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A Quasi-experimental Study to Assess the Effect of Foot Reflexology on Anxiety, Labour Pain and Outcome of the Labour among Primipara Women Admitted in Labour Room at SGRD Hospital, Vallah, Amritsar

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ABSTRACT

Introduction: Fear of pain during labour is one of the major issues for which women do not get ready for normal vaginal delivery. Generally anxiety, labor pain in primigravida women is unbearable due to which treating the pain become priority for the health care professionals. Nowadays non pharmacological strategies are more in trend as compare to pharmacological strategies. Among all the non-pharmacological measures, most effective approach is Foot Reflexology.
Aim: The aim of the study is to find out the effect of foot reflexology on anxiety, intensity of labour pain and outcome of labour among primipara women.
Material and Method: A quantitative quasi experimental design was used in this research study. The present study was conducted on women admitted in labour room at Sri Guru Ram Das Hospital, Vallah, Amritsar. Total 60 primipara women were selected through the purposive sampling technique and selected sample was assigned into two different groups that were experimental and control group. Written consent was taken from participants of study. Socio Demographic profile, State Trait Anxiety Inventory Scale, Numeric Pain Rating Scale, Self-structured Labour outcome of women was used as tool for data collection. The intervention foot reflexology was given over reflexes points of both feet by means of gentle massage and firm pressure for a period of 40 minutes in latent phase of labour.
Results: In Pre-test mean and SD was 49.5±1.40 (level of anxiety), 9.46±0.68 (intensity of labour pain) in experimental group and 51.1±1.20 (level of anxiety), 9.1±0.60 (intensity of labour pain) in control group, labour outcome was assessed in terms of Blood pressure, body temperature, pulse rate, respiration rate which was found to be normal in both experimental group and control group. In post-test mean and SD was 42.6±0.92 (level of anxiety), 6.2±0.73 (intensity of labour pain) in experimental group and 48.8±1.53 (level of anxiety), 8.8±0.46 (intensity of labour pain) in control group, the labour outcome was assessed in terms of Blood pressure, body temperature, pulse rate, respiration rate, type of delivery which was found to be normal both in experimental and control group. The effectiveness was statistically tested by using 't' Test and the result was found to be significant at $p<0.05$ level of significance. Results were again in favour of the use of "foot reflexology" when comparing the level of anxiety, labour pain, outcome of labour between experimental and control group in the current study ($p<0.05$). Hence, it can be concluded from this study that the foot reflexology can reduce the level of anxiety, relive the labour pain and improve normal labour outcome among primipara women.

Keywords: Anxiety, Labour Pain, Labour Outcome, Foot Reflexology, Primipara Women.

INTRODUCTION

Labour pain is due to contractions, distension of the lower uterine segment, pulling on pelvic ligaments, dilatation of cervix, stretching of vagina and pelvic floor[1]. The process of normal childbirth is categorized into four stages: Shortening & Dilatation of cervix, Descent & Birth of the

infant, Birth of the placenta and Observation of postnatal mother for one hour after birth. In many cases, with increasing frequency, childbirth is achieved through caesarean section, delivery of the neonate through a surgical incision in the abdomen[2].

Labour is the series of events by which uterine contractions and abdominal pressure expel the fetus, placenta and membranes out of the uterus through the birth canal. During it a woman instinctively knows she is engaging in one of the most important tasks she will over do. So it requires the woman to use all of the available the psychological and physical coping methods (Bennett & Brown 2008, Olds et al 2008)[3]. Pain is a physiological component of labour and birth. Pain is an unpleasant sensation of distress resulting from stimulation of sensory nerves.

Labor pain is an excruciating, intolerable pain which results in changes in blood pressure, pulse, respiration, skin color and pallor. The mother with labour pain may have bouts of nausea and vomiting and she may have affective expressions which include anxiety, crying, groaning, gesturing (hand clenching and wringing) and excessive muscular excitability throughout the body[4-5].

