are expected to assist in the healing process of preterm infants in the neonatal intensive care unit to reduce infant morbidity and mortality.

The main adverse psychological effects of pregnancy include stress, anxiety, and depression [20], [21]. Symptoms of anxiety and stress during pregnancy contribute to low birth weight and premature birth [22]–[24]. Music therapy also reduces depression [25]–[27] and improves the sucking ability of premature infants [28]. Research shows that the fetus feels more comfortable if the mother regularly listens to the *murottal* Al-Quran. This suggests that exposure to soothing and calming sounds, such as the recitation of the Quran, may have a positive impact on both the mother's mental well-being and the overall development of the fetus. Additionally, incorporating music therapy into prenatal care may provide a holistic approach to reducing stress, anxiety, and depression during pregnancy while promoting better outcomes for both mother and baby.

The intervention of reading the Al-Quran and deep breathing exercises will increase oxygenation needs. Monitoring blood pressure and heart rate by nurses is key to maintaining good blood circulation in order to maintain the patient's condition. Deep breathing exercises stimulate the release of surfactants secreted by the type II alveolar cells. The surfactant causes the surface tension in the alveoli to decrease, thereby improving lung function. The need for adequate oxygenation increases tissue oxygenation, which in turn increases oxygen saturation. Slow breathing increases respiratory muscles and diaphragm movement, thereby increasing the ability to move by reducing the incidence of dyspnea [29]–[31].

Based on the results of the bivariate analysis study using the Wilcoxon Test, p=0.000<(0.05) indicates that there is a significant effect of *murottal* Al-Quran Surah Arrahman therapy on reducing pain intensity in active phase labor mothers. This suggests that the *murottal* Al-Quran Surah Arrahman therapy has a statistically significant impact on alleviating pain during active phase labor. These findings highlight the potential benefits of incorporating this therapy as a complementary approach to managing pain for laboring mothers.

Labor pain is one of the most extreme types of pain experienced by humans worldwide. It is generally accepted that if pain control is not carried out properly, the tolerance of the birthing woman will immediately decrease; consequently, inflammatory cytokines in the plasma are associated with labor pain [32]. Given the severity of labor pain, varying degrees of hypertension, and increased heart rate, it is likely that this will also play a negative role in a woman's health, affecting the mother-newborn relationship [33].

Labor pain results from uterine contractions that cause dilatation and effacement of the cervix, as well as uterine ischemia due to contraction of the myometrial arteries. Each contraction generally lasts approximately 45-90 seconds, which at the beginning of the first stage of contractions tends to be felt in the lower back area. As labor progresses, the intensity of the contractions will increase so that the pain felt will be stronger, especially in the abdominal and back areas [34]. Each individual has a different threshold and tolerance for pain. When mothers in labor focus their attention on the pain they feel, it will affect their perception of pain so that the pain they feel increases. Many factors influence labor pain, namely age at labor, previous experience of labor pain, support and attention from birth attendants, anxiety about labor to be faced, and culture and coping techniques.

There are many methods for reducing labor pain that can be applied, one of which is the distraction method, which has the best effect on pain management. Some distraction methods that can be applied include singing, looking at pictures, praying, and listening to music. Music is one of the most effective distractions for reducing physiological pain, stress, and anxiety, so that it can distract a person from the pain he feels [35]. Sound therapy has been proven to have an effect on vital signs, namely, reducing heart rate, anxiety and depression, eliminating pain, and lowering blood pressure [12], [36], [37]. Listening to the Quran is a non-pharmacologically effective measure to reduce labor pain, anxiety levels, and maternal hemodynamic parameters also positively affect neonatal outcomes [38], [39].

4. CONCLUSION

Oxygen saturation before intervention was mostly in the low category, that is, 24 respondents (80%). Different results were shown after the intervention; oxygen saturation was actually higher in the normal category, namely 22 respondents (73.3%). The frequency of respondents who had pain intensity before the intervention was higher in the moderate and severe categories, namely 16 respondents (53.3%) and 14 respondents (46.7%), respectively, while there was no mild category. Different things were shown after

the intervention; pain intensity was actually higher in the mild category (53.3%) and moderate (46.7), while there was no severe category. The results of the statistical tests using the Wilcoxon test yielded a p-value of 0.000. Statistically, it can be concluded that there was a difference in oxygen saturation values before and after the *murottal* intervention. In addition, 27 respondents experienced an increase in oxygen saturation after receiving *murottal* intervention. Therefore, it can be said that there is an effect of *murottal* intervention in increasing oxygen saturation. Future research could further investigate the specific mechanisms through which *murottal* intervention affects oxygen saturation levels. Additionally, exploring the long-term effects of *murottal* intervention on oxygen saturation could provide valuable insights for clinical practice and patient care.

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