



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

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1. 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.

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 privacy².



Nursing is a compassionate concern for human beings. It is the heart that understands and the hand that soothes (Carey and Turpin, 1997) “Caring is Nursing and Nursing is Caring” (Leiniger 1984) The relief of pain is always a matter of priority for nursing action. Pain relief measures in nursing care includes providing psychological support, maintenance of comfortable position, comfort devices, relaxation therapy, music therapy, guided imagery, aroma therapy etc. But above all foot massage is a complementary therapy that has a great potential for use by nurse in a multidisciplinary Pain Management programme³.

Labor pain is the most severe pain a woman experiences in her life. The severity and duration of labor pain, may lead to undesirable psychological effects, like lowered self-confidence and anxiety“Any one and every one can benefit from foot massage which has an amazing ability to harmonize all bodily system. It effectively enhances the functioning of Mind, Body and Soul ⁴.

The massage can lower pain intensity scores at each phase of labour. Anxiety levels were also lower in the massage group during the latent phase and it was helpful in providing pain relief and psychological support⁵.

Therapeutic effects of massage during labour:

- Preparation and loosening of the pelvis before birth.
- It increases the amount of oxygen and nutrients to the cells of mother and fetus.
- Stabilization of hormone levels.
- Increases flexibility of muscles.
- It helps to relieve anxiety during labour.
- Promotes an easier child birth.
- Relaxation of muscles to improve rotation of breach presentation.
- Speedier healing during post partum recovery.
- Relief from soreness and stiffness after child birth.
- Speedier recovery after a caesarian birth.



Gate Control theory has described non-pharmacological pain relief associated with laboring women. It is probable that the soothing sensory input from stroking and kneading activates the “gate closing” mechanism at spinal level. It may also be possible by means of tissue manipulation to stimulate the release of endogenous opiates⁶.

NEED FOR THE STUDY

Childbirth has been associated with pain and throughout history measures had been introduced to relieve it. Various exorcisms can be found from the ancient civilizations. At the beginning of the nineteenth century other remedies were introduced. Non- Pharmacological measures are often simple, safe and relatively inexpensive. They provide the women with a sense of control over a child birth as she makes choices about the measures that are best for her. Massage can relax the body and direct the attention of nervous system thereby providing destruction during early labour. Labour proceeds easier and faster if the women gets relaxed and works with her body⁷.

Labour pain is different for different women. Few of them suffer from menstrual cramps, for some others it is severe pressure and awfully strong waves that seem like diarrhoeal cramps . Besides, first time mothers are more likely to feel more pain than women who have had earlier pregnancies⁸.

Foot massage during pregnancy is very helpful as it brings about a lot of positive benefits. Foot massage helps to relax the muscles, relieves stress pain, cramping and swelling. It also improves immunity and circulation. Foot massage stimulates the body to release endorphins which are natural pain-killing and mood-lifting hormones. In labour, massage is important because it brings close to the person who is giving care. The touch of someone who loves and wants to help is very empowering when coping with contraction . The foot massage techniques used during the first stage of labour are specially designed to support the women with her breathing during contraction. If the



woman is sitting down or in a bed for long periods of labour, foot massage is ideal. Feet become very cold in labour and a foot massage will help to warm up⁹.

A study was conducted by Mrs. Regina Xavier and Mrs. Beulah Premkumar (2007), 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 by Dr. Ratna Prakash, Ms.Elsa Sanatombi Devi, (2007) 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.



Foot massages are among the most relaxation technique which can be given independently and are great for general pain relief in the body - regardless of whether or not you have sore feet. We will need to use a firm hand on the feet to have an effect, a light hand will do no more than tickle or irritate.

In the present world where complementary therapies are taking lot of interest among the population, foot massage could be used by health care professionals as interventions along with other modalities of pain management as it has no adverse effect and it can only improve the quality of life. This therapy is economical in terms of its utilization of health care , money, materials and man power required and it could be learnt by any health care personnel. Research studies have shown that foot massage helps in relaxation and thus reduces pain during labour hence, the investigator felt the need to provide comfort to the mother who is in labour.

SUMMARY:

Massage is recommended by childbirth experts because it has been shown to ease pain and reduce anxiety in the first stage of labour. It is also linked with shorter labours and a lower risk of postnatal depression. This chapter dealt with introduction and need for the study.



