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Research Article

Blood Pressure Changes in Pregnant Women through Murratal and Classical Music Therapy

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Abstract: A high incidence of the increasing blood pressure among pregnant women shows a high risk of maternal and prenatal complications. 5-10% pregnant women who suffer from hypertension experience difficulties in parturition processes. One of the non-pharmacological therapies among these pregnant women is through the music and murratal therapy. The objective of this research was describing the difference of the effectiveness between the classical music therapy and the murratal therapy in reducing the blood pressure among the pregnant women in PKU Muhammadiyah Bantul Hospital. The method of this research was the quasi-experiment method through the 2 group pre and post test design. The sampling technique used in this research was the purposive sampling. There were 12 respondents in the murratal therapy and 12 respondents in the classical music therapy group. The blood pressure data were measured by the calibrated sphygmomanometer. The pretest was conducted before the intervention and post test were given after the 7^{th}-day intervention. The normality test of the data was through the Saphiro Wilk. The result of this significance test was $0.000 < \alpha = 0.05$ so that the data was not normal. The result of the data analysis through Mann Whitney was $0.146 > \alpha = 0.05$ so that there was no difference of the effectiveness between the murratal therapy and the classical music therapy in reducing the blood pressure among the pregnant women in PKU Muhammadiyah Bantul Hospital. It was recommended that the pregnant women who had a high blood pressure be routine and cooperative to use one of the types of this music (the murrotal therapies and the classical music therapy) so that the blood pressure was reduced during their pregnancy.

Keywords: Blood Pressure, Pregnant Women, Murrotal, Classic Music.

INTRODUCTION

Pregnancy is the physiological condition. There are several pregnancy conditions causing certain threats. These threats are that the fetal did not perfectly attach on the uterus, the fetal is not growing well, there are various maternal diseases, and the birth process has a high risk. One of the diseases that threaten a pregnancy is the pregnancy hypertension (Manuaba, 2010).

The increasing blood pressure during pregnancy is called a vascular disorder. The hypertension during pregnancy gives 6-8% of maternal deaths and is regarded as a cause of low birth weight (LBW). Almost 99% of this maternal mortality occurs in developing countries, and the rest is in developed countries. In Indonesia, the maternal mortality rate is still due to bleeding (32%), hypertension during pregnancy (25%), infection (5%), prolonged parturition (5%) and abortion (1%). The maternal mortality is caused by obstetric factors and non-obstetric factors by 32% (Ministry of Health, 2016). In Yogyakarta, the maternal deaths reaches 34 cases, the highest cause of this death was cases of preeclampsia. The result of the audit on the prenatal shows that the highest maternal mortality due to bleeding and preeclampsia. In PKU Muhammadiyah Bantul Hospital, there was 1 case on the maternal mortality rate due to preeclampsia (DIY, 2017).

The high incidence of hypertension during pregnancy shows a higher risk of maternal and prenatal complication. This complication is seen on the decreasing blood supply to the placenta, the placental abruption, and the damages to internal organs. The hypertension during pregnancy is also one of the deadliest causes in pregnancy. 5-10% of pregnant women who suffered from the hypertension

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experienced difficulty in having parturition process. The pregnant women with hypertension have babies with an average weight of 2.386 – 3.212 grams. These complications can be prevented by providing appropriate treatment (Manuaba, 2010).

The hypertension during pregnancy is able to handle in two ways through the pharmacological and non-pharmacological treatment. The pharmacological treatment uses the medical therapy or drugs. This therapy is not recommended for pregnant women because it has a risk of placental insufficiency. This therapy is given under certain conditions with a focus on preventing morbidity such as stroke and myocardial dysfunction. The hypotension of newborns was one of the effects of providing pharmacological therapy for methyldopa (Alit, *et al.,* 2008). Another treatment that can be used is non-pharmacological therapy. This treatment has more minimal or even non-existent side effects but requires a longer time. The non-pharmacological therapy is given to the hypertensive patients with the aim of reducing blood pressure and controlling risk factors and other comorbidities. One of the non-pharmacological therapies is through the music therapy and murratal therapy.

