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Effects of Music Therapy on Anxiety, Pain & Clinical Parameters among Primigravida in a Selected Hospital, West Bengal

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Abstract
Background: *Labour is accompanied by intense and prolonged pain. For many years researchers are trying to find a safe, effective way of reducing the pain perception without hampering the fetal outcome.*
Aim: *To find out the Effects of Music Therapy on Anxiety, Pain & Clinical Parameters among Primigravida women during first stage of labour.*
Methodology: *Non probability purposive sampling technique was used to collect 30 primigravida women. Quasi experimental non equivalent pretest post test control group approach was adopted to assess labour pain and anxiety. Structured rating Anxiety Scale for Pregnancy to measure levels of anxiety and numeric rating scale for assessing pain was used for data collection.*
Results: *The results show that, all the primigravida women were having pain and anxiety during first stage of labour. There was significant decrease in maternal pulse (t 9.01), respiration (t 5.93), and blood pressure (t 3.02) in the post intervention observation among the experimental group. Whereas for fetal heart rate there was no significant difference was found in pre intervention and post intervention observation. There was significant decrease in level of anxiety and pain in the experimental group in post intervention observation than the control group (t 4.92) & (t 3.83) respectively.*
Conclusion: *The study showed that music therapy made a decrease in level of anxiety and pain of the primigravida women in labourand music therapy has a significant difference in the selected parameters as maternal pulse, respiration and systolic blood pressure. While caring pregnant mothers music may use for therapeutic intervention to reduce pain, anxiety, and maintaining vital signs.*

Introduction

Non-pharmacologic methods have been shown to promote a higher satisfaction with the labour experience because of perceived control and empowerment. Use of music as a therapeutic intervention started at 20th century. Music is a form of communication, and has been described as a universal language; it provides an escape from negative stimuli such as pain and anxiety.[1] Music has been found to have a significant reduction effect on pain intensity in laboring women.[2] music consistently provided significant

relief from severe pain across 03 hours of labor and delayed the increase of affective pain for 01 hour. Soft music decreased both sensation and distress of active labor pain in the first 03 hours; it also delayed the increases in distress of pain for an hour, and for some, relief was fairly substantial. [3]

In order to relieve anxiety and stress and to promote relaxation, diverse interventions such as pharmacologic therapy, patient education, massage, aromatherapy and reflexology have been used. However, pharmacology should be cautiously used for mother and fetus. One of the nonpharmacological nursing interventions is the use of music as a therapeutic modality.[4]

Women should be advised during prenatal childbirth classes of the efficacy of music for analgesia and relaxation. Music selections should be prepared in advance so that if labor begins before the due date, it is available.[5]

an experimental study in Taiwan on 60 first time mothers expected to have normal spontaneous delivery, investigation of effect of music therapy on labour pain and anxiety, revealed that compared with the control group, the experimental group had significantly lower pain and anxiety in the latent phase of labour.[6] In Thailand with 2 groups of labouring women One group chose among five types of calming music and listened to it for the first 03 hours in the hospital after active labour began. The control group had the standard care during labour. Researcher measured the women's reports of labour pain before the study began and hourly for the next 03 hours. During the 03 hours and at each hourly measure, the music group had significantly less sensation and distress pain than the control group.[7]

Objectives

1. To assess the pretest level of anxiety, pain and clinical parameters among of primig-ravida in experimental and control group.
2. To assess the posttest level of anxiety, pain and clinical parameters among of primigravida in experimental and control group.
3. To compare the pre and posttest level of anxiety, pain and clinical parameters among of primigravida in experimental and control group.
4. To find out the association of posttest level of anxiety, pain and clinical parameters among of primigravida in experimental and control group with selected variables.

Material & Methods

Research Approach and Design: Quantitative Quasi experimental non equivalent pretest post test control group research approach and experimental research design was used to conduct the study.

Hypotheses:

1H_0:- The posttest anxiety, pain and clinical parameters score among of primigravida will not be statistically significant as compared to pretest score as measured by self instruction questionnaire at $p<0.05$ level among experimental group.

2H_0:- The posttest level of anxiety, pain and clinical parameters score among of primigravida will not be statistically significant with selected variable as measured by self instruction questionnaire at $p<0.05$ level.

Selection of the field for study: The study was conducted Tarakeshwar Rural Hospital, West Bengal.

Population: Target population was primigravida women.

Inclusion Criteria

- The study result was limited to during the first stage of labour.
- The study sample was limited to Tarakeswar Hospital.
- Mothers who were willing to participate after obtaining consent.

Exclusion Criteria

- Multipara mother
- Mothers who were having associated complication of pregnancy such as preeclampsia, gestational hypertension.