2. OBJECTIVES

Statement of the problem

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

Objectives of the study

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)

H₁ :There will be significant difference in the mean pain score during first stage of labour before and after foot massage among women

H₂ :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: Effectiveness means causing a result, especially the desired or intended result. 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: Foot massage is a pressure therapy and involves applying focused pressure to certain known reflex points located in the foot to cure or prevent disease. 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: Labour pain is the rhythmic pains of increasing severity and frequency due to contractions of the uterus at child birth (Bailliere's Nurses Dictionary). 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: It starts from the onset of true labour pain and ends with full dilatation of the cervix (Dutta. D.C. Text book of obstetrics including perinatology and contraception). 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

Conceptual framework deals with concepts assembled together by virtue of their relevance to the research problems which provides a certain framework of reference for clinical practice, research and education¹¹.

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 measureable.



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- 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:

Deficits that arise from stressful health care situations and which the patient's natural support system cannot meet. 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:

Comfort measures that nurses design and implement that are targeted to the health care needs. 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:

Factors that each patient brings to health care situation that nurses cannot change and that have an impact on the success of the interventions. Here, intervening variables are age of the mother, parity, educational background and previous nature of delivery.



Comfort:

The immediate experience of being strengthened through having the needs of relief, ease or transcendence met in the physical, psychosocial, environmental and social context of experience. 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:

Internal or external behaviour in which the patient engages that facilitate health. They can be internal (healing, t-cell formation, oxygenation, etc) or external (observable behaviour such as length of stay in the hospital, functional status). 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:

Stability and ethics of any hospital, health care system, region, state or country. Here , the settings is in the labour ward of well set up selected maternity hospitals.

