Differential Effects Therapy of Javanese-Traditional Music and Classical Music in the First Stage and Second Stage of Childbirth

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Abstract

Background: Childbirth is a natural process that begins with pain which can cause anxiety, disrupt contractions, and prolong labor time. Music therapy can reduce labor pain.

Objective: The aim of this research to analyze the differences effects therapy of Javanese-traditional music and classical music in the first-stage and second-stage of childbirth.

Methods: This study is an experimental randomized control trial with a completely randomized experimental design. The study population was mothers giving birth normally in primary health-care facilities in the city of Yogyakarta. Sampling was taken using a simple-random sampling technique with a total of 201 people who were divided into three categories: control groups, Javanese-traditional music and classical music intervention. The intervention group was exposed to music for 40 minutes while the control group was guided to breathe deeply. The research used a questionnaire instrument: The Spielberger State and Trait Anxiety Inventory, visual analog scale, and partograph.

Results: As many as 90.04% of mothers aged 20-35 years old and 63.18% of mothers were multiparous. There is an influence of Javanese-traditional music therapy and classical music interventions on anxiety ($p_{\text{-value}}$ 0.000) and pain in the first-stage of labor ($p_{\text{-value}}$ 0.000). There is a difference in the influence of Javanese traditional and classical music therapy on labor pain during the first active phase ($p_{\text{-value}}$ 0.000). There is no difference in the influence of Javanese-traditional and classical music therapy on maternal anxiety ($p_{\text{-value}}$ 0.956). The Javanese-traditional music influences the duration of the active phase I ($p_{\text{-value}}$ 0.000). Classical music therapy influences the second period with $p_{\text{-value}}$ of 0.035.

Conclusions: There is an influence of Javanese-traditional music therapy and classical music on anxiety, labor pain, duration of the first-stage, and duration of the second-stage of childbirth. There are differences in the influence of Javanese traditional music therapy and classical music on labor pain. There was no difference in the effect of Javanese-traditional music therapy and classical music on anxiety, but the anxiety reduction was higher in the classical music group than in the Javanese-traditional music group. It is recommended to use Javanese-traditional music during the first-stage of labor and classical music during the second-stage of labor.

Keywords: therapy; classical music; Javanese-traditional music; childbirth; labor pain

Perbedaan Efek Terapi Musik Langgam Jawa dan Musik Klasik terhadap Persalinan Kala I dan Kala II

Abstrak

Latar belakang: *Persalinan merupakan proses alamiah yang diawali dengan rasa nyeri yang dapat menimbulkan kecemasan yang mengganggu kontraksi dan memperlama waktu persalinan. Terapi musik dapat mengurangi rasa nyeri persalinan.*
Tujuan*: Penelitian bertujuan untuk menganalisis perbedaan pengaruh terapi musik Langgam Jawa dan musik klasik terhadap persalinan kala I dan kala II.*
Metode: *Penelitian eksperimen randomized control trial dengan completely randomized experimental design. Populasi studi adalah ibu bersalin normal di fasilitas kesehatan primer wilayah Kota Yogyakarta dan sekitarnya. Pengambilan sampel dengan teknik simple-random sampling dengan jumlah 201 orang yang dibagi menjadi kelompok kontrol, intervensi musik langgam, dan intervensi musik klasik. Kelompok intervensi diperdengarkan musik selama 40 menit sedangkan kelompok kontrol dibimbing untuk nafas dalam. Penelitian menggunakan instrumen kuesioner Spielberger State and Trait Anxiety Inventory*, *visual analog scale*, *dan partograf.*
Hasil: *Sebanyak 90,04% ibu bersalin berusia 20-35 tahun dan 63,18% ibu adalah multipara. Terdapat pengaruh intervensi musik langgam dan musik klasik dengan kecemasan (p_{-value} 0,000) dan nyeri persalinan kala I (p_{-value} 0,000).Terdapat perbedaan pengaruh terapi musik langgam dan klastik terhadap nyeri persalinan kala I fase aktif (p_{-value} 0,000). Tidak terdapat perbedaan pengaruh musik langgam dan klasik terhadap kecemasan ibu bersalin (p_{-value} 0,956). Musik langgam berpengaruh terhadap lama kala I fase aktif dengan p_{-value} 0,000. Musik klasik berpengaruh terhadap lama kala II dengan p_{-value} 0,035.*
Kesimpulan: *Ada pengaruh terapi musik langgam Jawa dan musik klasik terhadap kecemasan, nyeri persalinan, lama kala I, dan lama kala II. Terdapat perbedaan pengaruh terapi musik Langgam Jawa dan musik klasik terhadap nyeri persalinan. Tidak terdapat perbedaan pengaruh terapi musik Langgam Jawa dan musik klasik terhadap kecemasan, namun penurunan kecemasan lebih tinggi pada kelompok musik klasik dibandingkan kelompok langgam. Disarankan untuk menggunakan musik Langgam Jawa pada saat persalinan kala I dan musik klasik saat persalinan kala II.*

