

DOI: <http://dx.doi.org/10.18203/2320-1770.ijrcog20164636>

Original Research Article

A pre-experimental study to evaluate the effectiveness of back massage among pregnant women in first stage of labour pains admitted in labour room of a selected hospital, Ludhiana, Punjab, India

Deepika Sethi^{1*}, Seema Barnabas²

¹Nursing Tutor, Akal College of Nursing, Baru Sahib, Sirmour, Himachal Pradesh India

²Professor, Christian Medical College and Hospital, Ludhiana, Punjab, India

Received: 25 July 2016

Accepted: 26 August 2016

*Correspondence:

Ms. Deepika Sethi,

E-mail: deepikasethi742@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Labour is a health state that most women aspire to, at some point in their lives. The first thought that comes to the mind of an expecting woman regarding her delivery is the pain of labour. The major role and responsibility of the nurse is in identifying the problems of the woman in labour, providing appropriate information regarding the alternative modalities of pain relief during labour. A pre-experimental study was conducted to evaluate the effectiveness of back massage on pain among pregnant women in first stage of labour pains in a selected Hospital, Ludhiana, Punjab. The objectives of the study were to assess the pre-test level of pain in first stage of labour pains among pregnant women, to administer the back massage in first stage of labour pains, to assess the post-test level of pain and to compare the pre-test and post-test level of pain in first stage of labour pains among pregnant women and to determine the relationship of pre-test and post-test level of pain with the selected variables.

Methods: Conceptual framework was based on General system theory by Ludwig Von Bertalanffy. Modified Labour Pain Relief Tool and Participants Opinionnaire were used to assess the effectiveness of back massage.

Results: Findings of the study were in the pre-test mean score was 5.83 and post-test mean score was 3.75 which was found statistically highly significant at $p < 0.01$ level. Gravida had significant impact on level of pain. Back massage had impact on level of pain among pregnant women.

Conclusions: Present study revealed that in the pre-test mean score was 5.83 and post-test mean score was 3.75 which was found statistically highly significant at $p < 0.01$ level. Age, education, mother's occupation, period of gestation and any history of abortion had no significant relationship with pain, and gravida had statistically significant relationship with pain. Back massage had impact on pain level. Therefore it was concluded that back massage was effective to reduce the level of pain.

Keywords: Administration of back massage, Back massage, Pre-experimental, Pregnant women

INTRODUCTION

Labour is a health state that most women aspire to, at some point in their lives. The first thought that comes to the mind of an expecting woman regarding her delivery is the pain of labour. The pain of the labour is the central and universal part of woman's experience of childbirth. Labour is a normal physiological process, which while

should be an occasion for rejoicing, it also accompanies with it, lots of pain, agony, and discomfort and certain risks. Thus although being a joyful and empowering experience it can end with negative and tragic results, leaving the woman filled with fear and anxiety for future birth.¹ The causes of labour pain can be either physical or psychological. Physical factors include uterine contractions, cervical dilatations, cervical effacements

etc. Psychological factors include fear and anxiety, previous experiences, inadequate support, inadequate knowledge. Pain perceived during labour may be different for each woman.²

Conventionally, the events of labour are divided into four stages. First stage starts from the onset of true labour pain and ends with full dilatation of cervix. It is in other words, the “cervical stage” of labour. Second stage of labour starts with full dilatation of cervix and ends with the expulsion of foetus. Third stage begins after the expulsion of foetus and ends with the expulsion of placenta and membranes. Fourth stage is the stage of observation of at least one hour after the expulsion of placenta and membranes.²

The first symptoms to appear in first stage of labour are intermittent painful uterine contractions followed by expulsion of bloody mucous per vagina. The first stage of labour is characterized by noticeable cervical changes as a result of uterine contractions. The cervix softens, thins, shortens and opens to a diameter of 10 cm. These changes are referred to as effacement and dilatation. The first stage is characterized by several physical and psychological changes of which the most important one to be managed is the pain due to intermittent uterine contractions.² Pain in labour is nearly universal experience for the child bearing woman. A woman’s experience of labour pain is influenced by many factors including her past experiences of pain, her coping abilities, the birth environment and psychological factors.³