Music therapy is useful for the relaxation process. The music stimulation increases the release of endorphins so that it was able to provide a sense of comfort because music was able to slow and balance brain waves and affect the respiratory rhythms, heart rate, and blood pressure. Widayati (2014) mentions that the music therapy brings comfort and reduces pain, systolic blood pressure, and pulse. This is because music affects limbic system as the center of emotional regulation. The auditory pathway is received into the limbic system. The auditory pathway continues to the hippocampus so that the amygdale which is regarded as the area of conscious and subconscious behavior receives signals from the limbic cortex and radiates to the hypothalamus. Hypothalamus is the area for the vegetative functions and endocrine functions of the body. The auditory pathway is passed on to the reticular formation as a conduit of impulses to autonomic nerve fibers. The fiber has two nervous systems i.e., the sympathetic nervous system and the parasympathetic nervous system. These two nervous systems affect the contraction and relaxation of organs. The music therapy is able to cause the autonomic nervous system to instruct the body to relax so it raises a calmness, the pulse is more normal pulse, and the blood pressure is normal (Damayanti, R, 2012).

The murattal therapy or the Quran chant has the same effect as the music therapy. Alit *et al.,* (2008) stated that the respondents obtain 65% of calmness after they listen to the murratal music even though the respondents do not know and understand Arabic or the Quran verses. The respondents only obtain 35% of calmness as they listen to the Arabic sounds that are not from the Quran. According to Rahman (2017), the murrotal therapy reduces blood pressure. In Pakistan, listening to Quran has been used as a treatment for various diseases. Quran is a means of treatment to restore the balance of damaged cells. Rilla et al (2014) states that therapy of listening to Quran recitation can synergize with the pharmacological therapy for reducing pain. Quran therapy can provide the non-pharmacological effects in dealing with pain. This is in line with the theory of pain. Moreover, Good states that consuming analgesic has side effects so that the complementary therapy is needed. This can create calmness which makes the blood pressure more normal.

The murattal therapy or reciting the Quran verses has the same effect as the music therapy. Alit et al (2008) stated that the respondents obtain 65% calmness as they listen to the murratal even though the respondents do not know and understand Arabic or the Quran verses. The respondents only obtain 35% calmness as they listen to the Arabic sounds that are not from the Quran. According to Rahman (2017), the murratal therapy reduces blood pressure. In Pakistan, listening to Quran has been used as a treatment for various diseases. Quran is a means of treatment to restore the balance of damaged cells. Rilla, et al (2014) states that therapy of listening to Quran recitation can synergize with the pharmacological therapy for reducing pain. Quran therapy can provide the non-pharmacological effects in dealing with pain. This is in line with the theory of pain. Moreover, Good states that consuming analgesic has side effects so that the complementary therapy is needed. This can create calmness which makes the blood pressure more normal.

One of the Quran verses as a murratal therapy is Al-Fatihah, Al-Ikhlas, Al-Falaq, An-Nas, Verse of Al-Kursi, Al-Yasin verse 58, and Al-An'am verses 1-3 and 13. All of these verses activate the divine energy in patients who can repel disease (Rahman, 2017b). The research on the music and murratal therapy is currently not widely developed in the health care facilities for pregnant women who suffered from the hypertension in PKU Muhammadiyah Bantul Hospital. Therefore, the researchers are interested in conducting the research with the title "The Differences of Effectiveness between Murratal and Classical Music Therapy in Reducing the Pregnant Women's Blood Pressure in PKU Muhammadiyah Bantul Hospital. The objective of this research was describing the difference of the effectiveness between the classical music therapy and the Murratal therapy in reducing the pregnant women's blood pressure in PKU Muhammadiyah Bantul Hospital. The result of this research provides the

treatment for the pregnant women who suffered from the hypertension through the non-pharmacological therapy (murrotal therapy or classical music therapy) so that the blood pressure decreased and the implementation became cooperative.

RESEARCH METHOD

The method of this study was the quasi-experiment method. This research involved 2 groups in pre and posttest. It is used to reveal a causal relationship between two groups of subjects. This research was conducted to 2 groups i.e., the 1st experimental group in which the murattal therapy was given and the 2nd experimental group in which the classical music therapy was given. As the pretest was conducted in the first phase, the blood pressure was measured by using the calibrated sphygmomanometer. After that, the 1st experimental group and the 2nd experimental group were given for 7-consecutive days with 20-minute duration with a volume of 50%. In the second week, the post test (final measurement) was done to get results after giving the therapy murottal and classical music therapy. The therapy was given 1 times a day.