Kata kunci: *Terapi; Musik klasik; Musik Langgam Jawa; Persalinan; Nyeri persalinan*

INTRODUCTION

Pregnancy and childbirth are important events and a normal physiological process in a woman's life (**1**). For this reason, it is necessary to improve not only maternal/fetal interaction but also maternal psychological and physical well-being (**2**). Five essential factors influence the labor and birth process, known as 5-P, namely passenger (fetus and placenta), passageway, power, position, and psychological response (**3**). Many women experience considerable stress as they face physiological and psychological changes (**4**) Most 90% of labor is accompanied by pain (**5**). The normal birth process can cause pain and increased stress, so the pain must be

overcome. Pain during childbirth, which is one of the causes of stress, is caused by uterine muscle contraction for childbirth (**6**). Murray reported the incidence of pain in 2700 mothers giving birth, 15% experienced mild pain, 35% with moderate pain, 30% with severe pain, and 20% of labor was accompanied by very severe pain (**7**). Data from the World Health Organization shows that around 40% of cesarean deliveries are performed because of the frightening experience of giving birth and the pain. Mothers who experience excessive anxiety and stress during labor will experience difficulties in the delivery process and it will also be detrimental to the baby to be born and can even cause fetal distress so that the baby's Apgar score will be low (**8**).

One of the method used to minimize pain is non-pharmacological i.e distraction with visual and auditory. Auditory distraction to reduce pain is done with music therapy. Music therapy reduces stress using a psychological approach (**9**). Music has been shown to reduce anxiety and depression, relieve pain, lower blood pressure, and lower heart rate (**10**). Music therapy is a series of therapeutic activities using music as a medium that aims to improve, maintain, and develop mental, physical, and emotional health. Nonpharmacological methods were developed to reduce pain in women without increasing risks to the fetus or mother or affecting the progress of labor (**3**). The intervention of music in maternal psychology is to reduce levels of anxiety, symptoms of depression, and stress. Music therapy is effective in reducing the pain (**9**), anxiety, and disgust (**11**)(**12**) of women in labor without affecting the uterine contractions (**13**). It is effective in reducing anxiety, pain, The type of music used for therapy is soft and regular music, including classical music, instrumental, jazz, *dangdut*, and *keroncong*. Instrumental music that comes from musical instruments and without poetry or lyrics is useful for making the body, mind, and mentality healthy. The Javanese-traditional is a genre of *keroncong* music which is mostly sung in campursari form and is generally enjoyed as entertainment. The Javanese-traditional music has a tempo of 60 beats perminute, following the statement of experts and researchers that the most recommended music is music or songs with beats of 60 beats per minute which has a relaxing effect (**14**).

The previous research to determine the effectiveness of music in reducing anxiety includes: Lin et al stated that music intervention can reduce anxiety scores and have an impact on the mother's physiological conditions related to anxiety such as heart rate, systolic and diastolic blood pressure during labor (**15**). The intervention of music on the mother's physiological condition is to reduce pain intensity, systolic and diastolic blood pressure, and heart rate (**16**). Classical Turkish music can reduce the

pain and anxiety of patients (**17**). Existential group therapy counseling can effectively reduce infertility stress in infertility treatment centers (**18**). There is a significant relationship between anxiety levels and pain perception scores in primiparous mothers during the first-stage of labor, indicating that reducing anxiety levels can reduce maternal pain perception and mothers who were given relaxation music therapy during labor experienced a significant reduction in anxiety, pain (**19**) and stress (**20**). Safitri found that Javanese-*gamelan* music (*langgam*) distraction technique was effective in reducing pain (**14**). Javanese-*gamelan* music can be used as therapeutic music to reduce anxiety, sensations of pain, and several effects that have a significant psychological impact. Javanese-*gamelan* music can be used as therapeutic music for patients experiencing pain due to the birth process. Javanese-traditional music can reduce anxiety during labor and pain in primiparous mothers during the first active phase (**21**). The number of births in Yogyakarta City, Special Region of Yogyakarta, Indonesia in 2020 is known to be 1290 births in inpatient level I health service providers (**22**) and so far the intervention carried out to reduce pain is relaxation techniques as a non-pharmacological action for mothers giving birth. The research aimed to determine the difference in the influence of Javanese-traditional music therapy and classical music on the active phase of the first and second-stage of labor.

METHOD

Study site

This study was carried out at Puskesmas Tegalrejo, Puskesmas Jetis, and primary healthcare facilities in Yogyakarta City, Special Region of Yogyakarta Province, Indonesia. Puskesmas Tegalrejo addressed at Magelang Street No. 180, km 2, Karangwaru, Tegalrejo, Yogyakarta. Puskesmas Jetis addressed at Diponegoro Street No. 91, Bumijo, Yogyakarta. This study was carried out during 1 August-November 2022.