Most pain during childbirth results from normal physiologic events. If nurses understand the nature and effects of pain during the labour process, they will be better prepared to provide supportive care physical comfort includes offering a variety of non-Pharmacologic and pharmacologic intervention. Among the non-pharmacologic methods of pain relief back massage, acupuncture and hot application are effective techniques for management of labour pain.³ The pain and discomfort of labour have two origins—visceral and somatic. During the first stage of labour, uterine contractions cause cervical dilation and effacement. Uterine ischemia (decreased blood flow and therefore local oxygen deficit) results from compression of the arteries supplying the myometrium during uterine contractions. Pain impulses during the first stage of labour are transmitted via the T10 to T12 and L1 spinal nerve segments and accessory lower thoracic and upper lumbar sympathetic nerves. These nerves originate in the uterine body and cervix.⁴

During most of the first stage of labour, the woman usually has discomfort only during contractions and is free of pain between contractions. Some women, especially those whose foetus is in a posterior position, experience continuous contraction-related low back pain, even in the interval between contractions. As labour progresses and pain becomes more intense and persistent,

woman become fatigued and discouraged, often experiencing difficulty coping with contractions.⁴ As women concentrate on the work of bearing down to give birth to their baby, they may report a decrease in pain intensity. Pain impulses during the second stage of labour are transmitted via the pudendal nerve through S2 to S4 spinal nerve segments and the parasympathetic system Pain experienced during the third stage of labour and the after pains of the early postpartum period are uterine, similar to the pain experienced early in the first stage of labour, areas of pain during labour.⁵

The essence of midwifery can be with woman providing comfort in labour. Touch communicates caring and reassurance. Manual healing methods used today during delivery include touch and massage therapy. Painful uterine contractions can be treated by applications of pressure with the hands to woman’s back, hips, thighs and sacrum. By massage therapy, pharmacological management during the first stage of labour can be reduced. So less negative effects will be there on foetus and mother.⁶ Massage is the systematic manipulation of the soft tissues of the body particularly the muscles, tendons and skin. It also relaxes tense muscles there by promoting general relaxation. Sacral massage also has physical benefits as it enhances the circulation and increases venous and lymphatic flow. Massage evokes an atmosphere of acceptance, respect for the body and being cared for. The close personal interaction implicit in massage strengthens the nurse–patient relationship and this in turn creates an ambience towards health and healing.⁷

In a recent study pregnant women who were massaged versus pregnant women who experienced relaxation therapy reported lower anxiety and depression, and had lower stress hormone levels (cortisol and norepinephrine). The massaged women experienced less sleep disturbance and less pregnancy pain (lower back and leg pains) and fewer obstetric and postnatal complications including lower prematurity rates.⁸ Women who participated in studies in Turkey, Taiwan, England and the United states in which they received massage or acupressure during labour described their experience of labour pain as significantly less than those who received none. Those who received touch daily for 2 weeks prior to labour and then during labour were found to have an increased pain threshold, so that the same level of stimulation felt less painful than it did prior to massage, even though cortisol, a hormone produce in stressful situations, remained the same for those who received the touch as for those who did not.⁹

Massage stimulate the body to release endorphin, which are natural pain killing substances and stimulates for the production of oxytocin, decreases stress hormones and neurological excitability. The individual cells of body are dependents on abundant supply of blood and lymph because these fluids supply nutrients, oxygen and carry waste and toxins. Hence, these can be achieved by

massage.⁵ Nursing is an art and a science. Nurses are the key persons of the health team, who plays a vital role in the promotion and maintenance of health. The major role and responsibilities of the nurse is to identifying the problems of the woman in labour, providing appropriate information regarding the alternative modalities of pain relief during labour, helps the women to ventilate all their doubts by interpersonal interactions, helps the women in labour to select the appropriate modality for effective pain relief, effective application of alternative modalities of pain relief during first stage of labour and there by managing labour pain effectively.

