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DIFFERENCES IN LABOR PAIN INTENSITY AFTER THE PROVISION OF MUSIC THERAPY TO PRIMIGRAVIDA MOTHERS INPARTU KALA

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ABSTRACT

Introduction: Most laboring women are experiencing physical pain that is also accompanied by emotional fear. The latter may cause a slower development of labor, which prompt these mothers to opt for cesarean section. About 60% of primiparous and 40% of multiparous women had experienced extremely severe labor pains during the acute phase, and up to 40% of laboring women were not satisfied with the pain relief effect after taking analgesic drugs. Music therapy is one of the non-pharmacological pain reliever methods that helps one to relax and manage the mind and body's perception against the agony.

Aims: The objective of this study is to know the difference of pain intensity before and after the provision of music therapy to the primiparous mother in first stage of labor.

Methods: Twenty primiparous who were expected to have a normal, spontaneous delivery were the experimental group (n = 20). A self-report visual analog scale (VAS) for pain intensity was used to measure the labor pain. The expecting mothers listened to the classical Mozart's and Beethoven's compositions for 10 minutes and then asked to scale the intensity of the pain that they felt before and after listening to the music. Data analysis was done by using univariate analysis and different t-test.

Results: The results showed there was a significant difference of the intensity of pain before and after the provision of music therapy to the primiparous mother in the first stage of labor.

Conclusion: This study provides evidence that the use of music therapy can reduce labor pain. Therefore, management of maternal care should include music therapy in assisting childbirth.

Keywords: Labor Pain, Music Therapy, First stage of labor

INTRODUCTION

Childbirth is a normal process in women of childbearing age. However, welcoming the birth of the baby is a period that will be very happy with every family. When a woman faces the unknown childbirth process for the first-time, she often feels anxiety, because coping with labor pain is widely viewed as an anxious moment [1]. Labor pain is a complex, subjective and bittersweet paradox experience, it is undesirable and also the most unpleasant aspect of the labor experience. In addition, pain is an integral part of labor and

delivery. Pain during labor cannot all be adapted by the mother even though the pain is physiological in labor, so it is common for labor pain to increase fear or anxiety in the mother [1–3].

Labor pain can cause stress and excessively release hormones such as catecholamine and steroid. These hormones can cause tension of smooth muscle and vasoconstriction of blood vessels resulting in decreased uterine contractions, reduced uteroplacental circulation, reduced blood flow and oxygen to the uterus, and the onset of uterine ischemia that makes the pain impulse multiply. Such a condition is known as fear tension pain syndrome [4]. Labor pain is also accompanied by fear, which is related to a slower development of labor, leading to increased rates of cesarean section. It has been reported that 60% of primiparous and 40% of multiparous women had experienced extremely severe labor pains in the acute phase, and up to 40% of laboring women were not satisfied with pain relief after receiving analgesic drugs[5].

Management of labor pain can be implemented non-pharmacologically and pharmacologically. Non-pharmacological methods include counter pressure, effleurage, touch therapy and massage, walking, changing position, hot or cold compress, stimulating electrical stimulation nerve (TENS), acupressure, water therapy (bath, whirlpool bath), Intradermal water block, aromatherapy, breathing techniques, music therapy, drawings, focal point usage, childbirth education (intranatal class), hypnosis, and biofeedback. While pharmacological methods in the form of the use of analgesic drugs and anesthesia [5–7].

Music therapy is one method of handling the non-pharmacological pain that can be implemented to mothers. Music therapy is one of the mind-body relaxation techniques which improve the management of mind and body against stress so that one can feel the relaxation effect of the technique [8]. Music therapy is a non-pharmacological intervention that has the capacity to reduce anxiety levels in some patients. Music therapy is a therapeutic activity that uses music as a medium for improving, nurturing, developing mental, physical, and emotional health. Music therapy has cultivated in America as an alternative treatment at hospitals, rehabilitation centers, health centers and educational centers[9]. Although some empirical evidence of the benefit of music for specific types of patients has been identified in the last 3 decades, data are lacking in terms of identifying when patients may derive the most benefit from therapeutic music interventions, such as during or after painful or anxiety-producing procedures, or at times of mild versus moderate or severe pain, anxiety, and tension[3]

The benefits of music therapy are effective for mothers who will give birth, manage pain and reduce distress. Music therapy also has a role as a terminal treatment to relieve the illness suffered and set the emotional atmosphere of calm[10, 11]. Music therapy in the face of labor pain lies in its destruction and its ability to make a person lose the time flow. The advantages of music therapy when compared with other pain management methods are easier to obtain, cheaper, and without side effects[5, 10, 11]. Specifically, music has been applied to decrease pain perception [12]. The objective of this study is to know the difference of intensity of labor pain before and after giving music therapy to the primiparous mother in first stage labor.