Research instrument

The research carried out was a randomized control trial type of experimental research. Randomized control trial experiments are experimental studies that use random procedures to allocate various levels of research factors to research subjects (**23**). The accessible population is all women giving birth normally in the delivery room of primary health care facilities in the city of Yogyakarta and its surroundings with eligibility criteria, namely determining inclusion criteria (who can) and exclusion criteria (who cannot) to take part in the research. The inclusion criteria were in the first-stage of the active-phase (cervical dilation 4 to <7 cm) and willing to be a respondent, while the exclusion criteria were mothers with hearing impairment and/or using anesthesia during

labor. Sampling was carried out using purposive sampling based on primary health-care facilities that receive births and implement normal childbirth care. The sample size is calculated using the mean difference hypothesis test formula (**24**).

$$n = \frac{2\sigma^2 \left[Z_{1-\alpha} + Z_{1-\beta}\right]^2}{\left[\mu_1 - \mu_2\right]^2} \quad (1)$$

With σ = 8.99; Z1-α = 1.96; Z1-β = 0.84; μ1-μ2 = 15.

A minimum sample of 67 per group was obtained so that the total sample for 2 treatment groups (Javanese-traditional and classical music intervention) and 1 control group (deep breathing exercise intervention) was 201 people. The Javanese-traditional music has a tempo of 60 beats per minute, by the statement of experts and researchers that the most recommended music is music with 60 beats per minute which has a relaxing effect (**14**). The Javanese-traditional used is instrumental music that comes from musical instruments and without poetry or lyrics, which is useful for making the body, mind, and mentality healthy (**25**). The classical music used is the Violin Concerto in D Major, RV 224-II Largo by Antonio Vivaldi. The Javanese-traditional music used is the *karawitan* song entitled *Onang-onang* by NN. The music selection was the result of consultation with music experts (Lecturers Karawitan Department, Faculty of Performing Arts, Indonesian Art Institute Surakarta. The reason for choosing this song is to balance classical music which is played with several musical instruments. It doesn't use any type of Javanese-*Langgam* because the number of instruments played in Javanese-*Langgam* is less than that of *karawitan* and it can't keep up with classical music.

1. Anxiety

The instrument to measure anxiety as an evaluation of music intervention (Javanese-traditional or classical music) is to measure anxiety in the group that received intervention and then compare it with control group that didn’t receive the intervention. Tools for measuring anxiety in mothers giving birth using a scale The Spielberger State and Trait Anxiety Inventory (STAI). In the STAI Form Y-1 of the 20 items, 10 items contain statements regarding anxiety (favorable) and 10 items do not contain statements about anxiety (unfavorable) (**26**). The anxiety grouping is divided into two, namely the low category if the score is ≤40 and the high category if the score is >40 (**26**).

2. Pain Intensity

An instrument for measuring pain intensity using the Visual Analog Scale (VAS) (**10**) has been illustrated in **Figure 1**. Instrumen self-efficacy is an important instrument for VAS. VAS is a straight or horizontal line 100 mm long, which represents the intensity of continuous pain and a verbal descriptor at each end, namely the words "no pain” on

the left end and “worst possible pain” at the far right. The VAS scale reading uses millimeters (mm) with the following range of meanings: a) 0-<10 mm = no pain; b) ≥10-30 mm = mild pain; c) ≥30-70 mm = moderate pain; d) ≥70-90 mm = severe pain and e) ≥90-100 mm = very severe pain (**10**). The assessment method is that the patient is asked to make a mark on the line according to the intensity of pain felt by the patient after receiving an explanation from the health worker. The VAS score is determined by measuring distance between the ends of the line indicating no pain to the point indicated by the patient. This scale gives patients complete freedom to identify the severity of pain. The measurement results are then recorded on an observation sheet.

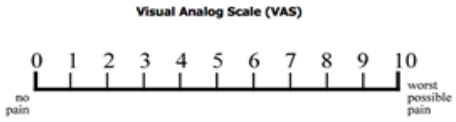

Figure 1. Visual Analog Scale (**10**).

3. Length of active phase I and phase II

Length of labor in the active phase I is the time required during the first-stage of the active phase by the mother giving birth until the start of the second-stage in minutes. The duration of the second-stage of labor is the time required to complete the second-stage in minutes. Measurement of the duration of the first-stage of the active phase and phase II are carried out by calculating the duration in minutes based on the notes on the partograph sheet.

RESULTS

Results of data analysis in two treatment groups (receiving Javanese-traditional music and classical music intervention) and one control group (deep breathing exercise intervention). Each group consisted of 67 mothers giving birth. Total research subjects were 201 women giving birth who had received intervention and gone through the first and second-stages of labor normally.There are three analysis: univariate, data normality test, and bivariate analysis.

Univariate Analysis

a. Respondent characteristics

The distribution of respondents based on age and parity characteristics can be seen in **Table 1** and the distribution of respondents based on age and parity on a numerical scale in **Table 2**. Maternal age classified in three groups: <20 years old, 20-35 years old, and >35 years old. Parity characteristics classified in 2 groups: primipara and multipara. Total respondents of each group consisted of 67 mothers giving birth.