METHODS

Research approach

For the present study, Quantitative research approach was adopted.

Research design

Pre-experimental one group pre-test post-test design was selected for the present study as shown below.

Independent variable: The independent variable of the study was Back massage which was given during first stage of labour.

Dependent variable: Level of pain in first stage of labour.

Extraneous variables: Age, Education, Mother's Occupation, Gravida, Period of Gestation, Any History of Abortion.

Research setting

The present study was conducted on patients admitted in Labour room of CMC and Hospital, Ludhiana, Punjab. The sample was collected from Labour room.

Target population

In the present study, the target population was the pregnant women in first stage of labour who were admitted in the labour room of Christian Medical College and Hospital, Ludhiana, Punjab.

Sample and sampling technique

A non-probability sampling by using purposive sampling technique was used to select a sample of 40 pregnant women in first stage of labour admitted in labour room of a Christian Medical College and Hospital, Ludhiana, Punjab.

Inclusion criteria

The present study includes the pregnant women who are:-

- Admitted in labour room and in first stage of labour.
- Willing to participate in the study.
- Admitted in labour room of CMC and Hospital Ludhiana, Punjab.
- Available during data collection.

Exclusion criteria

The present study excludes the pregnant women, who are:-

- Antenatal women with any medical condition such as pregnancy-induced hypertension, gestational diabetes mellitus etc.
- Women getting epidural or any pain relieving medication.

Description of tool

The tool consisted of following 2 parts.

Section I: Sample characteristics.

Section II: Part A: Modified Labour Pain Relief Tool

Part B: Participants Opinionnaire

Section I: Sample characteristics

This consist of 06 items for obtaining information of demographic variables of pregnant women in first stage of labour such as Age, Education, Mother's Occupation, Gravida, Period of Gestation, Any history of Abortion.

Section II

Part A: Modified labour pain relief tool

This tool consist of five measures like Intensity, Quality, Behaviour and Physiologic, Fatigue, Psychosocial and Emotional, categorised in three tables under a 0, 1, 2 rating. The 0 rating represents mild pain, the 1 rating represents moderate pain and the 2 rating severe pain. The measure categories comprise of visual pictures and words. A total rating can then be obtained by adding the individual score and then compared with the level of pain score.

Maximum score = 10, Minimum score = 0

Criterion measures

Level of pain: Score levels

0-3 Mild pain; 4-6 Moderate pain; 7-10 Severe pain

Part B: Participants opinionnaire

After delivery Opinionnaire was used to get the behavioural responses of the subject regarding pain in first stage of labour.

Reliability of the tool

The reliability of the tool was calculated by inter rater or inter observer reliability to evaluate the effectiveness of back massage of Modified Labour Pain relief Tool. Reliability of the tool was found to be 0.96. Hence the tool was reliable.

Pilot study

Pilot study was conducted in 2nd week of November 2014 and data was collected from 1/10th sample i.e. 04 pregnant women in first stage of labour to find out the reliability and feasibility of the tool. The pilot study was conducted in Christian Medical College and Hospital, Ludhiana. Purposive sampling technique was used for selection of study sample. Each pregnant woman who met the criteria was observed for 30 minutes. Two observations were made. Total of 4 observations were made, 2 by investigator and 2 by inter-rater.

RESULTS

Table 1: Frequency and percentage distribution of pregnant women in pre-test and post-test level of pain according to modified labour pain relief tool (n=40).

		Pregnant woman			
		Pre test		Post test	
Level of pain	Score	f	%	f	%
Mild pain	0-3	1	2.5	16	40.0
Moderate pain	4-6	29	72.5	24	60.0
Severe pain	7-10	10	25.0	0	0.0

Maximum Score = 10; Minimum Score = 0

Table 2: Mean pre-test and post-test score of level of pain among pregnant women according to modified labour pain relief tool (n=40).

