

ORIGINAL RESEARCH

A study to determine the effectiveness of foot massage on pain and behavioural response of women during first stage of labour in selected hospitals at Faridkot, Punjab

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ABSTRACT

Background of the study: Childbirth is a sweet miracle, which is experienced by majority of the females, though these instances do leave memories never to forget. The anxiety, the nervousness and emotions all swells up as the time advance for child birth. Delivering a baby comes with lots of tension and stress. This is true for the mother to be as well for the father and at times for the whole family specially when they are expecting their first baby. Labour is a loving experience of bringing a new life into the world, which stays with the mother for the rest of her life. To make this occasion stress free and more joyous and to fill the world with delight, relaxation therapy is being introduced. Among those, foot massage is one of an avenue for human touch which can be performed anywhere, requires no special equipment, is non-invasive and does not interfere with client's privacy.

Objectives of the study:

- Determine the intensity of pain in women during first stage of labour as measured by visual analogue pain scale.
- Identify the behavioural response of the women during first stage of labour as measured by observational check list.
- Determine the effectiveness of foot massage on reduction of pain and change of behavioural responses of the women.

Methods: Pre-experimental one group pre-test –post-test design was adopted for the study. The study used purposive sampling technique. The sample consisted of 30 parturient women. The pre-test was carried out by assessing the pain and behavioural response of women during first stage of labour in latent phase. The post-test was aimed at giving foot massage for 15 minutes based on the severity of pain followed by observation of behavioural responses 2 times with 10 minutes of interval. Data was analyzed using descriptive and inferential statistics. **Results:** The study findings revealed that that majority of the subjects 16(54%) out of 30 had 20 to 30 seconds. Among the rest 10(33%) had <20 seconds and 4(13%) had 35 to 50 seconds. The findings of the study shows that in the pre-test pain scores, majority (97%) of them ranged between 5-10 and (3%) of them ranged between 7-8. In the post-test I, majority (90%) of them ranged between 3-4 and in post-test II (80%) of them ranged between 1-2. subjects in post-test (100%) falls under mild grade of pain score. As in the post test 1, 19(63%) falls under mild grade pain score. The calculated F-ratio of pain (364.220) is greater than the tabulated F-ratio i.e 3.155. It means that there is a significant effect in the reduction of pain at $p<0.05$.

The findings revealed that the pre-test, post-test I and post-test II behaviour response was improved after the foot massage. The calculated F-ratio of behavior (204.45) is greater than the tabulated F-ratio i.e 3.155. It means that there is a significant difference in the overall behavioural responses at $p<0.05$. The mean post-test 2 score (9.47) of manifestation of participation is highest when compared to the other two areas of pre-test and post-test 2 mean score. The calculated F-ratio of area C (845) is highest when compared to the other two area A (11.654) and B (27.86). Thus the calculated F-ratio is greater than the tabulated F-ratio i.e 3.155. It means that there is a significant difference in the area-wise behavioural responses at $p<0.05$. There was no association between mean pain score and selected demographic variables. The findings shows that there is an association between occupation and mean behaviour response score i.e calculated value (4.038) is greater than the Chi-square value(3.84). **Interpretation and Conclusion:** The findings of the study revealed that there was significant reduction of pain during labour and improvement of behaviour among the group. Hence foot massage is an alternative and complimentary therapy for pain management during labour without causing any harm to the mother and the fetus.

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INTRODUCTION

“Let my care remove your pain”- Dr. A. P. J. Abdul Kalam

Childbirth is a sweet miracle, which is experienced by majority of the women, though these instances do leave memories never to forget. The anxiety, the nervousness and emotions all swells up as the time advances for child birth. Delivering a baby comes with a lot of tension and stress. This is true for the mother to be as well for the father and at times for the whole family specially when they are expecting their first baby¹.