Based on **Table 1**, it can be seen that the age distribution in the intervention and control group is almost the same. The majority of mothers giving birth were in the 20-35 years old age group in the control group (89.55%), Javanese-traditional music intervention (88.06%), and classical music intervention (92.54%). A small proportion of mothers were aged <20 years old and >35 years old. Furthermore, the majority of mothers in control group and intervention group had a history of multiparity, in control group (56.7%), Javanese-traditional music (62.69%), and classical music (70.15%).

Table 1. Respondents' distribution based on age and parity characteristics of each group

Variable	Group			Total
	Control	Javanese-traditional music	Classical music	
Maternal age				
<20 years old	2 (2.99)	1 (1.49)	1 (1.49)	4 (1.99)
20-35 years old	60 (89.55)	59 (88.06)	62 (92.54)	181 (90.05)
>35 years old	5 (7.46)	7 (10.45)	4 (5.97)	16 (7.96)
	67 (100)	67 (100)	67 (100)	201 (100)
Parity				
Primipara	29 (43.28)	25 (37.31)	20 (29.85)	74 (36.82)
Multipara	38 (56.72)	42 (62.69)	47 (70.15)	127 (63.18)
	67 (100)	67 (100)	67 (100)	201 (100)

Table 2. Distribution of respondents based on age and parity on a numerical scale

Group	Variable	N	Mean	SD	Min ± max
Control	Age (years old)	67	27.84	4.965	18 ± 42
	Parity (time)	67	1.72	0.755	1 ± 4
Javanese-traditional music intervention	Age (years old)	67	27.88	5.333	17 ± 40
	Parity (time)	67	1.87	0.886	1 ± 4
Classical music intervention	Age (years old)	67	25.54	4.377	18 ± 39
	Parity (time)	67	1.85	0.680	1 ± 3

Table 3. Distribution of mean, standard deviation, minimum and maximum of the anxiety and pain intensity

Group	Variable	Pre-test				Post-test			
		N	Mean	SD	Min ± max	N	Mean	SD	Min ± max
Control	Anxiety	67	37.3	12.774	20±76	67	34.42	14.481	20±79
	Pain intensity	67	7.15	2.376	1±10	67	4.63	2.131	1±10
Javanese-traditional music	Anxiety	67	43.58	9.731	26±72	67	31.57	9.909	20±71
	Pain intensity	67	7.79	1.719	4±10	67	5.42	8.287	1±70
Classical music	Anxiety	67	45.81	9.405	25±68	67	34.33	8.356	21±66
	Pain intensity	67	7.01	2.150	2±10	67	5.27	2.064	1±10

Based on **Table 3**, it can be seen that the control group, Javanese-traditional music, and classical music igroup all experienced a decrease in scores for anxiety and pain intensity. The mean anxiety for control group 37.3 (SD 12.774) for pre-test and 34.42 (SD 14.481) for post-test. However, when comparing decrease in scores in three

groups, the highest decrease in anxiety scores was found in Javanese-traditional intervention and the highest decrease in pain intensity scores was in control group.

Table 4. Distribution of the mean value, standard deviation, minimum and maximum values of the length of labor for the first-stage of the active phase and the second-stage

Group	Variable	N	Mean	SD	Min ± max
Control	Length of labor for the first stage	67	553.51	271.388	180±1320
	Length of labor for the second stage	67	31.75	22.011	5±150
Javanese-traditional music intervention	Length of labor for the first stage	67	**374.18**	195.085	120±1080
	Length of labor for the second stage	67	36.01	27.720	5±180
Classical music intervention	Length of labor for the first stage	67	607.52	355.834	52±1680
	Length of labor for the second stage	67	**25.96**	16.035	3±61

Based on **Table 4**, it can be seen that the mean of length of labor for the first stage for control group 553.51 minutes, length of labor for Javanese-traditional music group 374.18 minutes, and 607.52 minutes for classical music intervention. The comparison of the duration of labor which had the fastest duration in stage I (active phase), was in the Javanese-traditional music intervention group with an average 374.18 minutes. The fastest duration in stage II was the classical music intervention group with an average 25.96 minutes. The longest duration of phase 2 is 36.01 minutes for the Javanese-traditional music intervention.

Data Normality Test Results

Data normality analysis was carried out based on the Kolmogorov-Smirnov test. Distribution of normality test results for anxiety and pain intensity variables divided based on pre-test and post-test. The results of normality test for anxiety and pain intensity can be seen in **Table 5**. The duration of labor during first-stage (active phase) and second-stages before continuing the bivariate analysis can be seen in **Table 6**.