Sample and Sampling Technique: Non probability purposive sampling technique was used to collect 30 primigravida women for data collection.

Variables

- **Demographic variable:** Age, education, family income and occupational status.
- **In-depended variable**: Music Therapy
- **Depended variable:** Effect of music therapy on anxiety, pain & clinical parameters among primigravida

Tools: four tools were used to collect the data i.e. Observation/measurement of selected clinical parameters (maternal pulse respiration blood pressure and fetal heart rate), Numerical rating scale on subjective perception of pain, Structured rating Anxiety Scale for Pregnancy to measure levels of anxiety. Few statements for rating Anxiety Scale for Pregnancy were adopted from Mary Madeleine Doyle Water for Anxiety Scale for Pregnancy. Music therapy had been developed after reviewing the research based and non research based literature and with opinions of the experts.

The music therapy selected was instrumental (Setar) Indian classical music.

The steps followed for the development of the music were as follows:

1) Preparation of the criteria checklist.
2) Consultation with the music expert.
3) Preparation of the music therapy.
4) Validation of the music therapy.
5) Pretesting of the music therapy.
6) Preparation of the final music for the study.

Content Validity: It was determined by expert's opinion on the relevance of the items.

Reliability of tools:

Interrater correlation coefficient (0.95) and Cron Bach's alpha (0.85), method of reliability was used for Observation/measurement of selected clinical parameters and Structured rating Anxiety Scale for Pregnancy respectively. Hence, the tools were found reliable. For reliability of music, the music was administered to 5 primigravida women in labour and it gave a relaxing and soothing effect on them as per their expression.

Ethical Consideration: Ethical clearance was sought from ethical committee and the principal, B. M. Birla college of Nursing & written consent was taken from the participants of the study.

Pilot Study: The pilot study was done conducted on 10 subjects to find out reliability of the tool and feasibility of the study.

Plan of Analysis: Analysis and interpretation of data was done according to objectives, by using descriptive and inferential statistics.

Results

Findings revealed that experimental group mean anxiety score and pain score of pre intervention (18.13 & 7.47) and post intervention (14.67 & 6.47) was respectively. Whereas control group mean anxiety score and pain score of pre intervention (17.47 & 7.2) and post intervention (17.87 & 7.9) was respectively. These differences were statistically significant at $p<0.05$ level among experimental group and non significant among control group. Hence, the null hypothesis was rejected.

It was found that there was no significant association present between level of pain and anxiety with the selected demographic variable such as age, education, occupation and monthly family income.

Figure: 01 Bar Diagram Showing Distribution of Occupation

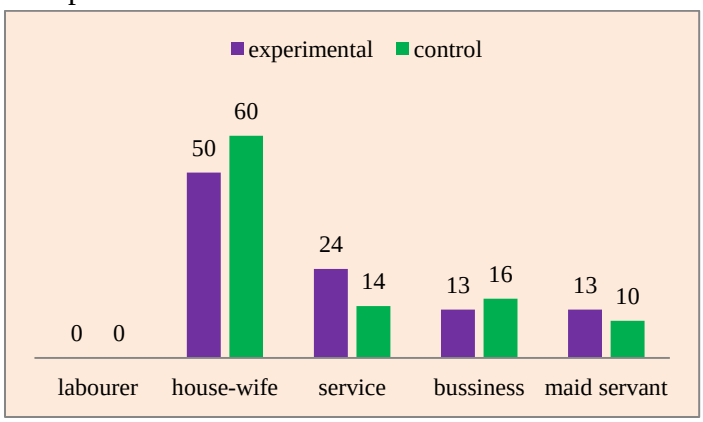

Table: 01 Comparison between Mean, Median and Standard Deviation of the Pre Intervention and Post Intervention Scores of Clinical Parameters among the Experimental Group

N=30

Observation/Measurement	MEAN	MD	SD_D	SE_D	t-value
Maternal Pulse Rate					
• Pre Intervention	88.4	1.93	0.823	0.21	9.01
• Post Intervention	85.4				
Maternal Respiration Rate					
• Pre Intervention	23.2	1.53	1	0.258	5.93
• Post Intervention	21.6				
Maternal Systolic Blood Pressure					
• Pre Intervention	114	4.67	4.27	1.10	4.245
• Post Intervention	104				
Maternal Diastolic Blood Pressure					
• Pre Intervention	74	3.33	4.37	1.10	3.02
• Post Intervention	71				
Fetal Heart Rate					
• Pre Intervention	141.6	0.2	1.93	0.50	0.4
• Post Intervention	139.6				

t_{14} – 2.15(0.05 level of significance)