Group	Level of pain			
	Mean	SD	Df	't'
Pre- test	5.83	1.30	39	10.51**
Post-test	3.75	1.01		

Maximum Score = 10; **significant at p<0.01 level; Minimum Score = 0

Table 1 depicts frequency and percentage distribution of pregnant women in pre-test and post-test level of pain according to Modified Labour Pain Relief Tool. In the pre-test, majority of pregnant women (72.5%) had moderate pain followed by severe pain (25%) and then mild pain (2.5%), whereas in post-test i.e. after back massage the level of pain was reduced in majority of pregnant women (60.0%) to moderate pain, whereas 40.0% were having mild pain and none had severe pain.

Thus it can be concluded that after back massage the pain reduced to the level of the moderate and mild pain.

Table 2 depicts the pre-test and post-test level of pain among pregnant women according to Modified labour Pain Relief Tool. The pre-test mean score was 5.83 and the post-test mean score was 3.75. The difference between pre-test and post-test mean score was compared which was found statistically highly significant at p<0.01 level.

So, it can be concluded that back massage had significant impact on reduction of pain during first stage of labour. Hence, research hypothesis is accepted.

Table 3 depicts the mean and Standard deviation of pregnant women in Pre-test and Post-test according to characteristics of level of pain, according to Intensity level of Modified labour Pain Relief Tool. The pre-test mean score was 1.46 and the post-test mean score was 1.0. According to Quality, the pre-test mean score was 1.29 and the post-test mean score was 0.80.

According to Behaviour and Physiology, the mean pre-test score was 1.27 and the mean post-test score was 1.0. In the category of Fatigue the pre-test mean score was 0.88 and the mean post-test score was 0.49. According to Psychosocial and Emotional, the mean pre-test score was 1.15 and the mean post-test score was 0.73.

The difference between mean pre-test and mean post-test score was compared which was found statistically highly significant at p<0.01 level.

So, it can be concluded that back massage had significant impact on pain.

Table 4 depicts mean and standard deviation of Pre-test and Post test score of level of pain among pregnant women according to gravida. The highest pre-test and post-test mean score (6.05) (4.05) respectively was in the group of primigravida women, followed by multi gravida

women with mean score 5.56 in pre-test and 3.39 in post-test. The difference of pain level among pregnant women with in the category of parity was found statistically significant at $p < 0.05$ level.

Thus it was concluded that gravida had significant impact on level of pain among pregnant women.

DISCUSSION

The first objective was to assess the pre-test level of labour pain among pregnant women to identify the need of back massage. The present findings of the study revealed that majority 72.5% women had moderate level of pain followed by (25%) women who had severe pain and then mild pain (2.5%). To support this, a study conducted by Reeja JM and Fernandes Philomena revealed that the majority of women had moderate pain followed by severe pain and least were mild pain.¹⁸

The second objective was to administer the back massage in first stage of labour pains. In present study back massage was administered as intervention to the experimental group. To support this Field T, Taylor S in their study where partners were given instructions on massaging the back and the legs during the first 15 minutes of every hour of labour of the pregnant women from a side-lying position reported significantly less back pain.⁸

The third objective was to assess the post-test level of pain among pregnant women. The present study revealed that, (60%) women had moderate level of pain followed by mild pain (40%). Hence, it was indicated that most of the women had less back pain after back massage. To support this Smith CA, Levett KM, Collins CT, Jones L conducted a study and it states that back massage have a significant role in reducing pain and improving the emotional experience of labour.⁷

Table 3: Mean and standard deviation of pregnant women in pre-test and post-test according to characteristics of level of pain (n=40).

Characteristics of pain level	Pre test		Df	Post test		t
	Mean	SD		Mean	SD	
Intensity	1.46	0.51	39	1.00	0	5.94**
Quality	1.29	0.45	39	0.80	0.48	6.25**
Behaviour and physiologic	1.27	0.42	39	1.00	0.50	3.85**
Fatigue	0.88	0.61	39	0.49	0.50	4.64**
Psychosocial and emotional	1.15	0.39	39	0.73	0.49	5.37**

Maximum Score = 10; **significant at $p < 0.01$ level; Minimum Score = 0

Table 4: Mean and standard deviation of pre-test and post test score of level of pain among pregnant women according to gravida (n=40).