Table 5. Distribution of normality test results for anxiety and pain intensity variables

Group	Variable	Pre-test		Post-test	
		N	$p_{\text{-value}}$	N	$p_{\text{-value}}$
Control	Anxiety	67	0.000	67	0.000
	Pain intensity	67	0.000	67	0.000
Javanese-traditional music	Anxiety	67	**0.066***	67	0.021
	Pain intensity	67	0.000	67	0.000
Classical music intervention	Anxiety	67	**0.200**	67	**0.091***
	Pain intensity	67	**0.056***	67	0.006

* Kolmogorov-Smirnov test

Table 6. Distribution of normality test results for duration of labor in the first active and second-stage

Group	Variable	N	$p_{\text{-value}}$
Control	Length of labor for the first stage	67	0.020
	Length of labor for the second stage	67	0.002
Javanese-traditional music intervention	Length of labor for the first stage	67	0.000
	Length of labor for the second stage	67	0.006
Classical music intervention	Length of labor for the first stage	67	0.001

Length of labor for the second stage	67	0.000

Based on **Table 5**, it can be seen the results of normality test with Kolmogorov-Smirnov Test showed that the control group anxiety pre-test and post-test data was not normally distributed with p_{-value} 0.000. Pre-test control labor pain was not normally distributed with p_{-value} 0.000, and the control labor pain post-test data was not normally distributed, with p_{-value} 0.000. The results of the normality test using the Kolmogorov-Smirnov test for the Javanese-traditional music showed that the anxiety pre-test data was normally distributed with p_{-value} 0.066 and post-test anxiety data is not normally distributed with p_{-value} 0.021. The results of the normality test with the Kolmogorov-Smirnov test for the Javanese-traditional music intervention showed that the pre-test data on labor pain was not normally distributed with p_{-value} 0.000 and the post-test data on labor pain is also not normally distributed with p_{-value} 0.000. The results of the normality test with the Kolmogorov-Smirnov classical music intervention test showed that the anxiety pre-test data was normally distributed with p_{-value} 0.200 and post-test anxiety data was also normally distributed with p_{-value} 0.091. The results of the normality test with the Kolmogorov-Smirnov test for classical music intervention showed that the labor pain pre-test data was normally distributed with p_{-value} 0.056 and the post-test data was not normally distributed with p_{-value} 0.006. The results of the data normality test in **Table 6** show that the data has a non-normal distribution. Next, the normally distributed data is tested using the independent samples test while data that is not normally distributed is tested using Wilcoxon Sign Rank Tests and Mann-Whitney U.

Bivariate Analysis

Table 7. Differences in anxiety scores between control group and Javanese-traditional music ibefore-after being given intervention using Wilcoxon Sign Ranks Test

Group	Category	Frequency	Sum of ranks		*P-value*
			Negative	Positive	
Control	Post-test anxiety <pre-test	43	33.08	26.03	0.001
	Post-test anxiety >pre-test	18			
	Post-test anxiety =pre-test	6			
Javanese-traditional music intervention	Post-test anxiety <pre-test	60	34.28	17.70	0.000
	Post-test anxiety >pre-test	5			
	Post-test anxiety =pre-test	2			

Table 7 shows that in the control group, there were 43 respondents who experienced a decrease in anxiety, 18 respondents experienced an increase in anxiety, and 6 respondents had constant anxiety. The results of the Wilcoxon difference test showed that there was a significant effect on the control group's anxiety after providing the intervention by primary health-care facility procedures with p-value 0.001. **Table 7** shows that in the Javanese-traditional music intervention group 60 respondents

experienced a decrease in anxiety, 5 respondents experienced an increase in anxiety, and 2 respondents had constant anxiety. The results of the Wilcoxon difference test show that there is a significant effect on patient anxiety after providing the Javanese-traditional music intervention with p_{-value} 0.000.

Table 8. Differences anxiety scores in classical music intervention group

Variable	Pre-test			Post-test			p_{-value}	95% CI	t
	N	Mean	SD	N	Mean	SD			
Anxiety	67	45.85	9.562	67	33.91	8.131	0.000	9.829-14.052	11.290

Table 8 showed the difference anxiety scores in classical music intervention group. The mean anxiety scores based on pre-test results 45.85 and post-test results 33.91 with an average difference of 11.94. It is known that classical music intervention reduces the anxiety scores of mothers giving birth. The results of the paired t_{-test} show that there is a significant difference in patient anxiety scores before and after being given classical music intervention with p_{-value} 0.000.

Table 9. Differences in labor pain scores for the control group, Javanese-traditional music, and classical music before and after being given intervention using Wilcoxon Sign Ranks Test

Group	Category	Frequency	Sum of ranks		P_{-value}
			Negative	Positive	
Control	Post-test labor pain <pre-test	48	24.50	0.00	0.000
	Post-test labor pain >pre-test	0			
	Post-test labor pain =pre-test	19			
Javanese-traditional music intervention	Post-test labor pain <pre-test	56	28.50	57.00	0.000
	Post-test labor pain >pre-test	1			
	Post-test labor pain =pre-test	10			
Classical music intervention	Post-test labor pain <pre-test	54	30.06	10.00	0.000
	Post-test labor pain >pre-test	3			
	Post-test labor pain =pre-test	10			