NEED FOR THE STUDY

A study was conducted in CMC Vellore, reducing pain in specific urologic conditions, the population under study were patients undergoing minor and major urological surgeries with pain. A Sample of 30 patients was selected and each patient was given 30 – 45mts of foot massage, pre and post assessment of pain was assessed by visual analog scale. A significant difference between pre and post nursing intervention in reduction of pain for 30 samples were highly significant, ie, $p < 0.001$. It was concluded that foot massage is the best nursing intervention and it can be introduced into nursing curriculum as a best method of pain reduction³.

A study was conducted at Institute of Pain and Palliative Medicine, Calicut, on effectiveness of foot massage in reduction of pain as a complementary therapy. A population consist of 30 samples with all stages of cancer. Under findings on the first day of administering foot massage it was observed that 66.7% had moderate pain and remaining had mild pain after the massage. It was concluded that foot massage brought about significant reduction in pain intensity. Cancer patients who were having the higher score 9.5 on a scale of 10 also experienced remarkable reduction in pain⁴.

In a study conducted by Chang et al. on 60 primiparous women who were expected to have a normal child birth and were randomly assigned to either a foot massage intervention during their labour. Significantly low present behaviour intensity (PBI) scores were recorded in the massage group compared with the control group during all the phases of labour ($p = 0.000$, $p = 0.002$, $p = 0.000$ respectively) and this data was validated by (present pain intensity) PPI scales. The study shows that the foot massage therapy was found to be effective and could help to reduce unnecessary use of pharmaceutical intervention during labour¹⁰.

OBJECTIVES

The objectives of the study are to:

- Determine the intensity of pain in women during first stage of labour as measured by visual analogue pain scale.
- Identify the behavioural response of the women during first stage of labour as measured by observational check list.
- Determine the effectiveness of foot massage on reduction of pain and change of behavioural responses of the women.

HYPOTHESES

(hypotheses will be tested at 0.05 level of significance)

H_1 : There will be significant difference in the mean pain score during first stage of labour before and after foot massage among women

H_2 : There will be significant difference in the mean behavioural response score during first stage of labour before and after foot massage among women.

ASSUMPTIONS

- All women will experience pain during labour.
- Women in labour exhibit wide range of behavioral response.
- Therapeutic massage has a relaxation effect.

OPERATIONAL DEFINITIONS

Effectiveness: In this study, effectiveness means the extent to which the foot massage therapy has its impact on pain tolerance ability and behavioural response of women in the first stage of labour as measured by visual analogue pain scale and observational check list.

Foot massage: In this study, foot massage refers to the therapeutic application of six steps of foot massage that is stroking, kneading, pivoting, ankle rotation, finger rotation and hacking to reduce pain during first stage of labour.

Labour Pain: In this study, labour pain means a discomfort arising from labour progress and measured by using visual analogue pain scale which is interpreted as 1-3 mild pain, 4-6 moderate pain and 7-10 severe pain.

First stage of labour: In this study the first stage of labour refers to a stage where the cervix is dilated upto 3 cm (latent phase) as per vaginal examination as recorded in partogram..

Behavioral response: In this study, behavioural response refers to the verbal or non verbal response such as facial expression, biting the teeth, clenching fists, crying which are expressed by the women during the first stage of labour and assessed by the investigator using observational checklist.

DELIMITATIONS

- Women with cervical dilatation of 3 cm in first stage of labour of selected hospitals.

- Women with regular uterine contractions during first stage of labour.
- Women who are not at risk.
- Women who are willing to participate in the study.

CONCEPTUAL FRAMEWORK

The conceptual framework used in this study is based on Kolcaba's Comfort Theory.

Kolcaba has defined comfort as "the immediate state of being strengthened through having the human needs for relief, ease and transcendence addressed in four contexts of experience" (physical, psycho spiritual, sociocultural and environmental). The first article about the Theory of Comfort was published in 1994 by Dr. Kolcaba. Other nurse researchers have utilized the theory in settings such as labour and delivery, peri - and intra-operative care, critical care, burns unit, gynecological practice.