Gravida	Pre-test				t	Post-test		
	n	Mean	SD	SD		Mean	SD	Df
Primigravida	22	6.05	1.33	1.19	4.5	1.05	38	2.15*
Multigravida	18	5.56	1.25		3.39	0.85		

Maximum Score = 10; **significant at $p < 0.05$ level; Minimum Score = 0

The fourth objective was to compare the pre-test and post-test level of pain to determine the effectiveness of back massage, present study revealed that (72.5%) women had moderate level of pain followed by (25%) women had severe pain and then mild pain (2.5%). In post-test, 24 (60%) women had moderate level of pain followed by mild pain 16 (40%). Hence, it was concluded there was significant reduction in back pain after back massage. To support this, a study was conducted by

Joyce H; Leventhal LC who reported that post-test level of pain was lower than the pre-test level of pain which indicating significantly high level of significance.²⁷

The fifth objective was to determine the relationship of pre-test and post-test level of pain with selected variables i.e. age, education, mother's occupation, gravida, period of gestation, any history of abortion. According to gravida, the highest mean pre-test score (6.05) was in

primigravida than (5.56) multigravida. The highest mean post-test score (4.05) was in primigravida than (3.39) multi gravida. The difference between mean pre-test and mean post-test score with in the category of gravida was found highly significant at $p < 0.05$ level. The findings were supported by Patrica J where gravid was significant relationship with level of pain among pregnant women.²⁸ Brown ST, Campbell D, Kurtz A also reported that multi gravida experience less pain than primigravida in the latent phase, active phase and in the transition phase.²⁹

According to age, the highest mean pre-test score level of pain was 6.36 in the age group of 20-25 years followed by 5.74 in the age group of 26-30 years and least 5.0 in the age group of 31-35 years. The highest post-test mean score level of pain was 3.86 in the age group of 31-35 years followed by 3.74 in the age group of 26-30 years and least was 3.71 in the age group of 20-25 years. There was no impact of age on level of pain among pregnant women. The findings were supported by Pathanapong P who reported that age had no significant relationship with level of pain among pregnant women.³⁰

According to education, highest mean pre-test score level of pain was 6.35 in the category of secondary education followed by 5.71 in the category of Primary-Matric and least was 5.31 in graduation and above. The highest mean post-test score level of pain was 3.86 in the category of Primary-Matric followed by 3.81 in the category of graduation and above and least was 3.65 in the category of secondary education. There was no impact of education on level of pain among pregnant women. The findings were supported by Kutti who reported that education had no significant relationship with level of pain among pregnant women.³¹

According to occupation, highest mean pre-test score level of pain was 6.08 in the category of housewives followed by 6 in labourer and least 5.40 in the category of service. The highest mean post-test score level of pain was 3.80 in service followed by 3.75 in housewives and least was 3 in labourer. There was no impact of occupation on level of pain among pregnant women. This was supported by Reeja M and Philomena F who reported that occupation had no significant relationship with level of pain among pregnant women.¹⁸

According to type of previous delivery, highest mean pre-test score level of pain was 6 in the normal vaginal delivery without episiotomy followed by normal vaginal delivery with episiotomy with mean score 5.57 and least was 5.29 in the caesarean section. The highest mean post-test score level of pain was 3.75 in the normal vaginal delivery without episiotomy followed by 3.43 in caesarean section and least was 3.14 in normal vaginal delivery with episiotomy. There was no impact of type of previous delivery on level of pain among pregnant women. This was supported by Kayne MA, Greulich MB, Albers LL who reported that type of previous

delivery had no significant relationship with level of pain among pregnant women.³²

According to period of gestation, highest mean pre-test score level of pain was 6.12 was in the group of above 40 weeks, followed by 6 was in below 37 weeks and least was 5.69 in the group 37-40 weeks. The highest mean post-test score was 3.92 was in the group of 37-40 weeks followed by 3.50 was in the group of below 37 weeks and least was 3.38 in the group of above 40 weeks. There was no impact of present period of gestation on level of pain among pregnant women. This was supported by Lanahan CC who reported that period of gestation had no significant relationship with level of pain among pregnant women.⁸⁵