METHODS

This research is a quasi-experiment with research design using one group pretest-posttest design. The population of this study was all pregnant women in the third trimester with estimated delivery in January - February 2011. A total of 74 maternity mothers at the Independent Midwife's Clinic *Sri Wahyuni*, Semarang, Indonesia, was accidentally chosen from January 13 to February 11, 2011, but only 20 involved in this study with these following criteria: primiparous mother who gave normal delivery, 19-35 years old, willing to be a respondent, able to communicate actively, love music, has reached the opening 4-10 cm.

The independent variable in this research is the use of music therapy method in the mother, while the dependent variable in this research is a pain in the first stage of labor. This study used an instrument of observation intensity of labor pain before and after music therapy in primiparous mother in the first stage of labor. The music used is classical music of Mozart and Beethoven. In the treatment group, measurement of pain intensity using VAS (Visual Analog Scale) both before and after giving music therapy. The average scale of pain she felt was measured before and after received music therapy. Mother listened to the music therapy for 10 minutes using the MP3 player along with earphones in volume 20.

Data was analyzed by univariate analysis test and T-test using SPSS version 16.0 computer program. The univariate analysis is to describe pain intensity characteristic in the treatment group. Data normality was tested by Shapiro-Wilk test, and following with Wilcoxon Signed Rank Test, a non-parametric statistical hypothesis test, to compare the difference of the mean level of pain, at the significance level of less than 0.05 [13].

RESULTS

No mother less than 20 involved in this study, as shown I Table 1. The majority of mothers (90%) aged 20-30 years. Only few (10%) aged more than 30 years.

Table 1. Characteristic of primiparous mother in the first stage of labor pain

Characteristic	N	(%)
Ages		
< 20 age	0	0 %
20–30 age	18	90 %
> 30 age	2	10 %
Total	20	100 %

Table 2 presents the intensity of labor pain scale from 0 (zero) to 10 (ten). It is known that at the first stage of labor pain the scale was between 6 and 8. From 20 participants, more than half of mothers (11 persons) experienced pain scaled 7, while the rest 8 mothers in the Pain 6, and only 1 mothers hit the Pain 8. From the data it can be seen that the intensity of labor pain reduced; no more mothers experience the pain in first stage at scale Pain 6 and 7. The music therapy lower the intensity of labor pain from 6-8 to 3-5. Among the 20 mothers, half (10) experience at the pain level of 4, while the other 8 participants had pain at 5 scale, and only 2 respondents measured with Pain 2.

Table 2. Intensity of labor pain pre-test and post-test in the experimental group

Intensity of Labor pain	Experiment Group			
	Pre-test		Post-test	
	N	(%)	N	(%)
Pain 0	0	0 %	0	0 %
Pain 1	0	0 %	0	0 %
Pain 2	0	0 %	0	0 %
Pain 3	**0**	**0 %**	**2**	**10 %**
Pain 4	**0**	**0 %**	**10**	**50 %**
Pain 5	**0**	**0 %**	**8**	**40 %**

Intensity of Labor pain	Experiment Group			
	Pre-test		Post-test	
	N	(%)	N	(%)
Pain 6	8	40 %	0	0 %
Pain 7	11	55 %	0	0 %
Pain 8	1	5 %	0	0 %
Pain 9	0	0 %	0	0 %
Pain 10	0	0 %	0	0 %
Total	20	100%	20	100%

From Table 3, it is noted that the music therapy significantly reduced the average intensity of labor pain at the first stage from 6.56±0.59 to 4.30±0.66, at significance level of 0.001.