Table 9 shows that in the control group, there were 48 respondents whose labor pain scores decreased and 19 respondents had constant labor pain scores. The results of the Wilcoxon difference test show that there is a significant influence on the patient's labor pain score after providing the intervention by primary healthcare facility procedures with p_{-value} *of* 0.000. In **Table 9**, shows that the Javanese-traditional music, 56 respondents experienced a decrease in their labor pain score, 1 respondent experienced an increase in their labor pain score and 10 respondents had a constant labor pain score. The results of the Wilcoxon difference test showed that there was a significant influence on the patient's labor pain score after giving Javanese-traditional music intervention with p_{-value} *of* 0.000. **Table 9** shows that in the classical music intervention group, 54 respondents experienced a decrease in labor pain scores, 3

respondents experienced an increase in labor pain scores and 10 respondents with labor pain scores remained the same. The results of the Wilcoxon difference test showed that there was a significant influence on the patient's labor pain score after giving classical music intervention with p_{-value} 0.000.

Table 10. Differences in mean anxiety scores in the Javanese-traditional and classical music

Group	Mean	SD	Different Mean	Different SD	t	Lower	Upper	p_{-value}
Javanese-traditional music	11.85	9.949	-0.090	1.611	-0.056	-3.277	3.097	0.956
Classical music intervention	11.94	8.657						

Based on **Table 10**, the results of the analysis showed that there was no significant difference in mean anxiety scores between mothers who received Javanese-traditional music and classical music interventions with p_{-value} 0.956. In the Javanese-traditional music group, the average decrease in anxiety score was 11.85 with SD 9.949. In the classical music group, average reduction in anxiety scores was higher (11.94 with SD 8.657). Thus, the decrease in anxiety scores was higher in the classical music group than in the Javanese-traditional music group. The results of the analysis show that there is a significant difference in labor pain scores between mothers giving birth who receive Javanese-traditional music and classical music interventions with p_{-value} 0,000. The average value of the reduction in labor pain scores of mothers who received Javanese-traditional music intervention was greater than the average value of mothers who received classical music intervention, namely 81.19>53.81.

Table 11. Effect of intervention on the length of time in stage I and stage II

Variable	Group	N	Mean	df	p_{-value}	95% CI
Length of labor for the first-stage	Control	67	113.36	2	0.000	0.000-0.015
	Javanese-traditional music	67	**71.66**	2		
	Classical music intervention	67	117.98	2		
Length of labor for the second-stage	Control	67	105.73	2	0.035	0.000-0.032
	Javanese-traditional music	67	110.99	2		
	Classical music intervention	67	**86.28**	2		

Ba**s**ed on **Table 11**, it is known that there is an effect of intervention music therapy on the length of first active phase, shown by p_{-value} 0.000. The average length of the first-stage are 113.36 minutes for control group, 117.98 minutes for classical mucic intervention and 71.66 minutes for Javanese-traditional music. The shortest average length of the first-stage in the Javanese-traditional music group (71.66 minutes). There is an effect of the intervention on the length of the second-stage shown

by $p_{\text{-value}}$ 0.035 with the shortest average length of time in the second-stage, namely in the classical music intervention group (86.28 minutes).

DISCUSSION

Respondent characteristics

The results of the study showed that almost all mothers in labor were in the 20-35 year old, both in control and two intervention groups. Likewise with parity characteristics, the majority of mothers who give birth are multiparous. Based on characteristics, three groups have respondents with almost similar characteristics. The results of the research show that mothers who give birth have a healthy reproductive age and the mother's reproductive system is in optimal condition to go through pregnancy and childbirth. Ages 20-35 years are a healthy reproductive age group who are physically ready to face pregnancy and childbirth. Most of the mothers who gave birth were multiparous. Multiparous means a mother who has given birth to a child at least once before. Anatomically, multiparous mothers with a history of normal labor at birth have the opportunity to undergo a normal labor process again.

The influence of Javanese-traditional music and classical music therapy

The relationship between pain and anxiety is complex. Anxiety increases the perception of pain, but pain can also cause feelings of anxiety. Pain stimuli activate parts of the limbic system that can process a person's reactions, especially anxiety. The limbic system can process a person's emotional reactions, namely worsening or eliminating pain. Even though pain is felt, the presence of people who are meaningful to the patient will minimize loneliness and fear. If there is no family or friends, the experience of pain often makes the patient even more depressed. On the other hand, the presence of someone who provides support is very useful because it will make a person feel more comfortable (**10**). Mothers who have decided to breastfeed are effective in improving continuation rates of breastfeeding (**27**)(**28**). Traditional healers recommended that women should use traditional contraceptive herbs to prevent pregnancies (**29**). Respectful care should be characterised by communication between the healthcare provider and patient (**30**). Pain intensity is a description of how severe the pain is felt by an individual. There are no standard guidelines for the time required for administering music therapy to produce the desired effect. The common duration of music in previous research is 20-40 minutes (**31**). Music listening has a significant role to play for women in childbirth (**32**). Upright position and music can shorten the duration of labor and lower labor pain (**33**). Pain during labor is something physiological that occurs due to changes in the birth canal during the first stage, especially during

contractions. Uterine contractions cause dilation and thinning of the cervix as well as uterine ischemia (decreased blood flow resulting in a deficit of local oxygen) due to myometrial contractions causing pain in the first stage of labor. Pain impulses during the first stage of labor are transmitted through the T11-12 spinal nerve segments and lower thoracic accessory nerves and upper lumbar sympathetic nerves. These nerves originate from the body of the uterus and cervix. This pain starts from the lower abdomen and spreads to the lumbar region of the back and down to the thighs (**3**).