The population of this study was all pregnant women who suffered from increasing blood pressure in PKU Muhamamdiyah Bantul Hospital. The sampling technique used in this research was the purposive sampling. The purposive sampling was the sampling technique to meet the determined criteria by the researcher (Surahman, et al., 2016). The number of samples used in this study was 14 pregnant women who suffered from the increasing blood pressure, 12 as the respondents in the murrotal therapy group and 12 as respondents in the classical music therapy group. The criteria of this sample were the pregnant women who had hypertension in the age of 20-35. The pregnant women did not have a history of hypertension before becoming pregnant.

Blood pressure was measured through an ABN-calibrated sphygmomanometer series 00049750 with a certificate number 6971 / LK-LKU / VIII / 2018. The measurements were made before giving the murratal therapy and classical music therapy. The post test was done through the blood pressure measurement after the intervention for 7 days.

The statistical analysis was firstly implemented through the normality test (Saphiro Wilk). If the data was normally distributed, the statistical tests were used to determine changes in pre-test and post-test using the paired t-test, but if the data was not normally distributed, the Wilcoxon signed ranks were used. The independent sample t-test was used to determine the difference of the effectiveness of the murratal therapy and the classical music therapy if the data was normally distributed. Mann Whitney was used if the data was not normally distributed.

RESULT OF RESEARCH AND DISCUSSION

A. Characteristics of Respondents

There were 12 pregnant women as the respondents in the murratal therapy group and 12 pregnant women in classical music therapy group with Beethoven love story. The characteristics of this respondent included the respondent's ages, the gravida status, and the gestational age.

Table 1. Characteristics of Respondents

Types	Characteristics	Murratal Therapy Group		Classical Music Therapy Group	
		Frequency	%	Frequency	%
Ages	20-30	9	75%	9	75%
	>30	3	25%	3	25%
	Σ	12	100%	12	100%
Gravida Status	Primigravida	2	16,7%	2	16,7%
	Secondygravida	8	66,6%	6	50,0%
	Multigravida	2	16,7%	4	33,3%
	Σ	12	100%	12	100%
Gestational Age	Trimester 2	6	50%	4	33,4%
	Trimester 3	6	50%	8	66,6%
	Σ	12	100%	12	100%

In table 1, the ages of the respondents in the murratal therapy group and the classical music therapy was explained in the same frequency distribution.

B. Result of the Research

Table 2. Cross Tabulation of Murratal Therapy Group and Classical Music Therapy Group

Blood Pressure	Murratal Therapy Group				Classical Music Therapy Group			
	Pre test		Post Test		Pretest		Posttest	
	Σ	%	Σ	%	Σ	%	Σ	%
Normal	9	75	10	83,3	7	58,3	11	91,7
Low Hypertension	3	25	2	16,7	5	41,7	1	8,3
Total	12	100	12	100	12	100	12	100

There were 9 respondents (75%) who had normal blood pressure before the murratal therapy was given. After murrotal therapy was given (83.3%), there were 10 respondents who had normal blood pressure. In the classical music therapy group, there were 7 respondents (58.3%) who had normal blood pressure therapy. After the music therapy was given, there were 11 respondents (91.7%) who had normal blood pressure.

C. Result of Statistics Analysis

Table 3. Result of Data Normality Test

Murratal Therapy	Murratal Therapy Group		Classical Music Therapy Group	
	Pre test	Post test	Pretest	Posttest
Statistics	0,552	0,465	0,640	0,327
Df	12	12	12	12
Significance	0,000	0,000	0,000	0,000

The data normality test was conducted through the Shapiro Wilk with a significance value of 0.000 smaller than $\alpha = 0.05$ before the a statistical test was carried out. This proves that the data in the distribution was not normal.

Based on this abnormal-distributed data, the analysis used was Wilcoxon signed ranks and Mann Whitney test.