Contrary study was conducted by Bharathi Jaya B, who reported that period of gestation had significant relationship with level of pain among pregnant women.¹⁹

According to history of abortion, highest mean pre-test score level of pain was 5.84 was in the group of women who never been aborted followed by the 5.78 mean score was in the group of women who have the history of abortion. The highest mean post-test score 1.09 was in the group of women who never been aborted followed by the 0.71 mean score was in the group of women who have the history of abortion. This was supported by Madi B who reported that abortion had no significant relationship with level of pain among pregnant women.⁸⁶

In the present study investigator collected the data individually from pregnant women twice; before and after the back massage. Back massage was effective as post-test score level of pain was lower than pre-test score level of pain.

Prior to data collection, formal written permission was taken from research and ethical committee, College of Nursing, Christian Medical College and Hospital, Ludhiana, Punjab, Medical Superintendent, Christian Medical College and Hospital, Ludhiana. Pregnant women who were in first stage of labour were explained about the purpose of the study and verbal consent was taken from them for their participation in the study. They were assured that the information will be kept confidential and will be used only for research purpose.

ACKNOWLEDGEMENTS

I would like to express my gratitude to my supervisor Prof. (Mrs.) Seema Barnabas for her support in my endeavor and for the critical evaluation of the work, worthy suggestions and constant encouragement.

I wish to extend my sincere gratitude to the Head of Department of Obstetrics and Gynaecology, Head of Department of Physiotherapy, for teaching/demonstrating the technique of back massage, and the library staff of

College of Nursing, CMC and Hospital for giving me permission to utilize the library facility.

My sincere and heartfelt gratitude to each one of the laboring women who gave their valuable time and cooperation during period of data collection and without whom this study would not have materialized.