Table 3. Differences are the intensity of labor pain before and after music therapy in primiparous women in the first stage of labor

Variables	Group				P value	Z
	Pre		Post			
	Mean	SD	Mean	SD		
Intensity of labor pain experiment	6.56	0.587	4.30	0.657	0.001	-4.072

DISCUSSION

The majority of mothers aged 20-30 years, and in this age mother are expected to be more physically and psychologically ready to face birth. Maternal age at birth affects the mother's perception of labor pain. The increase in mother's age, mother's knowledge is higher in labor pain so that mother can accept and perception of pain better [1].

The average intensity of labor pain in the first stage before music therapy was 6.56 and the most pain on scale 7. Whereas after getting music therapy, the average intensity of labor pain became 4.30 and the majority on the pain scale 4. That indicates a decrease of labor pain in primiparous mother in the first stage. This can be caused by the pain threshold of each person is different. Because the pain is highly influenced by the physical, psychological and emotional condition of a person. It has been shown that anxiety can also improve labor pain[1, 14, 15].

The influence of music therapy on the intensity of labor pain in the first stage can be seen based on the results of research showing a p-value of 0.001 < 0.05. According to for the gate control theory, music can reduce pain by lowering the signal transfer to the thalamus and reticular activation system [16]. Music is one of the systems or methods in the treatment of pain, especially pain in non-pharmacologic delivery – a cognitive evaluation system. The rationalization of using this system is to learn about new behaviors for pain and stress receptors. Thereby improving the pain control system and reducing pain and mind-related pain [6]. Pain involves the performance of the nervous system, for which pain is often associated with

phenomena of physical activity as well as psychological and emotional [14]. Any positive thinking, pleasant thoughts when the mother has childbirth will make the body feel relaxed so that the body will send the stimulus into the brain which will result in physiological pain reduction since what we think will be responded with the same thing in the body [17, 18].

Listened music will vibrate the nerves in the brain and trigger emotions and physical sensations such as calm, fear, joy or sadness that can stimulate relaxation responses [9]. Music therapy, through sense distraction and reduction of the patient's concentration of stimuli, can decrease the anxiety and pain sensation[19][20][5][21].

This present study was able to decrease the pain level and was effective for inducing relaxation and reducing the anxiety of the women during the latent phase of labor. Anxiety shares a significant relationship with labor pain expectancies only, whereas the physical concerns dimension of anxiety sensitivity correlates significantly with sensory pain during labor [15]. However, nerves in the brain will receive a stimulus signal from the mother's body, so that from the stimulus the brain will process it and re-transmit the stimulus signal to the body. For that pain, stimulation is also influenced by the mechanism of nerve work in the brain if the brain receives stimulation of tranquility, joy, and relaxation then the brain will also send the same response to the body, then the pain can be reduced[17, 18].

Although the musical effect on labor pain is latent, the stages in our study are in agreement with previous research. A possible explanation for a lack of consensus in discovering its efficacy music can be the chosen music for our research especially relaxing music with a slow tempo. This type of music collections in our study was not effectively applied actively the labor phase during contractions is more intense and more painful. There may be no hearing cues synchronize the rhythm of short and fast women breathing [16].

CONCLUSIONS

Music therapy significantly reduced the average intensity of labor pain at the first stage from 6.56±0.59 to 4.30±0.66, at significance level of 0.001. This presents study presents the importance and benefit of music therapy to the maternal mother in the first stage as efforts to reduce the intensity of pain, thus the mother can face the birth comfortably and calmly.

CONFLICT OF INTEREST

There is not any conflict of interest.

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REFERENCES

[1] Liu, Yu-Hsiang and Chang, Mei-Yueh and Chen C-H. Effects of music therapy on labor pain and anxiety in Taiwanese first-time mothers. *J Clin Nurs* 2010; 19: 1065–1072.