Fear of pain during labour is one of the major issues for which women do not get ready for normal vaginal delivery. Active participation of the mother in labor can lead to decreasing rate of cesarean and duration of labor without deleterious effects on both the mother and fetus [(6-8)].

At present various pharmacological and non-pharmacological interventions are used to relieve pain of labour. Among all the non-pharmacological methods for labour pain, reflexology is one of the best methods, because in reflexology the treatment is safe, free from side effects, giving lasting cure, economical, and it is compatible with other forms of treatment. Reflexology provides Reflexology is an ancient art. Reflexology provides good comfort and relaxation. Studies reported that reflexology manage symptoms and provide comfort. Reflexology involves massage and the application of pressure, to points on the feet, which correspond to various organs and system in the body[9].

Reflexology was first initially introduced in the US (1913) by William .H. Fitzgerald (1872-1942). Dr. Edwin Bowers. Fitzgerald claimed that applying pressure had an aesthetic effect on other area of the body. Reflexology was modified in the 1930 and 1940 by Eunice D.Ingham (1889-1974) a nurse and physiotherapist[10]. Generally, foot reflexology technique would stop the neural transmission of the pain message of the brain and subsequently the perception of pain relief through control gate. It affects the physiological and psychological stimulation points[11].

During labor, the nurse should ask the woman how she feels to evaluate the effectiveness of the specific pain management techniques used. Appropriate interventions can then be planned or continued for effective care, such as trying other non-pharmacologic methods[12].

OBJECTIVES

1. To assess anxiety level and intensity of labour pain among primipara women.
2. To determine the effect of foot reflexology on anxiety level, intensity of labour pain & outcome of labour among primipara women.
3. To compare pre-test and post-test score between experimental and control group.
4. To find out the association between post-test intervention score with their selected demographic variables.

HYPOTHESIS

H1: There is a significant difference in (anxiety level, labour pain, outcome of labour) score of foot reflexology among primipara women in experimental and control group.

H0: There is a no significant difference in (anxiety level, labour pain, outcome of labour) score of foot reflexology.

METHODOLOGY

Research methodology indicates a general pattern for organizing the procedure to collect valid and reliable data for the problem under study. The present study was conducted at Sri Guru Ram Das Hospital, Vallah, Amritsar. Quantitative research approach was considered for the present study. Research design selected for the present study was Quasi-experimental design. The population of the study was 60 primipara mothers admitted in labour room at SGRD hospital, vallah, Amritsar who had fulfilled the inclusion and exclusion criteria. Sample size of the study comprised of 60 primipara mothers. Purposive sampling technique was followed to select the samples. Ethical clearance was taken from the ethical committee of the SGRDIMSR, Vallah, Amritsar. A written permission was taken from the Head of OBG department from SGRD Hospital, Vallah, Amritsar for data collection. The tool consists of following section:

- **SECTION A:** SOCIO-DEMOGRAPHIC VARIABLES
- **SECTION B:** STATE TRAIT ANXIETY INVENTORY SCALE
- **SECTION C:** NUMERIC PAIN RATING SCALE
- **SECTION D:** LABOUR OUTCOME OF WOMEN

RESULTS

Table 1: Frequency and percentage distribution of demographic variables of primipara women in experimental and control group. N=60

S.No	Socio-Demographic Variables	Experimental Group		Control Group		Chi-square χ^2 df p value
		F	%	F	%	
1.	**Age (in years)**					
	18-21	2	6.7	3	10	3.984
	22-25	17	56.6	22	73.3	3
	26-29	9	30	5	16.7	0.263^{NS}
	≥30	2	6.7	0	0	
2	**Occupation**					3.268
	Housewife	28	93.3	23	76.7	1
	Private employee	2	6.7	7	23.3	0.070^{NS}
3	**Education**					
	Illiterate	1	3.3	3	10	
	Primary	13	43.3	10	33.3	5.582
	Matric	5	16.7	2	6.7	4
	Higher secondary	4	13.3	10	33.3	0.232^{NS}
	Graduation	7	23.4	5	16.7	
4	**Monthly income**					
	≤ 5000	0	0	2	6.7	5.280
	5001-10000	13	43.3	18	60	3
	10001-15000	11	36.7	8	26.6	0.152^{NS}
	≥15000	6	20	2	6.7	
5	**Area**					0.111
	Rural	25	83.3	24	80	2
	Urban	5	16.7	6	20	0.738 NS