Kolcaba differentiates caring and comfort as follows:

- Comfort is a patient outcome. Caring is about how nurses do their work.
- The effects of caring are difficult to measure, the effects of comfort interventions (including caring) are measurable.
- Comfort are as used in Comfort Theory is a noun (outcome or product), caring is an adjective, it describes a process.

Kolcaba's theory of Comfort assumes that human beings have holistic response to complex stimuli serving behaviours. When comfort needs are met, patients are strengthened¹².

The present study aims at "determining the effectiveness of foot massage on pain and

behavioural response of women during first stage of labour." This model consists of certain components:

Health Care Needs: In this study, the women is in labour pain and seeks for meeting her needs by which the nurse understands through her behavioural pattern such as sweating, restlessness, asking for analgesics, holds the bed tightly etc.

Nursing Interventions: Here, the nurse uses foot massage to enhance a patient's immediate comfort and facilitates desirable health seeking behaviour. This intervention helps in inducing relaxation and provides a stress free environment for women in labour.

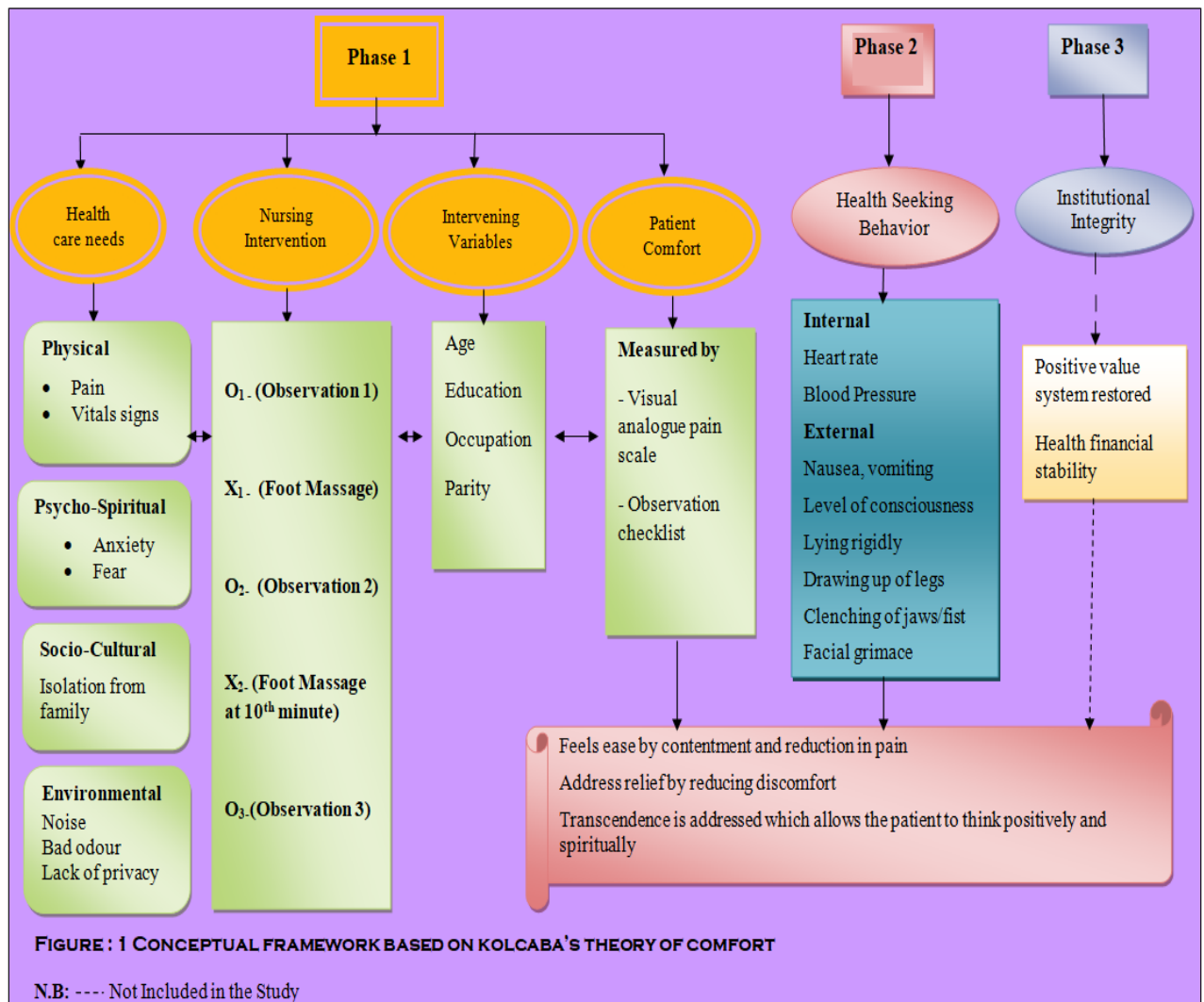
Intervening variables: Here, intervening variables are age of the mother, parity, educational background and previous nature of delivery.