I would not have contemplated this road without the constant support and prayers of my family members, my grandparent (Dadi G) Mrs. Satya Devi, my father Mr. Satish Kumar Sethi., my mother Mrs. Saroj Sethi and my brother Krantiveer Sethi; all of which finds a place in this thesis.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. National Cancer Institute. Fact sheet: targeted cancer therapies, 2012. Available at <http://www.cancer.gov/cancertopics/factsheet/Therapy/targeted#q1>. Accessed 9 June 2014.
2. Labrecque M, Nouwen A, Bergeron M, Rancourt JF. A randomized controlled trial of nonpharmacologic approaches for relief of low back pain during labor. *J FamPract.* 1999;48(4)
3. Anu T. A comparative study to assess the effectiveness of sacral massage versus hot application in a sacral area for labour pain among women in labour. . Unpublished thesis of Rajiv Gandhi University of Health Sciences, 2009.
4. Gousia B. A study to assess the effectiveness of back massage during first stage of labour among expectant mother's in selected maternity hospital, in Gulbarga. Unpublished thesis of Rajiv Gandhi University of Health Sciences, 2013.
5. Abhushaika L. Labour pain experience and intensity, *International journal of Nursing Practice.* 2005;11(1).
6. Astribum R. The management of pain in labour, *Journal of Obstetrics and Gynaecology.* 2006;26(4).
7. Smith CA, Levett KM, Collins CT, Jones L, Massage, reflexology and other manual methods for pain management in labour (review) *The Cochrane Collaboration, John Wiley,* 2012.
8. Hernandez R, Field M. Multiple sclerosis patients benefits from massage therapy. *Journal of Body Work and Movement Therapies.* 1998;12(8).
9. Nabb MT, Kimber L, Haines A. Does regular massage from late pregnancy to birth decrease maternal pain perception during labour and birth? A feasibility study to investigate a programme of massage controlled breathing and visualization from 36 weeks of pregnancy until birth, *Complement Ther Clin Pract.* 2006;12(3).
10. Melzack R, Schaffelberg D. Labour is still painful after prepared childbirth training. *Canadian Medical Association Journal.* 1987;125(2):357-63.
11. Simpkin PP. Nonpharmacologic relief of pain during labor: Systemic reviews of five methods. *The American Journal of Obstetrics and Gynecology.* 2002;186.
12. Lesley Ann Page. *The New Midwifery 2000;* Churchill Livingstone.
13. Lowe NK. *Journals of Obstetrics Gynaecology and Neonatal Nursing;* 2000.
14. Chang MY, Wang SY. Effects of massage on pain and anxiety during labor: A randomized controlled trial in Taiwan. *Journal of Advanced Nursing.* 2002;38(1).
15. Penny S. Update on Non pharmacologic approaches to relieve labour and prevent suffering. *Journal of Midwifery and Women's Health.* 2004;49(6).
16. Karami NK, Safarzadeh A, Fathizadeh N. Effects of massage therapy on severity of pain and labour of primi-parous women. *Iranian Journal of Nursing and Midwifery Research.* 2009;12(1):6-9.
17. Chang, MY, Wang, SY, Chen, CH, Effects of massage on pain and anxiety during labour. A randomized controlled trial in Taiwan. *Journal of Advance Nursing.* 2002.
18. Joseph MR. Effectiveness of Jasmine oil massage o reduction of labour pain among primigravida mothers. *Nitte University Journal of Health Sciences.* 2013;3(4).
19. Ebrahim H, Nasrin A. Effects of massage therapy on labour progress and plasma levels of cortisol in the acute stage of first labour, *Zahedan Journal of Research in Medical Sciences.* 2013;15(9).
20. Rubneide B. Massage reduced severity of pain during labour: a randomized trial. *Journal of Physiotherapy.* 2013;59(2):109-16.
21. Gorrie TM, Kinney ESMC, Murray SS, *Foundation of maternal and newborn nursing,* 2nd edition, 1998 W. B Saunders Company.
22. Kimber L, McNabb M, McCourt M, Brocklehurst P. Massage or music for pain relief in labour: a pilot randomized placebo controlled trial. *European Journal of Pain.* 2008;12(2):961-9.
23. Lowe NK. The Pain and Discomfort of Labor and Birth. *Journals of Obstetrics Gynaecology and Neonatal Nursing.* 2002:82-92.
24. McCrea H, Wright ME, Stringer M. Psychosocial factors influencing personal control in pain relief. *International Journal of Nursing Studies.* 2000;37:493-503.
25. Sullivan NC. Pain relief in labour. *Oregon Health Science University School of Nursing.* 2004.
26. Cyna AM. Evidence Based Complementary Medicine. 2007;4(4):409-17.
27. Hasegawa J, Leventhal LC. Pharmacological and non-pharmacological treatment of relief of perineal pain after vaginal delivery. *DOAJ.* 2009;7(2):194-200.

28. Patricia J. International journal of therapeutic massage and bodywork. 2012;5(4). Available from: "http://www.ijtmb.org/index.php/ijtmb/about/submissions"Creative Commons Attribution-e.
29. Brown ST, Campbell D, Kurtz A. Characteristics of labor pain at two stages of cervical dilation. *Pain.* 1989;38:289-95.
30. Pathanapong P. Childbirth pain communicative behaviours among selected laboring Thai women. Arizona: The University of Arizona, 1990.
31. Kutti CV, Sabharwal. Systematic review of labour pain. *Journal of Obstetrics and Gynaecology* 2006:332-334.
32. Kayne MA, Greulich MB, Albers LL. Doulas: an alternative yet complementary addition to care during childbirth. *Clinical Obstetrics and Gynaecology.* 2001;44(4):695.
33. Lanahan CC. Variables affecting pain perception during labor. In: McNall LK, Galeener JT. eds. *Current practice in obstetric and gynecologic nursing: volume two.* Saint Louis: The C. V. Mosby, 2000.

Cite this article as: Sethi D, Barnabas S. A pre-experimental study to evaluate the effectiveness of back massage among pregnant women in first stage of labour pains admitted in labour room of a selected hospital, Ludhiana, Punjab, India. *Int J Reprod Contracept Obstet Gynecol* 2017;6:76-83.