

# Effect of Music Therapy on Labor Pain among Women in Active Labor admitted in Tertiary Care Hospital, Kochi City

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## ABSTRACT

**Introduction:** The pain associated with the birth of baby is perceived as severe, unpleasant, and traumatizing by women. It is an individualized phenomenon with both sensory and emotional elements. Labor pain arises from distension of the lower uterine segment and cervical dilatation. Anxiety and pain are closely interrelated. Providing comfort to women in labor is still a challenge for the nurse midwives. The present study intends to assess the effect of music therapy on labor pain and anxiety among women in first stage of labor in a tertiary care hospital in Kochi.

**Materials and methods:** Quasi-experimental pretest-posttest control group design was used for the study. The sample consisted of 40 women in active stage of labor, with cervical dilatation of 4 to 7 cm. The first 20 women were allotted to control group and the next 20 to experimental group in order to avoid contamination. Background information was collected using semi-structured interview and record review. Visual analog scale was used to measure pain and anxiety. After the pretest measurement of pain and anxiety the women in the experimental group were given music therapy for 30 minutes using headset. The posttest was done at the 30th and 60th minute after the pretest.

**Results:** The mean posttest pain score of the experimental group (7.9) was significantly lower than the posttest score of the control group at the 30th minute ( $5.75 \pm 0.44$  vs  $8.55 \pm 0.51$ ,  $p < 0.001$ ) and 60th minute ( $7.9 \pm 0.45$  vs  $8.7 \pm 0.47$ ,  $p < 0.001$ ). No difference was observed in uterine contraction between the groups. The mean anxiety score of the experimental group was lower than the control group ( $p < 0.001$ ).

**Conclusion:** The result of the present study concludes that music therapy is effective in reducing pain and anxiety of women in labor without affecting uterine contractions. So music can be used as a nonpharmacological pain management measure for providing comfort during labor.

**Keywords:** Labor pain and anxiety, Music therapy, Nonpharmacological pain management.

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## INTRODUCTION

Labor is a unique experience associated with a wonderful and meaningful life event, the birth of a baby; at the same time, it is unpleasurable because of the pain associated with it. The experience of labor pain is a complex, subjective, and multidimensional response to sensory stimuli generated during childbirth. Labor pain is caused by contractions of the uterine muscles and by pressure on the cervix. It can be felt as strong cramping in the abdomen, groin, and back and achy feeling and pain in sides or thighs. It is a distinct sensation; therefore, it can be differentiated from other sensations, thereby effecting the individual's perception of pain.<sup>1</sup>

For women, labor pain is a severe, unpleasant, and traumatizing feeling. It is also an individualized phenomenon with both sensory and emotional elements.<sup>2</sup> It arises from dilatation of the cervix and the lower uterine segment. In the first stage of labor, the lower uterine segment and the cervix of the uterus get gradually stretched causing visceral pain. As the first stage of labor progresses, the intensity of pain grows. The average length of the first stage of labor is 12 to 14 hours and the woman has to experience pain for a prolonged period of time. The nerves at the level from T10 to L1 transmit the labor pain during this stage, so most pain is felt in the lower abdomen. Apart from this, women feel pain in the back, buttocks, hips, and the actual wall of the abdomen; however, back pain is the most commonly referred pain and it is found that 74% women experience back pain in labor.<sup>3</sup> Although labor is a pleasurable experience, it is perceived as distressing by many women because of the pain associated with it, which is experienced for a long time with increasing intensity. If the pain during labor is controlled, labor becomes a more satisfying experience for the women.

A randomized controlled trial was conducted by Phumdong and Good<sup>4</sup> to examine the effect of music therapy on sensation and distress of labor pain in 110 primiparous women during the active phase of labor in Thailand. In the experiment, soft music was played for 3 hours to women since the active phase of labor. Dual visual analog scale (VAS) was used to measure

sensation and distress of pain before starting the study and at 3-hourly posttests. One-way repeated measures analysis of covariance indicated that those in the music group had significantly less sensation and distress of pain than those in the control group. In this study, it is revealed that music has reduced substantially severe pain across 3 hours of labor and delayed the increase of affective pain for 1 hour.