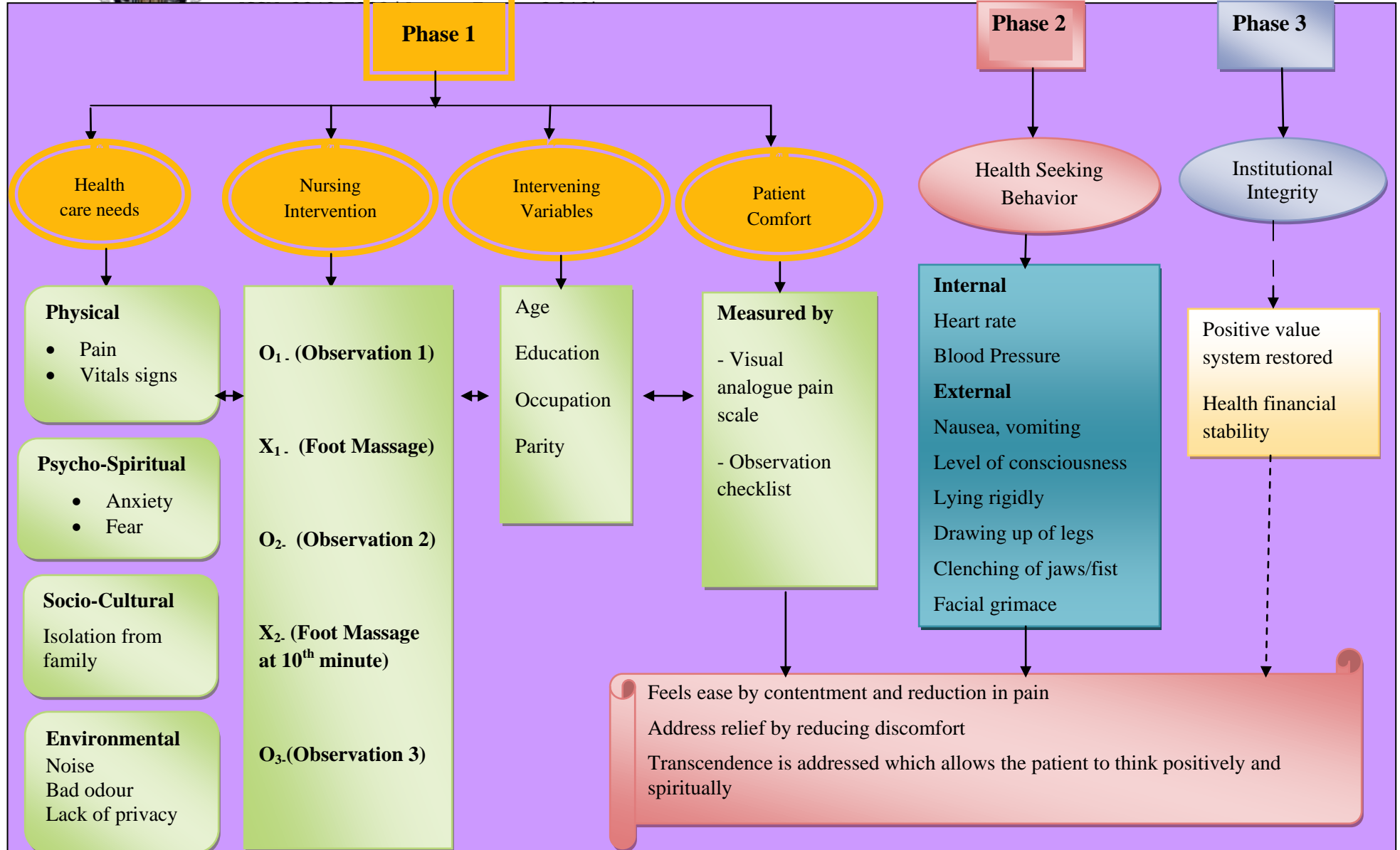


FIGURE : 1 CONCEPTUAL FRAMEWORK BASED ON KOLCABA'S THEORY OF COMFORT

N.B: ---- Not Included in the Study



Summary

This chapter dealt with the objectives, the operational definitions, variables, assumptions and hypotheses which are predictive statements of the relationship between the independent and dependent variables, and delimitations of the study. The conceptual framework of the present study was based on the Kolcaba's comfort Theory.

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 analysed 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.

Key words: Effectiveness, foot massage, labour pain, behaviour response ,women.



9. BIBLIOGRAPHY

1. Havaladar MN. The gentle beginning. Yoga the science 2006; 4(7):10 -3.
2. Vijayalakshmi S. Non pharmacological approaches to relieve labour pain and prevent suffering. Nightingale Nursing Times. 2008 May; 4(2):15-9.
3. Premkumar B. Effectiveness of reflexology (foot massage) in reducing pain in specific urologic condition. Nightingale Nursing Times. 2008 Nov; 4(8):24.
4. Lally JE, Murtagh MJ. A systematic review of women's expectations and experience of pain relief in labour. British Medical Journal. 2008 Mar; 14 (6):7.
5. Chang MY, Wang SY. Effects of massage on pain and anxiety during labour. Journal of advanced nursing. 2002 Apr; 38(1):68-73.
6. Sheeba R. Massage in labour. Prism's Nursing Practice. Journal of clinical Nursing. 2009 Jul-Sep; 4(3):50-3.
7. Jayalakshmi S, Venkatesan L. Effectiveness of olive oil massage therapy upon the low back pain of Parturient mothers in first stage of labour. Nightingale Nursing Times. 2008 Oct; 4(7): 17.
8. www.expertpregnancy.com/labour-delivery/labour.
9. www.tandurust.com/massage-relievesstress-painhtml .
10. Huntley AL. Focus on alternative and complementary therapies. 2003:297-301.
11. Kerlinger FN. Foundation of behavioural research. 2nd ed. New York. Holt Rinchart and Winston; 1973.