**p<0.05 level of significance NS: Non Significant*

Table 1 presented frequency and percentage distribution of demographic variables of primipara women in experimental and control group. The result shows that majority of the primipara women in the age group of 22-25yrs that were 17(56.7%), 28(93.3%) were housewives, 13(43.3%) had primary level of education, 13(43.3%) belonged to the income group of 5001-10000, 25(83.3%) from rural area in experimental group where as in control group age group of 22-25yrs were 22(73.3%), 23(76.7%) were housewives, 10(33.3%) had primary level of education as well as graduated, 18(60%) belonged to the income group of 5001-10000, 24(80%) from rural area.

Table 2: Assessment of the Pre-test level of anxiety among primipara women in experimental and control group. N=60

Level of anxiety	Experimental group		Control group	
	F	%	F	%
Low anxiety (20-40)	0	0	0	0
Medium anxiety (41-60)	30	100	30	100
High anxiety (61-80)	0	0	0	0
Mean and SD	49.5±1.40		51.1±1.20	

Table 2 depicted the assessment of the pre-test level of anxiety among primipara women in experimental and control group. Pre-test revealed that all the women 30(100%) had medium level anxiety (41-60) both in experimental and control group. The mean and SD was 49.5±1.40 in experimental group and 51.1±1.20 in control group.

Table 3 illustrated the effect of foot reflexology on level of anxiety in experimental and control group, the result depicted that majority of 30(100%) primipara women had medium level anxiety (41-60) both in experimental group and control group. After the intervention mean and SD was 42.6±0.92 in experimental group and 48.8±1.53 in control group.

Table 3: Effect of foot reflexology on level of anxiety in experimental and control group N=60

Level of anxiety	Experimental group		Control group	
	F	%	F	%
Low anxiety (20-40)	0	0	0	0
Medium anxiety (41-60)	30	100	30	100
High anxiety (61-80)	0	0	0	0
Mean and SD	42.6±0.92		48.8±1.53	

Table 4: Comparison of the pre-test and post-test level of anxiety among primipara women in experimental and control group. N=60

Level of anxiety		Mean	SD	Mean D	Mean %	't' value	Df	'p' value
Experimental Group	Pre-test	49.5	1.40	6.9	61.87	25.42	29	0.000***
	Post-test	42.6	0.92		53.25			
Control Group	Pre-test	51.1	1.20	2.3	63.87	8.30	29	0.01**
	Post-test	48.8	1.53		61			

**p<0.05 level of significance NS: Non Significant*

Table 4 Presented the comparison of level of anxiety in experimental group and control group between pre-test and post-test. The data displays that mean percentage was 61.87% before an intervention and 53.25% after an intervention, mean difference was 6.9 in experimental group where as in control group mean percentage was 63.87% before giving an intervention and 61% after no intervention, mean difference was 2.3. It was compared using paired t-test, the result shows that t value was 25.42 and p=0.000 in experimental group and in control group, t value was 8.30 and p=0.01 which indicated that the result of both groups was found to be significant at p=<0.05 level of significance in experimental group and control group. Therefore, H_1 was accepted. Hence, it concluded that the foot reflexology was an effective intervention in reducing the level of anxiety in primipara women.