The results of the analysis show that there is a significant difference in labor pain scores between mothers giving birth who received Javanese-traditional music intervention and classical music with p-value 0.000. The average value of the reduction in labor pain scores of mothers who received classical music intervention was greater than the average value of mothers who received classical music intervention (81.19>53.81). A decrease in the VAS score indicates that the pain felt by the mother in labor during the first stage can be transferred or distracted. This is in accordance with the statement Campbell that music stimulates the release of endorphins (**34**). Endorphins have a relaxing effect on the body and also act as an ejector for the feeling of relaxation and calm that arises. The midbrain secretes Gama Amino Butyric Acid (GABA) which functions to inhibit electrical impulses from one neuron to another by neurotransmitters in the synapse. Apart from that, the midbrain also releases enkephalins and beta-endorphins. This substance can cause an analgesic effect which ultimately eliminates pain neurotransmitters in the center of somatic sensory perception and interpretation in the brain, so that the effect that can emerge is reduced pain. Music therapy is a way to distract or divert the client's attention to other things and thereby reduce awareness of pain and even increase tolerance to pain. Distraction efforts are included as part of non-pharmacological methods. Non-pharmacological methods were developed to reduce pain in women without increasing the risk to the fetus, to the mother, or affecting the progress of labor (**5**). Music therapy reduces pain and anxiety during childbirth (**3)(35)**. This is in accordance with research by An et al which using music therapy during labor decreased labor pain and improved the childbirth experience (**36**). Mothers who listen music during labor have lower levels of anxiety, the duration of contractions is longer and labor progresses more quickly than those who don’t listen to music (**1**). Classics music provide stability and comfort to pregnant women (**37**). In this study, music was listened using earplugs for 3 hours 20 minutes of listening to music and 10-minute break during the first of the active phase. There are no standard guidelines for the time required for administering music therapy

to produce the desired effect. The general duration of music in many studies is 20-40 minutes (**31**). The type of music that can be used for therapy is soft, regular music with a beat of 60-80 times per minute (close to the human heart rate), slow tempo, low pitch, low volume and rhythmic, simple, and steady melody (**31**).

The influence of Javanese-traditional and classical music therapy on maternal anxiety

The results of the analysis showed that there was no significant difference in mean anxiety scores between mothers who received musical and classical music interventions (p_{-value} 0.956). However, the decrease in anxiety scores was higher in the classical music compared to the Javanese-traditional music group. In the Javanese-traditional music, the average decrease in anxiety score was 11.85 with SD 9.949. In the classical music group, the average reduction in anxiety scores was higher at 11.94 with SD 8.657. The decrease in the anxiety scores of mothers giving birth during the first active phase after being given musical intervention occurred because music functions to relieve anxiety and tension, eliminate fatigue, and increase physical vitality. Music therapy can be used for a variety of conditions including reducing stress and anxiety. The research results are in line with Suryani et al, the group that was given Javanese-traditional music intervention experienced a decrease in anxiety of 8.58 compared to the group that was not given the intervention (p_{-value} 0.000) (**21**). Music intervention can reduce anxiety scores (**15**).

Javanese *gamelan* music can be used as therapeutic music to reduce anxiety, sensations of pain, and several effects that have a significant psychological impact. Javanese-*gamelan* can be used as therapeutic music for patients experiencing pain due to the birth process. Suryani et al in found that the Javanese-traditional music can reduce anxiety during labor and pain in primiparous mothers in the first-stage of the active phase (**21**). During labor, music functions to reduce disturbances, increase positive responses, and act as a stimulus for relaxation. Music therapy during childbirth were reduced postpartum anxiety and pain (**9)(38)**. Music therapy reduced anxiety significantly (**10**) more than control conditions at post-intervention (**39**) and had a positive effect on alleviating anxiety, depression, physical discomfort (**40**), self-esteem (**41**), and reduce postpartum depression (**42)(43)**. Emotional freedom technology therapy has been proven to reduce mental health (**44**). Health strategic programs are necessary to improve the maternal health in Indonesia (**45**). Music therapy was effective in reducing pain for women who gave birth naturally (**36)(46)**. Music give the satisfaction with pain relief, sense of control in labour (**47**). The reduced anxiety of

birthing mothers who receive music intervention could be because when they listen to music using headphones, the mother no longer hears disturbing sounds around her while in the delivery room, which often causes anxiety. Reducing surrounding noise such as metal tools or voices from other patients makes mothers better able to control their physical and mental tension. The results of this study are different from research which found that Javanese-traditional music was effective in reducing the anxiety of primiparous mothers in the first stage of the active phase which found a significant difference between the group that received Javanese-traditional music intervention (mean 33.9) compared to the group that only received routine care (mean 37.9) with p_{value} 0.000 (**21**).

