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## EFFECT OF NATURE SOUNDS MUSIC THERAPY DURATION ON BLOOD PRESSURE AMONG PRIMIPAROUS POSTPARTUM WOMEN

By

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### ABSTRACT

**Background:** Postpartum blues rate for Asia is between 26-85%, while the prevalence in Indonesia is 50-70%. All postpartum women can experience stress, almost 80% of primiparous women experience feelings of sadness after childbirth. Stress can stimulate the sympathetic nerves to trigger the work of the heart and can trigger increased blood pressure. Music raises changes in brainwave status, stress hormones and affects the cardiovascular system. Nature sounds music is music that has a slow tempo and may cause relaxed and comfortable feelings.

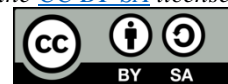
**Objective:** To prove the effect of natural music therapy duration on blood pressure among primiparous postpartum women.

**Method:** This study used a true experimental design (pretest-posttest control group design). The sampling technique used Simple random sampling. The respondents of this study were primiparous postpartum women amounted to 39 mothers. The samples in this study were divided into three groups namely the treatment group of music therapy with 15 minutes duration, the treatment group of music therapy with 30 minutes duration and the control group. Analysis to test the effect of duration of nature sounds music on primiparous postpartum women used One-way ANOVA and Kruskal Wallis test

**Results:** The result of study analysis showed that there was differences between systolic blood pressure and diastolic blood pressure with p-value 0,010 and 0,009 (p value <0,05)

**Conclusion:** There was an effect of duration of natural music therapy on blood pressure

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## 1. INTRODUCTION

In Indonesia, maternal and child health is a priority of development, one of the ways to improve the development is improving maternal health, include in during the puerperium (postpartum). In postpartum period the mother's health is often compromised because during this period women experience physical and psychological changes, in addition of parenting role is a new role which requires an adaptation process [1]. In this adaptation process the mother will experience psychiatric symptoms, but not all mothers can be succeed in the adaptation of herself, mothers who are not able to adapt themselves often experience psychological disorders (postpartum stress) [2].

All postpartum women most likely to experience this syndrome that is experience of stressful conditions, almost 80% of new mothers experience sad feelings after childbirth [3]. In Indonesia, the incidence of postpartum stress is

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quite high at 50% -70% and if this stress continues it will cause depression [4]. Of several places in Indonesia that have conducted study such as Jakarta, Yogyakarta and Surabaya, the number of stress incidence in postpartum women was 11-13%, this amount is not small in view of the accompanying negative effects [5]. Postpartum mother almost always experiences a decrease in mood within a few days after childbirth.

Stress can trigger the hypothalamus (anterior pituitary hypophysis) to increase cortisol, which stimulates the sympathetic nerves to trigger the heart's work as a cause of vasoconstriction in peripheral blood capillaries, it triggers blood pressure to increase [6], primiporous mother with stress potential to has high blood pressure. One therapy that can reduce the occurrence of postpartum blues is music therapy technique. Music therapy technique can be given during pregnancy, birth, early life and postpartum, this therapy can prevent the occurrence of emotional and behavioral disorders and can improve communication between mother and baby [7], this is because music can cause changes in the status of brain waves and stress hormones of the patients, in addition it may have an effect on the cardiovascular system and respiration. Soft music can slow breathing which results in relaxation, emotional control, and metabolism control [8-10].

Previous reasearch, music therapy effectiveness to reduction blood pressure for pregnant mother with hypertension, and therapy music is one of therapy nonpharmacologic can use to reduce of blood pressure [11]. Of the studies that used music to reduce blood pressure, none specified the most effective amount of time for a music intervention to achieve its maximum therapeutic effect. Little is know about the optimal duration of a musi intervention required to reduce blood pressure for postpartum mothers. Although most studies used a 10 to 40 minute music intervention, convincing evidence to substantiate te effective duration of music stil lack.