Table 5: Assessment of Pre-test intensity of labour pain among primipara women in Experimental and Control group N=60

Intensity of labour pain	Experimental group		Control group	
	f	%	F	%
No pain (0)	0	0	0	0
Mild pain (1-3)	0	0	0	0
Moderate pain (4-6)	0	0	0	0
Severe pain (7-10)	30	100	30	100
Mean and SD	9.46±0.68		9.1±0.60	

Table 5 shows the assessment of Pre-test intensity of labour pain among primipara women in Experimental and Control group. In pre-test most of 30(100%) primipara women had severe intensity of pain (7-10) both in experimental and control group. The mean and SD was 9.46±0.68 in experimental group and 9.1±0.60 in control group.

Table 6: Effect of Foot Reflexology on intensity of labour pain in experimental and control group N=60

Intensity of labour pain	Experimental group		Control group	
	f	%	F	%
No pain (0)	0	0	0	0
Mild pain (1-3)	0	0	0	0
Moderate pain (4-6)	18	60	0	0
Severe pain (7-10)	12	40	30	100
Mean and SD	6.2±0.73		8.8±0.46	

Table 6 illustrated the effect of Foot Reflexology on intensity of labour pain in experimental and control group. The result displays that majority of 18(60%) primipara women had moderate intensity of pain (4-6) in experimental group and 30(100%) in control group. Mean and SD was 6.2±0.73 in experimental group and 8.8±0.46 in control group.

Table 7: Comparison of Pre-test and Post-test intensity of labour pain among primipara women in Experimental group and control group N=60

Intensity of labour pain		Mean	SD	Mean D	Mean %	't' value	df	'p' value
Experimental Group	**Pre-test**	9.46	0.68	3.26	94.6	26.38	29	0.000***
	Post-test	6.2	0.73		62			
Control Group	**Pre-test**	9.1	0.60	0.27	91	2.11	29	0.06^{NS}
	Post-test	8.83	0.46		88.3			

**p<0.05 level of significance NS: Non Significant*

Table 7 depicted the comparison of intensity of labour pain in experimental group and control group between pre-test and post-test. The data revealed that before an intervention mean percentage was 94.6% and after an intervention 62%, mean difference was 3.26 in experimental group where as in control group mean percentage was 91% before an intervention and 88.3% after an intervention, mean difference was 0.27 in. It was compared using paired t-test, the result shows that t value was 26.38 and p=0.000 in experimental group and in control group, t value was 2.11 and p=0.06 which indicated that the result of experimental group was found to be significant at p=<0.05 level of significance and in control group $p=>0.05^{NS}$ was non-significant. Therefore, H_1 was accepted. Hence, It concluded that the foot reflexology was an effective intervention to relieve the labour pain in primipara women.

Table 8: Effect of foot reflexology on labour outcome of primipara women in experimental and control group N=60

Vital signs	Experimental group			Control group		
	Pre-test Mean±SD	**Post-test Mean±SD**	**Mean D**	**Pre-test Mean±SD**	**Post-test Mean±SD**	**Mean D**
Blood Pressure	133.46±8.21 78.13±7.29	127.8±4.73 84.5±8.80	5.66 6.37	129.8±6.08 72.86±4.68	130±3.93 72.93±5.42	0.2 0.07
Body Temperature	97.28±1.06	98±0.46	0.72	97.75±0.85	97.93±0.53	0.18
Pulse rate	79.86±5.50	77.26±15.0	74.36	77.66±4.42	77.66±3.93	0
Respiration rate	22±1.17	26.13±14.17	4.13	21.86±1.27	21.66±1.18	0.2

Table 9: Association of post-test intensity of labour pain among primipara women with their selected demographic variables in experimental group N=60