Labrague et al<sup>5</sup> conducted a study on the effects of soothing music on labor pain among Filipino mothers. It was a quasi-experimental design with random assignment being utilized in this study. Fifty subjects were divided into either music ( $n = 25$ ) or nonmusic group ( $n = 25$ ). A 10-point VAS was used to assess the participants' levels of pain and the behavioral rating scale (BRS) for pain at two time periods. Both groups were given the usual standard routine of care; however, the music group was exposed to music therapy for 30 minutes. It is seen that those in the music group had statistically significant reduction in reported pain levels compared with those in the nonmusic group [VAS ( $t = 7.317$ ,  $p < 0.05$ ) and BRS ( $t = 8.128$ ,  $p < 0.050$ )].

The above studies show that music therapy can be used as a nonpharmacological pain management method during delivery. As it is a nonpharmacological intervention, it does not cause side effects on neonates. It can be easily carried out by midwives or mothers during labor itself. Furthermore, use of music during labor is a cost-effective and noninvasive method of pain management. Therefore it is imperative to conduct more scientific studies to fathom the effectiveness of music therapy as a pain management tool to ensure best fetal outcomes. The objective of the present study is to investigate the effect of music therapy on the level of pain among women in active stage of labor. It also evaluates the effect of music on the level of anxiety.

The objectives of the present study are achieved by comparing the level of labor pain between the experimental and control groups, comparing the level of anxiety between the experimental and control groups, and assessing the opinion regarding music therapy during labor among mothers in the experimental group.

## MATERIALS AND METHODS

The research design selected for the present study is pretest–posttest control group design. The study was conducted in the labor room of Amrita Institute of Medical Sciences and Research Center, Kochi, Kerala, India. Period of data collection was from February to March 2016. When a woman is admitted to labor room with pain, her eligibility to participate in the study was determined by evaluating the sampling criteria, which include cervical dilatation 4 to 7 cm, 37 to 42 weeks of

gestation, without any complication, and receiving no pain medications in the last 2 hours. Eligible women were approached by the investigator and explanation regarding the study was given. All the willing women who met the criteria were included for the study. The first 20 women were recruited for the experimental group and the next 20 women for the control group to avoid contamination.

Data collection was started after obtaining ethical clearance from the institutional ethical committee. Participation was based on willingness, and informed consent was obtained from all the women who participated in the study.

The background demographic and clinical data were obtained using semi-structured interview and record review. A 10-point VAS was used to assess the level of pain and anxiety. Uterine contractions were assessed for 10 minutes by placing the hand over the fundal area above the umbilicus. The duration of each contraction was noted and the level of pain felt during each contraction was measured using VAS soon after each contraction. The average score of pain and the duration of contraction of three consecutive uterine contractions are taken as one measurement in pretests and posttests. The level of anxiety was measured after the assessment of pain.

The women in the experimental group were then given music therapy for 30 minutes using headset after the pretest. Music therapy is the independent variable of the study. It used combination of songs based on selected ragas like Kapi, Hintholam, Mayamalavagoularaga, Yamunakalyani, Neelambari, and Chalanatta. Songs were played randomly from a pool of 35 songs for 30 minutes.

The posttest assessment of pain was assessed at the 30th minute (soon after 30 minutes of music therapy) and 60th minute of the pretest. Posttest of anxiety was assessed at the 30th minute. The data were analyzed using appropriate descriptive and inferential statistics.

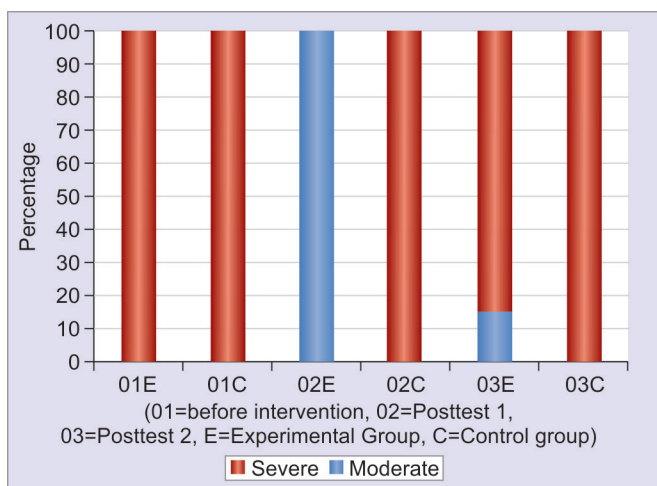
## RESULTS

### Demographic Data

The age of the participants was from 18 to 40 years; 60% of the experimental group and 50% of the control group were of 26 to 35 years. Majority of both groups were graduates/postgraduates. All the women in both groups had moderate level of physical activity. About 60% of the experimental group and 45% of the control group were multigravid.