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12. Kolcaba KY. A theory of Holistic comfort for Nursing. *Journal Of Advanced Nursing*. 1994; 19: 1178-84.
 13. Polit DF, Hungler BP. *Nursing Research: Principles and Methods*. 3rd ed. Philadelphia: J.B. Lippincott company;1993
 14. Baker A, Ferguson SA, Roach GD, Dawson D. Perception of labour pain by mothers and their attending Midwives. *Journal Of Advanced Nursing*. 2001 Jul; 35(2):171-9.
 15. Lee MC, Essoker G, Hunter. Patient Perceptions of pain. *Journal of Culture And Diversity*. 1998; 5(1):29-37.
 16. Capogna G, Alahuhlat S. Maternal expectations and experiences of labour pain and analgesia. *International Journal of Obstetrics Anaesthesia*. 1996 Oct; 5(4): 229-35.
 17. Kuti O, Faponle AF. Perception of labour pain among the Yoruba ethnic group in Nigeria. *Journal of obstetrics and gynaecology*. 2006 May; 26(4): 332-4.
 18. Olayemi O, Aimakhu CO. Influence of westernization on pain perception in labour among parturients. *Journal of obstetrics and gynaecology*. 2006 May; 26 (4):329-31.
 19. Lang AJ, Sorrell JT, Rodgers CS, Lebeek MM. Anxiety sensitivity as a predictor of labour pain. *European Journal for pain*. 2006 Apr; 10(3):263-70.
 20. Olayemi O, Adeneji RA. Determinants of pain perception in labour among parturients. *Journal of obstetrics and gynaecology*. 2005 Feb; 25(2):128-30.
 21. Abushaikha L, Oweis A. Labour Pain experience and intensity: a Jordanian Perspective. *International Journal of Nursing practice*. 2005 Feb; 11(1):33-8.
 22. Slade P, Mac Pherson SA, Hume A. Expecations, experiences and satisfaction with labour. *British Journal of Clinical Psychology*.1993 Nov; 32(4):469-83.
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23. Pugh LC, Milligan RA. First stage labour management. *Birth*. 1998 Dec; 25(4): 241-5.
 24. Escott D, Spiby H, Slade P. The range of coping strategies women use to manage pain and anxiety prior to and during first experience of labour. *Midwifery*. 2004 June; 20(2):144-56.
 25. Chen CH, Wang SY, Chang MY. Women's Perception of helpful and unhelpful nursing behaviours during labour. *Birth*. 2001 Sept; 28(3):180-5.
 26. Niven CA, Murphy, Black T. Memory for labour pain: A review of literature. *Birth*. 2000 Dec; 27(4):254-5.
 27. Burns E, Blamey C, Esser SJ. The use of aroma therapy in intrapartum midwifery practice: an observational study. *Complementary therapy: Nurse Midwifery*. 2000 Feb; 6(1):33-4.
 28. Phumdoung S, Good M. Music reduces sensation and distress of labour pain. *Pain Management Nursing*. 2003 Jun; 4(2):54-61.
 29. Simkin P, Bolding A. Update on non pharmacological approaches to relieve labour pain and prevent suffering. *Journal of Midwifery*. 2004 Nov-Dec; 49(6):489-504.
 30. Bahasachi, Shoreh. Subcutaneous injection for labour pain. *Journal of Obstetrics and Gynaecology*. 2006; 46:102-06.
 31. Basil RA. Dissertation on the effectiveness of back massage and breathing exercise on pain relief in primi mothers during first stage of labour In selected govt. hospital, Delhi. Unpublished thesis. Submitted to Delhi University; 2005.
 32. Yildirim G, Sahin NH. The effect of breathing and skin stimulation techniques on labour pain perception. *Pain Research Management*. 2004; 9(4):183-7.
 33. Martensson L, Wallen G, Saeden. Use of acupuncture and sterile water injection for labour pain: a survey in Sweden. *Birth*. 2006 Dec; 33(4):289-96.
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34. KaramiN K, Safarzadeh A, Fathizadeh. Iranian Journal of Nursing and Midwifery Research 2007;12(1):13-5.
 35. Diego MA, Dieter JN, Field I. Fetal activity following stimulation of mother's abdomen, feet and hands. 2002; 33(1):68-73.
 36. Chang MY, Wang S, Chen CH. Effects of massage on pain and anxiety during labour. Journal of Advanced Nursing. 2002 Mar; 38(1):68-73.
 37. Simkin P, Kelvin MC. Non-pharmacological approaches to management of labour pain 2007; 16(1):56-9.
 38. Helen V. Nurse Midwifery 2nd ed. Boston: Jones and Bartlett Publishers.1998.
 39. Kothari CR. Research methodology, methods and techniques. 2nd ed. New Delhi; New age international publications; 2004.
 40. Truce EW, Truce JW. Elements of research in Nursing. 3rd ed. St.Louis. CV Mosby Company; 1998.
 41. Burns N, Groove SK. Understanding Nursing Research. 2nd ed. New Delhi: Harcourt (India) Pvt; 2002.