Nature sounds music is music that has a slow tempo, with low tones and no lyrics which can cause the relaxation and comfort feelings. Based on the description above, the authors are interested in conducting a study with the title of effect of duration of nature sounds music therapy on blood pressure among primiparous postpartum women.

## 2. METHODS

This study used true experimental design (pretest-posttest control group design). The study was conducted at the respondents' houses (home visits) on day 3, to the respondents who had signed informed consent in accordance with The inclusion criteria were: 1. Primiparous postpartum women (3rd day after childbirth), consider the stability of maternal health and adaptability to her new role as mother and in the phase of taking hold. 2. Normal delivery. 3. The mother and baby are in healthy condition. 4. Willing to be a respondent in the study and could be invited to communicate actively. The exclusion criteria were: 1. suffering from serious illness (diabetes mellitus, cancer). 2. Taking any medication that can lower blood pressure., during care in Semarang Regional General Hospital, in Dewi Kunti ward (Maternity Ward) on the first day postpartum.

This study has obtained permission through the health research ethics committee (K.E.P.K) number 213/KEPK/Poltekkes-SMG/EC/2016. Population of this research is primiparous postpartum in general hospital Semarang, the study was conducted in the room of Dewi Kunti room (postpartum room), for technique sampling use simple random sampling with randomization by close envelope. Based on the calculation:

the minimum sample size for each group is 11 and plus 20 % sample. So, 13 primiparous postpartum each group, this reaserch divided into three groups: the treatment group of music therapy with duration of 15 minutes at morning in a same time, the treatment group of music therapy with duration of 30 minutes at morning in a same time and the control group give potpartum care. Using a simple random sampling technique. The randomization was performed with closed envelopes, each envelope consist of number and responden chose one of the three envelope, each number is the name of group. So, total number of respondents was 39 primiparous postpartum women.

For hear music use speaker and distance of speaker and mother is 100 meter, and make sure baby still sleep. The authors used sphygmomanometer for blood pressure checks for 2 days on the 3rd and 4th days of postpartum period, the postpartum period of the 3<sup>rd</sup> day after delivery is particulary at risk for postpartum complications, both physical and psychological, mainly was occur in the first 3-day. Data on blood pressure examination obtained from the examination of each respondent were recorded on the observation sheet and collected for tabulation. The statistical test used to test the effect of nature sounds music duration on primiparous postpartum women was One-Way ANOVA test for measuring diastolic Blood Pressure and Krusskal-wall for measuring systolic Blood Pressure, for measuring effective of treatment using Pos Hoc.

## 3. RESULT AND DISCUSSION

The study results in Table 1.2 showed obtained p-value of 0.010 and 0.009 the p-value was  $<\alpha$  (0.05), it can be concluded that there was affect of nature sounds therapy duration on systolic blood pressure and diastolic blood

pressure. So, the duration of the nature sound music give effect on the difference of systolic blood pressure and diastolic blood pressure.

This study is in accordance with the study conducted by Eko about the influence of nature sounds music on blood pressure among pregnant women. The study conducted on pregnant women, in Sumenep, obtained the result that more than half of pregnant women (55,5%) who received nature sounds music therapy experienced decreased blood pressure compared to the control group, and the statistical test obtained a p-value of  $0.029 < 0.05$ , which can be concluded that there was an effect of giving nature sound music to the blood pressure among pregnant women [12].

The result of Post Hoc test on systolic blood pressure variable showed the difference of effect between music 30 minutes duration group and the control group with p-value of 0.145, p-value  $> \alpha$  (0.05), so it can be concluded that there was no significant effect of 30 minutes duration on systolic blood pressure among primiparous postpartum women, and on the difference of effect between the 15 minutes duration group and the control group the p-value was  $0.001 < \alpha$  (0.05), it can be concluded that there was a significant effect of 15 minutes duration on systolic blood pressure among primiparous postpartum women.