[2] Tabarro, Camila Sotilo and Campos, Luciane Botinhon de and Galli, Nat{'a}lia Oliveira and Novo, Neil Ferreira and

Pereira VM. Effect of the music in labor and newborn. *Rev da Esc Enferm da USP* 2010; 44: 445–452.
[3] Sand-Jecklin, Kari and Emerson H. The impact of a live therapeutic music intervention on patients' experience of pain, anxiety, and muscle tension. *Holist Nurs Pract* 2010; 24: 7–15.
[4] Mander R. *Nyeri Persalinan*. 1st ed. Jakarta: EGC, 2004.
[5] Taghinejad H, Delpisheh A, Suhrabi Z. Comparison between Massage and Music Therapies to Relieve the Severity of Labor Pain. *Women's Heal* 2010; 6: 377–381.
[6] Perry SE, Hockenberry MJ, Lowdermilk DL, et al. *Maternal Child Nursing Care - E-Book*. Elsevier Health Scienceshttps://books.google.co.id/books?id=QsXsAwAAQBAJ (2014).
[7] Chaillet, Nils and Belaid, Loubna and Crocheti{\`e}re, Chantal and Roy, Louise and Gagn{'e}, Guy-Paul and Moutquin, Jean Marie and Rossignol, Michel and Dugas, Maryl{\`e}ne and Wassef, Maggy and Bonapace J. Nonpharmacologic Approaches for Pain Management During Labor Compared with Usual Care: A Meta-Analysis. *Birth* 2014; 41: 122–137.
[8] Tseng, Ying-Fen and Chen, Chung-Hey and Lee CS. Effects of listening to music on postpartum stress and anxiety levels. *J Clin Nurs* 2010; 19: 1049–1052.
[9] Djohan. *Psikologi Musik*. 3rd ed. Yogyakarta: Best Publisher, 2009.
[10] Wakim JH, Smith S, Guinn C. The Efficacy of Music Therapy. *J PeriAnesthesia Nurs* 2010; 25: 226–232.
[11] Kimber L, McNabb M, Court CM, et al. Massage or music for pain relief in labor: A pilot randomised placebo controlled trial. *Eur J Pain* 2008; 12: 961–969.
[12] Hunter BC, Oliva R, Sahler OJZ, et al. Music Therapy as an Adjunctive Treatment in the Management of Stress for Patients Being Weaned From Mechanical Ventilation. *J Music Ther* 2010; 47: 198.
[13] Nursalam. *Konsep & Metode Keperawatan (ed. 2)*. Salemba Medikahttps://books.google.co.id/books?id=62jmbdySq2cC (2008).
[14] Bernatzky G, Presch M, Anderson M, et al. Emotional foundations of music as a non-pharmacological pain management tool in modern medicine. *Neurosci Biobehav Rev* 2011; 35: 1989–1999.
[15] Curzik D, Jokic-Begic N. Anxiety sensitivity and anxiety as correlates of expected, experienced and recalled labor pain. *J Psychosom Obstet Gynecol* 2011; 32: 198–203.
[16] Liu Y-H, Chang M-Y, Chen C-H. Effects of music therapy on labor pain and anxiety in Taiwanese first-time mothers. *J Clin Nurs* 2010; 19: 1065–1072.
[17] Widyawati MN. PENGARUH HIPNOSIS PADA IBU BERSALIN PRIMIGRAVIDA TERHADAP APGAR SKOR BAYI BARU LAHIR DI BPM NY. M DESA TARUB KEC. TAWANGHARJO-GROBOGAN. *J Kebidanan*; 1.
[18] Widyawati MN. PENGARUH ENDORPHIN MASSAGE TERHADAP INTENSITAS NYERI KALA I PERSALINAN NORMAL IBU PRIMIPARA DI BPS S DAN B DEMAK TAHUN 2011. *J Kebidanan*; 2.
[19] Matsota, Paraskevi and Christodoulopoulou, Theodora and Smyrnioti, Maria Eleni and Pandazi, Ageliki and Kanellopoulos, Ilias and Koursoumi, Evgenia and Karamanis, Periandros and Kostopanagiotou G. Music's use for anesthesia and analgesia. *J Altern Complement Med* 2013; 19: 298–307.
[20] Huang S-T, Good M, Zauszniewski JA. The effectiveness of music in relieving pain in cancer patients: A randomized controlled trial. *Int J Nurs Stud* 2010; 47: 1354–1362.
[21] Good, Marion and Albert, Jeffrey M and Anderson, Gene Cranston and Wotman, Stephen and Cong, Xiaomei and Lane, Deforia and Ahn S. Supplementing relaxation and music for pain after surgery. *Nurs Res* 2010; 59: 259–269.