S.No	Demographic Variable	Moderate Pain	Severe pain	Chi value df p value
1.	**Age (in Years)**			
	18-21	0	2	3.952
	22-25	12	5	3
	26-29	5	4	0.267^{NS}
	≥30	1	1	
2.	**Occupation**			0.089
	Housewife	17	11	1
	Private employee	1	1	0.765^{NS}
3.	**Education**			
	Illiterate	1	0	1.896
	Primary	7	6	4
	Matric	4	1	0.755^{NS}
	Higher secondary	2	2	
	Graduation and above	4	3	
4.	**Monthly income**			
	≤5000	0	0	2.771
	5001-10000	10	3	2
	10001-15000	5	6	0.250^{NS}
	≥15000	3	3	
5.	**Area**			1.000
	Rural	16	9	1
	Urban	2	3	0.317^{NS}

**p<0.05 level of significance NS: Non Significant*

Table 8 shows the effect of foot reflexology on labour outcome of primipara women in experimental group and control group. The results revealed that before an intervention the labour outcome was assessed in terms of Blood pressure, body temperature, and pulse rate, respiration rate which was found to be normal in both experimental group and

control group. After an intervention the labour outcome was assessed in terms of Blood pressure, body temperature, pulse rate, respiration rate, type of delivery which was found to be within normal range in both experimental and control group.

Table 9 presented the association of post-test intensity of labour pain with demographic variables was assessed by using chi-square test. There was no association between the intensity of labour pain with selected demographic variable at $p<0.05$ level.

The association of post test anxiety level with demographic variables was not assessed because all the primipara women had medium level of anxiety (41-60).

DISCUSSION

The current study revealed that there was decreased to level of anxiety, relieved labour pain among primipara women after intervention of foot reflexology which was statistically significant at the level of $p<0.05$. Hence the null hypothesis was rejected and research hypothesis was accepted. To support my objectives a similar study on the effectiveness of foot reflexology on anxiety, labour pain among primigravida mothers by S. Moghimi Hanjani et al (2015) result shows that application of reflexology technique decreased pain intensity (at 30, 60 and 120min after intervention) and duration of labour as well as anxiety level significantly ($P<0.001$)[13].

RECOMMENDATIONS

1. A comparative study can be conducted similarly between various alternative complementary methods to reduce anxiety, pain perception during labour.
2. A study can be conducted to assess the attitude of primipara mother about foot reflexology for management of anxiety, pains during labour.
3. An exploratory study can be done to investigate the factors which aggravate the anxiety level, labour pain intensity.
4. A more comprehensive investigation can be undertaken to ascertain the effect of anxiety, pains during labour on psychological health status of the labouring women.
5. The study can be done on a large sample to generalize the findings of research study.

NURSING PRACTICE

1. Nurses play an important role during childbirth by reduces the anxiety and relieve labour pain.
2. The findings of the study revealed that foot reflexology can be included for nursing management during labour.
3. Nurses could learn the assessment of anxiety level, intensity of labour pain and use of foot reflexology in anxiety, labour pain.

NURSING ADMINISTRATION

- With technological advances and ever growing challenges, the health care administrators have the responsibility to provide continuing nursing education opportunities to understand anxiety and the pain management with complementary therapies including Foot reflexology.
- The Nurse administrators can initiate foot reflexology to reduce anxiety, labour pain through development programs like in-service education and continuing nursing education programs.
- This enables the nurse to update the knowledge and to render the cost effective care to the public.
- The nurse administrators can train the nurses to identify level of anxiety, labour pain intensity and to give counseling and teaching regarding management of anxiety, pain during labour.
- Nurse administrators can prepare written policies and protocols regarding care of women in labour with foot reflexology.

NURSING RESEARCH

- The professionals and the students can conduct many studies on different complimentary therapies to bring about newer perspectives in nursing care.
- Nurse researcher should challenge to perform scientific work and take part in

assessment, application and evaluation of complementary therapies in women with labour.

- The study finding will motivate the initial researchers to conduct the same study on large scale and study will be the reference for the extensive and intensive nursing care.
- Disseminate the findings of research through conferences, seminars and publishing in nursing journals.

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