Table 4. Result of Wilcoxon Signed Ranks

	Posttest-Pretest Murratal Therapy Group	Posttest-Pretest Classical Music Therapy Group
Z	-1,000	-2,000
Asym Sig. (*2-tailed*)	0,037	0,046

The result of this analysis indicated that there was an effect of the murratal therapy on the blood pressure change of the pregnant women in PKU Muhammadiyah Bantul Hospital seen on the significance value of $0.037 < \alpha = 0.05$. In the control group, it also showed that there was an effect of the classical music therapy on the decreasing blood pressure of the pregnant women in PKU Muhammadiyah Bantul Hospital seen on the significance value of $0.046 < \alpha = 0.05$.

Furthermore, the differences of the blood pressure changes in the murrotal therapy group and classical music groups were seen through Mann Whitney's statistical test.

Table. 5. Mann Whitney statistical analysis results

	Blood Pressure in Murratal Therapy Group and Classical Music Therapy Group
Mann-Whitney U	123.000
Wilcoxon W	201.000
Z	-1.453
Asymp. Sig. (2-tailed)	.146
Exact Sig. [2*(1-tailed Sig.)]	.245[a]

The result of this analysis showed that 0.146 was greater than $\alpha = 0.05$ so that it was concluded that Ho was accepted and Ha was rejected. It was concluded that the murratal therapy and the classical music therapy given to the pregnant women for reducing blood pressure had no difference. Therefore, these therapies were equally beneficial in reducing blood pressure in pregnant women.

D. DISCUSSION

The result of this study showed there were the blood pressure changes in the murratal therapy group before and after murrotal therapy. This occurs because the Quran was a complete medicine for all types of diseases. Murattal has advantages for those who listened to it seen on their peace of mind. Besides, the Quran chant physically was from the human voice and it was an fascinating healing instrument and the most accessible instrument. Sound was able to reduce stress hormones, activate natural endorphin hormones, increase feelings of relaxation, and divert attention from fear, anxiety and tension, and improve the body's chemical system so that it lowered blood pressure and slowed breathing, heart rate, pulse, and brain wave activity. The deeper or slower breathing rates were very good to raise calmness, emotional control, deeper thinking, and better metabolism. The quality of people's awareness of God increased through the murattal therapy even though they did or did not know the meaning of the Quran. This awareness raised the totality of submission to Allah. In this condition, the brain was in alpha waves which were at a frequency of 7-14 Hz. This was an optimal condition of the brain energy and able to get rid of stress and reduce anxiety (Rahman, 2017b).

Murattal was working in the brain which produced chemicals called neuropeoptide substances. This molecule was caught in the receptors and provided feedback in the form of pleasure and comfort. Human hearing function was the auditory or sound stimuli. Auditory stimulation in the form of sound received by the ear made it vibrating. This vibration was transmitted to the auditory bones which were intertwined each other. The physical stimulation was changed by the difference of the potassium ions and sodium ions so that it turned into the electric flow through the VIII nerve (vesthule cokhlearis) to the brain, especially in the auditory area. After experiencing the action potential changes produced by the auditory nerve, the propagation of the action potential into the auditory cortex (which was responsible for analyzing complex sounds, short-term memory, tone comparison, inhibiting unwanted motoric responses, serious hearing, etc.) was received by the lobe temporal brain to express sound. The thalamus as an impulse transmitter continued stimulating the amygdala (the place of storage of emotional memory) as an important part of the limbic system (which affects emotions and behavior) (Rilla, *et al.*, 2014). By listening to the verses of the Quran, Moslems – whether they are Arabic or not – were able to feel enormous physiological changes. In general, they feel the decrease of their depression and sadness and increased their peace of mind (Hady, N.A., Wahyuni, Purwaningsih, 2012).

The Quranic chant physically contained the element of human voice so that the human voice was an fascinating healing instrument and the most accessible instrument. Sounds were able to reduce stress hormones, activate natural endorphin hormones, increase feelings of relaxation, divert attention from fear, anxiety and tension, improve the body's chemical system so that it lowered blood pressure and slowed breathing, heart rate, pulse, and brain wave activity. This showed that the Quran recitation was used as a supplementary care because it increased relaxation (Fratidhina and Kurniyati, 2016).

The Murattal Quran was used as an alternative new therapy as relaxation therapy which was better than the other audio therapies because the Quran chant brought up a delta wave of 63.11%. The audio therapy was also an inexpensive therapy and did not cause side effects. The low sound intensity was a sound intensity of less than 60 decibels which gave comfort and no pain. Murattal was an intensity of 50 decibels that ahd a positive influence on the listener. Rahman (2017b) said that the murottal therapy given to patients with 15-25-minute duration brought advantages.