Comfort: Here, the mother receives foot massage for 15 minutes which actually helps to distract attention from pain and enhance comfort during the stressful situation.

Health Seeking Behaviour: Here, foot massage increases the circulation aiding the distribution of nutrients and oxygen. It also stimulates the appropriate reflex point and thus cleared all the toxins. The external behaviour which are observable are taking deep breath, relaxes in between the contractions, express her needs verbally, lies comfortably etc.

Institutional Integrity: Here, the settings is in the labour ward of well set up selected maternity hospitals.

The conceptual framework of the present study was based on the Kolcaba's comfort Theory.



RESEARCH METHODOLOGY

The design is pre-experimental one group pre-test post-test design,

Subject	Pre-test	Treatment	Post-test	Treatment	Post-test
Women who are in first stage of labour at latent phase	O ₁	X ₁	O ₂	X ₂	O ₃

O₁ = Assessment of behaviour response by using observational checklist and pain intensity by using visual analogue scale before treatment.

O₂ = Post-test Observation by using behavioural checklist and visual analogue scale.

O₃ = Post-test Observation at 10th minute by using behavioural checklist and visual analogue scale.

X₁ and X₂ = Foot massage for 15 minutes.

RESEARCH SETTING

The present study was conducted in GGSMC&H, Faridkot.

VARIABLES

Dependent variable

In this study, dependent variables are

- a) Behavioural response.
- b) Intensity of pain

Independent Variable

Foot massage is an independent variable in this study.

Population

In this present study, the population comprised of parturient women who are in first stage of labour.

Sample

The samples for the study consists women who are in first stage of labour.

Sample size

The sample size consisted of thirty (30) parturient women who are in first stage of labour.

Sampling Technique

The sample was selected through a purposive sampling technique.

RESULTS

Range, mean, mean percentage and standard deviation of pretest and post test degree of pain scores.

N=30

Observations	Range of pain score	Mean	SD	Mean percentage	Median
Pretest	5-7	5.53	.571	55.33	5.5
Post test I	2-5	3.33	.661	33.33	3
Post test II	1-3	1.93	.691	19.33	2

The data in the Table shows the pre-test and post-test degree of pain. The lowest mean percentage score 19.33 belongs to the post-test 2 which belongs to the range of 1-3 pain score.