### Level of Pain during Active Labor

In the pretest all the women in both groups had severe pain. In posttest 1, all the women in the control group



**Graph 1:** Bar graph showing percentage distribution of pain among groups

had severe pain whereas in the experimental group all of them had moderate pain. In posttest 2, 85% of the women had severe pain and in the control group all of them continued to have severe pain (Graph 1).

The mean pain score of the experimental group and control group was  $8.9 \pm 0.45$  and  $8.6 \pm 0.50$  respectively, in the pretest, which was not significantly different. In posttest 1, the mean pain score of the experimental group reduced to  $5.75 \pm 0.44$ , and it became  $7.9 \pm 0.45$  in posttest 2. In the control group, the mean pain score was  $8.55 \pm 0.51$  and  $8.7 \pm 0.47$  in posttests 1 and 2 respectively. In posttests 1 and 2, the mean pain score of the experimental group was significantly lower than the control group at  $p < 0.001$  (Table 1).

**Level of Anxiety**

The mean anxiety score of the experimental group in pretest observation was 8.55, which then decreased to 5.55 in the posttest. The mean anxiety score of the control group remained the same. The anxiety scores of both the groups were not significant in the pretest. In the posttest, the mean anxiety score of experimental group was significantly lower than the control group at  $p < 0.001$  (Table 2).

**Table 1:** Comparison between pretest and posttest pain scores in experimental and control groups

Pain	Groups	n	Mean	Standard deviation	t-value	p-value
O1	Experimental	20	8.90	0.45	1.994	0.053
	Control	20	8.60	0.50		
O2	Experimental	20	5.75	0.44	-18.505	<0.001
	Control	20	8.55	0.51		
O3	Experimental	20	7.90	0.45	-5.514	<0.001
	Control	20	8.70	0.47		

O1 = before intervention, O2 = posttest 1, O3 = posttest 2

**Table 2:** Comparison of anxiety scores among experimental and control groups

Groups	n	Mean	SD	p-value	t-value
<b>Pretest</b>					
Experimental	20	8.45	0.51	0.539	0.620
Control	20	8.55	0.51		
<b>Posttest</b>					
Experimental	20	5.55	0.51	<0.001	18.586
Control	20	8.55	0.51		

**Duration of Uterine Contraction**

There was significant difference in the mean duration of uterine contraction between the experimental and control groups in the pretest as well as in posttests 1 and 2.

**Description of Mothers' Experience with Music Therapy during Labor**

All women were comfortable with music therapy given in labor. All the women felt music therapy is useful in reducing their pain, tension, and anxiety. All women reported that they were comfortable during music therapy. All of them expressed that music therapy gives a totally new experience.

**DISCUSSION**

Music therapy is a nonpharmacological intervention which has been used widely to promote comfort as well as relaxation. The present study investigates the effectiveness of music therapy in reducing pain perception during active labor. Music therapy, which included songs based on selected ragas, was given to the women in the experimental group for 30 minutes. The result of the study suggests that the music was effective in reducing pain and anxiety during labor. There was no difference in the duration of uterine contraction in music therapy.

An experimental study was conducted on the effect of soothing music on labor pain among fifty Filipino mothers. Findings revealed that the mean posttest scores of the experimental group were significantly lower than the control group with  $t = 7.317$  significant at 0.05 level.<sup>5</sup> In the present study, there was reduction in the pain score in the experimental group after music therapy from 8.9 in pretest observation to 5.75 and 7.9 in posttests 1 and 2 respectively. The difference in the level of labor pain was significant at 0.001 level.

Another study was conducted on the effect of music therapy on pain and anxiety among primigravid women during first stage of labor. The results of the study revealed that 100% of the control group experienced severe pain at 8 to 9 cm cervical dilation and 86.67% experienced severe anxiety at 5 to 6 cm cervical dilation. Among the

experimental group 33.33% experienced moderate pain at 8 to 9 cm cervical dilation and 70% experienced moderate anxiety at 5 to 6 cm cervical dilation.<sup>6</sup> In the present study, all the women in both groups had severe pain in the pretest. In posttest 1, all the women in the experimental group reported moderate pain whereas in the control group all of them had severe pain. The mean anxiety score of the experimental group was significantly lower than the control group in the posttest. Other experimental studies also show that music therapy reduced pain and anxiety during labor.<sup>7</sup>

## CONCLUSION

As music therapy is found to reduce pain and anxiety during labor, it can be used as a nonpharmacological intervention for labor pain. It does not need much training and can be used with ease. Music therapy is a cost-effective intervention to reduce pain during labor.

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