The study result is in line with previous studies suggesting that music therapy could improve systolic blood pressure (- 6.58 mmHg) compared to the control group, and might reduce systolic blood pressure by 6 mmHg in hypertensive patients, a decrease of 5 mmHg might reduce the risk of stroke by 13% [13]. Several studies have shown that a decrease in the means of systolic and diastolic blood pressure could reduce the risk of mortality from ischemic heart disease or stroke[14].

Post hoc test result on diastolic blood pressure variable obtained p-values difference between 15 minutes music duration and control group of 0,012, p-value  $< \alpha$  (0,05), hence it can be concluded that there was significant effect of 15 minutes duration on blood pressure among primiparous postpartum women, and at 30 min duration the difference with control group was 0.219, p-value  $> \alpha$  (0.05), it can be concluded that there was no significant effect of 30 min duration on systolic blood pressure among primiparous postpartum women. Listening to 15 minutes of music therapy could affect systolic blood pressure and diastolic blood pressure. The short music therapy also had a positive effect on some patients [15].

The study result is in line with the study conducted by Zaini, et al, that listening to music could be used as blood pressure-lowering therapy as indicated by a significant decrease in blood pressure, with the mean of systolic pressure and diastolic pressure of 11.8 mmHg and 47 mmHg, respectively. This therapy is used as an alternative therapy in the treatment of hypertension[16]. In addition, nature sounds music can also affect the parasympathetic nervous system which relaxes the body and slows the heart rate, as well as provides a relaxing effect on the body organs [17]. Sedative music or relaxation music is able to provide an effect on heart rate, blood pressure and is able to provide a sense of calm [7].

Listening to music can change the effective threshold of the brain in a state of stress to be more relaxed, because the music is easily accepted by the hearing organ and easily perceived by the brain, and is able to activate the limbic system that regulates a person's emotions to be more relaxed which results in blood vessels dilatation and decrease blood pressure [18]. When listening to soft music the body will produce endorphin and serotonin-happy hormones and inhibit the ACTH stress hormone that can affect blood pressure regulation [19].

Music can directly affect the working of our muscles. Heart rate and respiration can increase or become normal automatically depending on the music performed. The relaxing effects of music therapy and slow deep breathing can widen and relaxes blood vessels, activate the afferent impulses of baroreceptor to reach the heart center that will stimulate the activity of the parasympathetic nervous system and inhibit central sympathetic (cardio-accelerator), causing systemic vasodilatation which can accelerate blood circulation throughout the body, decrease heart rate and heart contraction power [20].

A decrease in blood pressure can be achieved by way of lifestyle modifications such as weight loss, adoption of the DASH diet (Dietary Approaches to Stop Hypertension), restriction of daily salt, physical activity, limitation of the consumption of alcohol, and stop smoking, each lifestyle is capable to lower blood pressure by 5 to 20 mmHg with long period approximately a week. In this study we obtained a decrease in systolic and diastolic blood pressure up to 5 mmHg with the therapy of nature sounds music for 15 minutes / 1 time in the morning for 2 days. It can be used as an alternative option in lowering blood pressure, and the administration of this therapy not only can be given to patients who have high blood pressure, because the purpose of the provision of music therapy is to stimulate and activate the limbic system associated with emotion. When the limbic system is activated then the individual becomes relaxed. When the goal is reached the action of the hypothalamus will adjust and there is a decrease in sympathetic and parasympathetic activities [21].

#### **4. CONCLUSION**

The study results showed that there was an effect of duration 15 minutes of nature sounds music therapy on blood pressure. Recommendation to health services or maternity ward is to apply nature sounds music therapy as an alternative solution to problems, especially for primiparous postpartum women who experience emotional stress, physical stress, anxiety, fatigue and can help to improve the quality of life.

### Study Limitations

Most of the participant of this study were have more time to rest, and each postpartum mother in different condition stress, actually used treatment in 2 days didn't make changes to reduce blood pressure. For the next researcher, need longer time to give treatment for best result around 1 until 2 week.

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