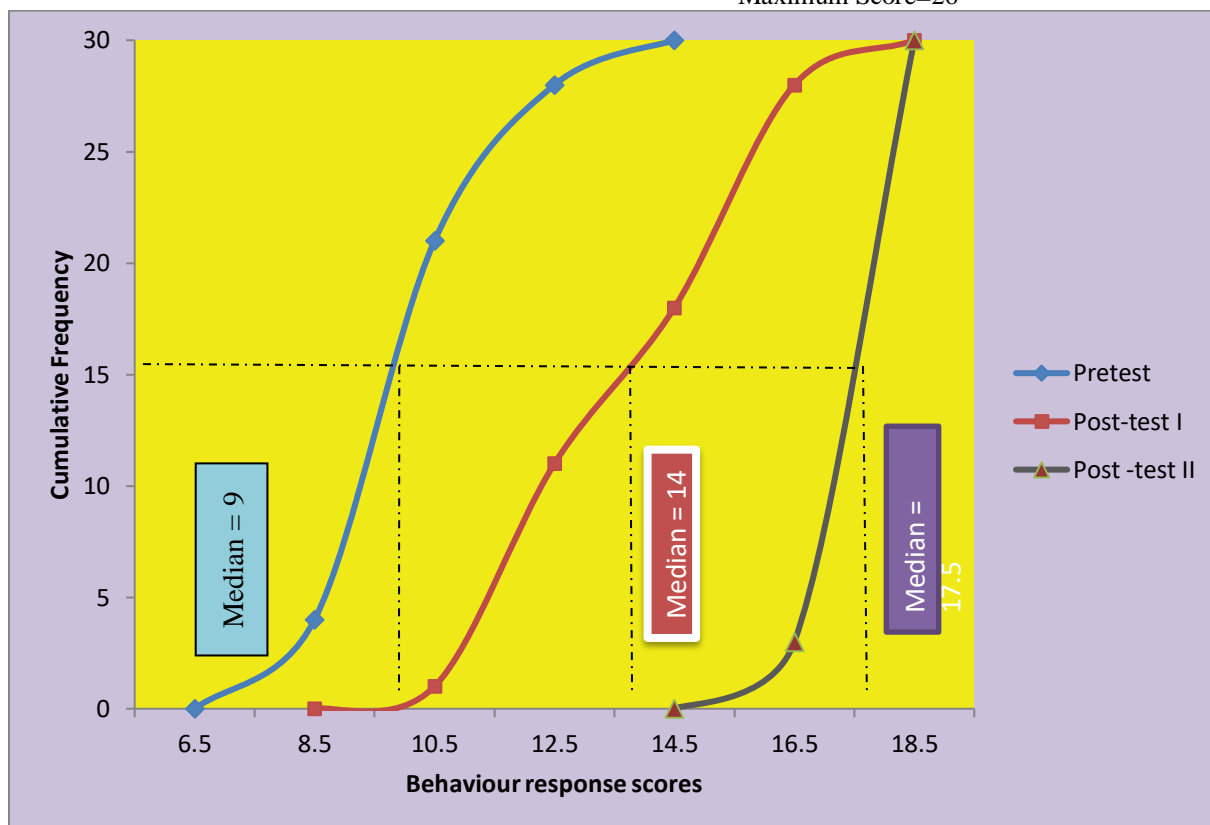
Section III: Evaluation of behavioural response

Frequency, cumulative frequency and percentage of pre-test and post-test behavioural responses.

N=30

Responses score	Pretest			Post test I			Post test II		
	f	%	cf	f	%	cf	f	%	Cf
7-8	4	13	4	-	-	-	-	-	-
9-10	17	57	21	1	3	1	-	-	-
11-12	7	23	28	10	34	11	-	-	-
13-14	2	7	30	7	23	18	-	-	-
15-16	-	-	-	10	33	28	3	10	3
17-18	-	-	-	2	7	30	27	90	30

Maximum Score=26



Ogive representing pre and post-test behaviour response scores.

Data indicates that the post-test 2 behaviour response score in most of the subjects (90%) ranged between 17-18, whereas in post-test 1 (34%) ranged between 11-12 and in pre-test score, 57% of them was in the ranged of 9-10.

Frequency and percentage distribution of subjects according to grading of pre-test and post-test behavioural response.