There was 1 respondent whose blood pressure remained good before and after the murratal therapy seen on the characteristics of the respondent's second gravida and gestational age in the third trimester. This happens because the blood pressure was a blood vessel pulse to the blood vessel walls. Some changes occurred in the blood circulation during pregnancy, the increase of the body weight, and the presence of extra tissues which were needed for the fetus to grow and develop. The blood pressure dropped at 24 weeks of gestation due to the decrease of the peripheral vascular resistance caused by stretching of smooth muscle by progesterone. The systolic pressure drops slightly at 10-15 mmHg. After 24 weeks, the blood pressure gradually rose again to the blood pressure. The blood flow increases rapidly as the uterus enlarged and the size of the conceptus increases faster. As a result, a lot of blood was taken from the uterus during advanced pregnancy. This made blood pressure difficult to reduce. Besides, the pregnant women were overpowered by their anxiety in the parturition process, specifically in the third trimester which caused blood pressure to be difficult to reduce through relaxation (Jumaiza, Elvira, Devi, Panjaitan, 2018).

The result of the classical music therapy group showed the blood pressure changes before and after the classical music therapy was given. The music was the organized audio stimulation consisting of the melody, rhythm, harmony, timbre, form, and style. Music was not only a sound but a composition of sounds and was able to help the body and mind work together. The type of alkaline music was believed to cause a feeling of

relaxation, happiness and being able to reduce blood pressure (Widayati, 2014).

According to Hady, *et al.*, (2012), the types of alkaline music used for therapy were the instrumental music and classical music. The instrumental music was beneficial to make the body, mind, and mental healthier. The classical music was useful to make a person relax, create a sense of security and well-being, release feelings of joy and sadness, reduce the level of anxiety of preoperative patients, and release pain and reduce stress levels. The classical music was a music created and displayed by people who were trained professionally through music education.

Music was also believed to increase the release of the endorphin hormone. Endorphins had a relaxing effect on the body. Endorphins were also as the ejectors of relaxation and calmness so that the midbrain released Gama Amino Butyric Acid (GABA) which functioned to inhibit the delivery of electrical impulses from one neuron to another by the neuro transmitter in the synapse. Midbrain also released encepalin and beta endorphins. These substances caused analgesia which eventually eliminated pain neurotransmitters at the center of somatic sensory perception and interpretation in the brain (Alit, *et al.*, 2008).

The result of this research showed that the music was proved to be able to increase interleukin-1 (IL-1) in the blood so that it can enhance immunity. The type of music which reduced the blood pressure was the classical music. Another research stated that the music was able to improve the psychological health in the pregnant women by reducing the number of anxiety, stress, and depression (Widayati, 2014).

The results of this study in the murratal therapy group and the classical music therapy group showed a blood pressure change before and after the murratal therapy and classical music therapy were given. However, the changes did not show a better difference. The result of Mann Whitney's statistical analysis showed the results of the significance number of 0.146 greater than $\alpha = 0.05$. This meant that there was no significant difference between the murratal therapy and the classical music therapy. This was also stated in Widayati's research (2014) that the murratal music and classical music were the same kind of alkaline music. The alkaline music that was regularly listened was able to trigger happiness hormones such as endorphin and serotonin. In addition, it produced secretion of stress hormone ACTH. These hormones affected various body activities including regulation of blood pressure. This type of alkaline was also able to bring listeners from beta brain induction (awake) into alpha (mediative) conditions while the individual was still conscious.

CONCLUSIONS AND RECOMMENDATIONS

There was an effect after Al-Fatihah therapy was given to the pregnant women. Moreover, there is also an effect after the classical music therapy was given to the pregnant women. According to Mann Whitney statistical analysis, the significance test results were 0.146 greater than α: 0.05 which meant that there was no significant differences in the murratal therapy and the classical music therapy in reducing blood pressure in pregnant women in PKU Muhammadiyah Hospital Bantul. Both therapies were able to be used to replace each other in reducing the blood pressure in the pregnant women who had increasing blood pressure.

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