Table: 02 Comparison between mean, median and standard deviation of the pre intervention and post intervention scores of the clinical parameters among the control group

N=30

Observation/Measurement	MEAN	MD	SD_D	SE_D	t-value
Maternal Pulse Rate					
• Pre Intervention	84.2	0.73	1.8	0.47	1.57
• Post Intervention	84.93				
Maternal Respiration Rate					
• Pre Intervention	21.2	.13	1.12	0.29	.45
• Post Intervention	21.3				
Maternal Systolic Blood Pressure					
• Pre Intervention	108.66	4	5.34	1.38	2.9
• Post Intervention	112.66				
Maternal Diastolic Blood Pressure					
• Pre Intervention	72.66	1.33	3.52	0.9	1.47
• Post Intervention	74				
Fetal Heart Rate					
• Pre Intervention	138.66	0.33	1.33	0.34	0.96
• Post Intervention	139				

t_{14} – 2.15(0.05 level of significance)

Table: 03 Mean, mean difference, t value of pre intervention and post intervention observation of level of anxiety among experimental and control group

N=30

Anxiety score	MEAN	MD	SD_D	SE_D	t-value
Experimental					
• Pre Intervention	18.13	3.47	0.99	0.26	13.51
• Post Intervention	14.67				
Control					
• Pre Intervention	17.47	.04	0.454	0.117	3.418
• Post Intervention	17.87				

t_{14} – 2.15(0.05 level of significance)

Table: 04 Comparing level of anxiety between experimental and control group in pre intervention and post intervention observation.

N=30

Anxiety Score	MEAN	SD_D	SE_D	t-value
Pre Test Score				
• Experimental	18.13	1.96	.64	1.03
• Control	17.47	1.3		
Post Test Score				
• Experimental	14.67	1.26	.65	4.92
• Control	17.87	2.02		

T_{28} – 2.05(0.05 level of significance)

Discussion

Findings of present study revealed that the music therapy was effective to reduce level of anxiety in the experimental group for the primigravida women. This finding is supported by the study result of mothers exposed to music therapy experienced significantly less anxiety level during labour than the control group mothers. [8] Another study revealed that listening to music during the NST resulted in a statistically significant decrease in the state-trait anxiety score of the study group (38.10 ± 8.8 versus 30.58 ± 13.2, $OR = 0.87$, $p < .001$). Furthermore, the first stage of labor was shorter in women who received music stimulation ($OR = 0.92$, $p < .004$). They also presented a more natural delivery beginning (spontaneous) and less medication (stimulated and induced) than those who were not stimulated musically, with statistically significant differences ($p < .01$).[9] Study Results shows that music therapy group showed statistically significant decrease in anxiety compared to control group but no significant difference was identified in stress and maternal-fetal attachment.[10]

Further present study result reveled that there was visibly less perception of pain in post intervention observation. Statistically calculation of t distribution shows a significant decrease in post intervention observation of level of pain among the experimental group than the post intervention observation in the control group (t-3.83). The findings of this study is supported by study result that the post intervention Visual Analogue Scale score was less in the group of women exposed to music therapy (t=7.317) and this concluded that the women exposed to music therapy during labour perceived less pain than the women not exposed to music therapy.[11] Another study result shows that the effects of music on sensation and distress of pain in primiparous women during the active phase of labour indicated that those in the music group had significantly less sensation and pain than the control group.[3] Another study result revealed that, as compared with the control group, pregnant women who listened to music for30 minutes each during the latent and active periods of labor reported significantly lesser pain, and anxiety and higher finger temperature during the latent phase of labor.[6]

Present study result related selected clinical parameters maternal pulse, respiration, blood pressure and fetal heart rate shows that there was a significant difference in the maternal pulse rate, respiration and systolic blood pressure; whereas no significant difference was found on diastolic blood pressure and fetal heart rate. The findings are supported by a study result of effects of music therapy on clinical and biomedical parameters. In this study the pre therapy and post therapy systolic blood pressure was 151 and 136. Therefore, the author concluded that music therapy is an adjunct to conventional treatment.[12]

In relation to demographic variable it was found that there was no significant association present between level of pain and anxiety with the selected demographic variable such as age, education, occupation and monthly family income. This is supported by study that No significant differences were identified between groups for age, education, and economic status, occupation, in regard to music therapy on anxiety,

stress and maternal-fetal attachment in pregnant Women during transvaginal ultrasound. [10]

Conclusion: study has shown significant effects in reducing anxiety and pain during labour for primigravida women but no such effects could have been noticed in case of certain clinical parameters. Also the predetermined music by the researcher and the use of headphones rather than loudspeakers might have been brought certain changes of music therapy experience.

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