N=30

Score	Grading	Percentage	Pretest		Post test I		Post test II	
			f	%	f	%	f	%
<11	Poor Behaviour	< 40%	21	70	1	3	-	-

11-15	Moderately good behaviour	41 - 60%	9	30	25	84	-	-
16-21	Good behaviour	61 - 80%	-	-	4	13	30	100

Maximum Score=26

The data indicates that the behaviour response of the subjects (100%) in post-test 2 ranged between 16-21 which depicts that the subjects had good behaviour, whereas in post-test I the majority of them (84%) ranged between 11-15 which shows that the subjects had moderately good behaviour and in pre-test (70%) was ranged below 11 which shows that the subjects had poor behaviour.

Table 11: Range, mean, mean percentage and standard deviation of pretest and post test behavioural scores. N=30

Observations	Range	Mean	Median	Mean percentage	SD
Pretest	7-13	9.77	9	37.56	1.478
Post test I	9-18	13.60	14	52.31	2.127
Post test II	16-18	17.40	17.5	66.92	.675

The data in the Table shows that the highest mean behavioural response score(17.40) belongs to the post-test II ranging between 16-18 whereas in post-test I it is 13.60 ranging between 9-18 and in pre-test the mean behavioural score is 9.77 ranging between 7-13. In the behaviour response of a women, post-test II score was higher when compared to post test I.

The data presented that mean percentage scores of behaviour responses of women in the first stage of labour, the area of manifestation of participation(90.61%) is the highest mean percentage

score and the lowest between uterine contraction (36.67%)

Section IV: Effectiveness of Foot Massage On Pain

In order to find out the significant difference between pre-test and post-test mean pain score One- Way ANOVA was computed and the data is presented in Table 13.

To test the statistical significance the following null hypothesis was stated.

H₀₁: There will not be significant difference in the mean pain score during first stage of labour before and after foot massage.

Table 13: Summary one – way of Analysis of variance (ANOVA table) of pain. N =30

	Mean	SD	F value	df	p value
Pre-Test	5.53	.571	364.220	2,58	<0.001
Post-Test I	3.33	.661			
Post-Test II	1.93	.691			

F=3.155

The above table shows the mean and standard deviation of the pre-test, post-test I and post-test 2 pain after the foot massage.

The calculated F-ratio of pain (364.220) is greater than the tabulated F-ratio i.e 3.155. It means that there is a significant effect in the reduction of pain at p<0.001. Hence the null hypothesis H₀₁ was rejected and the research hypothesis was accepted. This represents that foot massage is effective.

SECTION V: Effectiveness of Foot Massage on behaviour response

In order to find out the mean pre-test and post-test behaviour response score One-Way ANOVA ‘F’ test was computed and data is presented in Table 14.

To test the statistical significance the following null hypothesis was stated.

H₀₂: There will not be significant difference in the mean behavioural response score during first stage of labour before and after foot massage.

Table 14: Summary one – way of Analysis of variance (ANOVA table) on behavioural response. N = 30

	Mean	SD	F value	df	p value
Pre-test	9.77	1.478	204.45	2,58	<0.05
Post-test I	13.60	2.127			
Post-test II	17.40	0.675			

F=3.155

The above table shows the mean and standard deviation of the pre-test, post-test I and post-test II behaviour response after the foot massage.

The calculated F-ratio of behaviour (204.45) is greater than the tabulated F-ratio i.e. 3.155. It means that there is a significant difference in the overall behavioural responses at p<0.05. Hence the null hypothesis was

rejected and the research hypothesis was accepted. Thus it indicates that, women had more positive behavioural response score after foot massage

The calculated F-ratio of area C (845) is highest when compared to the other two area A(11.654) and B (27.86). Thus the calculated F-ratio is greater than the tabulated F-ratio i.e 3.155. It means that there is a

significant difference in the area-wise behavioural responses at $p < 0.05$.

CONCLUSION

From the findings it was evident that foot massage brought about significant reduction in pain intensity among women during the first stage of labour. The labouring mothers who were having the higher pain score 5-7 also experienced remarkable reduction of pain. Therefore foot massage increases the coping ability of the women during labour pain. Hence it could be used by nurses as intervention as it has no adverse effect on the mother and the foetus.

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