The influence of Javanese-traditional and classical music therapy on the length of labor in the first-stage

Based on the test results, it was concluded that there was an influence of music intervention on the length of labor in the first active phase with p_{-value} 0.000 and the shortest average length of time was in the group of mothers giving birth who received Javanese-traditional music intervention (71.66). *Langgam* is a song that is usually sung very smoothly and has a very clear touch of emotion. The Javanese-traditional music has a tempo of 60 beats per-minute, in accordance with the statement of experts and researchers that the most recommended music is music with 60 beats per minute which has a relaxing effect. Javanese *gamelan* music can be used as therapeutic music to reduce anxiety, sensations of pain, and several effects that have a significant psychological impact. The Javanese-traditional music can be used as therapeutic music for patients experiencing pain due to the birth process. Javanese-traditional music can reduce anxiety during labor and pain in primiparous mothers during the first active phase (**21**). In Taiwanese music therapy increases the confidence and satisfaction for first-time mothers (**31**). Another study, music therapy reduces labor pain and improves self-esteem (**32)(48)**, psychological health of women during pregnancy (**49**), reducing anxiety (**50)(51)** and pain felt by the mother during labor (**38)(52)**.

The influence of Javanese-traditional and classical music on the duration of the phase II

Phase II starts from complete opening until the baby is completely born. The time limit for the second-stage of labor for primiparous and multiparous mothers is different, with the length of time for primiparas being longer, namely a maximum of 2 hours, while for multiparas the maximum is 1 hour, with an average of 1.5-2.0 hours and 0.5-1.0 hours respectively. Beyond this time, it is stated that the second-stage lasts

a long time and action needs to be taken to end labor. The second stage of labor begins with the complete opening of the cervix and ends with the birth of the baby. In Stage II, contractions continue with a frequency of around 2 minutes, a duration 60-90 seconds, and strong intensity (**3**). Based on research in Türkiye, the average duration of the active phase in nulliparas is 5.75 hours and 3.5 hours in multiparas (**53**). Based on the test results, it can be seen that average length of the second-stage in the classical music intervention group was shorter, namely 86.28 with $p_{\text{-value}}$ 0.035. This value shows the influence of the intervention on the length of the second stage of labor. The results of this study are in accordance with research by Gokyildiz et al which proves that mothers who listen to music during labor have lower levels of anxiety; duration of contractions is longer and labor progresses more quickly than those who do not listen to music (**1**). Classical music provides positive benefits for mothers in labor as part of non-pharmacological therapy (**54**) increases satisfaction (**55**), decreasing levels of anxiety and stress in the mother (**56)(57)**, and improved fetal parameters (such as heart beat variability) (**58**). The effect of listening to music during the first stage of the active phase also has an impact on the second stage of labor and of the three groups, the group with classical music intervention turned out to have a shorter average than the other two groups. Research shows that providing music helps shorten the length of the second stage of labor, although this still needs to be studied further by ensuring that no other factors are intervening. The theory states that music therapy is a way of distracting or diverting the client's attention to other things and thereby reducing awareness of pain and even increasing pain tolerance. Distraction efforts are included as part of non-pharmacological methods. Non-pharmacological methods were developed to reduce pain in women without increasing risks to the fetus or mother or affecting the progress of labor (**3**).

CONCLUSIONS AND RECOMMENDATIONS

Based on the analysis of the differences between therapy of Javanese-traditional music and classical music in the active phase of the first-stage and the second-stage of labor, the following conclusions can be drawn: some mothers in labor are aged 20-35 years and are multiparous. There is a difference in the influence of therapy of Javanese-traditional and classical music on labor pain during the first active phase. There is no difference in the influence of Javanese-traditional music therapy and classical music on maternal anxiety. However, the average reduction in maternal anxiety was greater for birthing mothers who received Javanese-traditional music therapy than for birthing mothers who received classical music therapy. Javanese-

traditional music intervention had an effect on the length of labor in the active phase of the first-stage with an average of 71.66 minutes. Classical music intervention had an effect on the length of the second-stage of labor with an average of 86.28 minutes.

ACKNOWLEDGEMENT

Authors thanks and appreciate the support of Midwifery Department and the Director of Research and Community Services, *Politeknik Kesehatan Kemenkes* Yogyakarta for the funding *Penelitian Kerjasama antar Perguruan Tinggi* (PKPT) academic year 2022 with contract ID:HK.01.07/7.7/0082/2022, 3 January 2022. The Authors also thank and appreciate all the participants in this research. In most cases, sponsor, and financial support acknowledgements.

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