

Effectiveness Of Sacral Massage In Active Phase Of Labor Pain Among Antenatal Mothers.

Ms. Santosh Kumari,

Assistant Professor, Department Of Obstetrics And Gynaecological Nursing, Maharishi Markandeshwar College Of Nursing, Maharishi Markandeshwar University, Kumarhatti, Solan, Himachal Pradesh, India.

Ms. Neha Patyal,

Associate Professor, Department Of Obstetrics And Gynaecological Nursing, Maharishi Markandeshwar College Of Nursing, Maharishi Markandeshwar University, Kumarhatti, Solan, Himachal Pradesh, India.

Ms. Chetna Kumari,

Assistant Professor, Department Of Child Health Nursing, Maharishi Markandeshwar College Of Nursing, Maharishi Markandeshwar University, Kumarhatti, Solan, Himachal Pradesh, India.

Ms. Harpreet Kaur,

Professor Cum Vice Principal, Department Of Mental Health Nursing, Maharishi Markandeshwar University, Kumarhatti, Solan, Himachal Pradesh, India.

Dr. Jasbir Kaur,

Dean & Principal, Department Of Mental Health Nursing, Maharishi Markandeshwar University, Kumarhatti, Solan, Himachal Pradesh, India

Abstract

Background: Labour pain is an unpleasant phenomenon with both physical and emotional aspects. Therefore a pain relief measure is very important for mothers who are in labour pain. Massage is a cost effective nursing intervention that can decrease labour pain and provide psychological support to the mothers during labour process.

Aim/objectives: To Assess the effectiveness of Sacral Massage on active phase of labour among antenatal mothers.

Methodology: True experimental research design was adopted, 60 antenatal mothers were selected by simple random sampling. Massage is given to the sacral region in 3 cycles each for 30 minutes. at cervical dilatation 5-6cm, 7-8cm, 9-10cm using superficial massage (5 minutes), deep friction (5 minutes) and effleurage (5minutes) on each buttock during active phase of labor in experimental group and routine care was given to the control group. After intervention post test was conducted.

Results: The findings of the study revealed that pain level before sacral massage in experimental group majority (90%) mothers had moderate pain, few (10%) mothers had mild pain at 5-6cm cervical dilatation. Majority (70%) mothers had severe pain, few (30%) mothers had moderate pain at 7-8cm cervical dilatation. Majority (100%) of mothers had severe pain 9-10cm cervical dilatation. Pain level after sacral massage in experimental group majority (96.6%) mothers had mild pain, very few (3.3%) of mothers had moderate pain at 5-6cm cervical dilatation. Majority (56.6%) mothers had mild pain, nearly half (43.3%) mothers had moderate pain at 7-8cm cervical dilatation. Majority (96.6%) of mothers had moderate pain, very few (3.3%) mothers had mild pain at 9-10cm cervical dilatation. Further after Sacral massage computed t value (-24.7) was statistically significant at <0.01 level of significance.

Conclusion: Sacral massage was found effective to reduced pain in active phase of labour

Key words: Effectiveness, Sacral Massage, Antenatal Mother, Active Phase of Labor.

Date of Submission: 27-02-2025

Date of Acceptance: 07-03-2025

I. Introduction

Pregnancy is a very unique and different experience of a women's life. It shows the women's amazing creative and nurturing power. When the women become pregnant most of them have fear how to cope with the

pain during labour and child birth. ^[1] Child birth has been associated with pain and we always find the way to help to relieve pain and it can vary during different times in the same labour and during different birth by the same woman.^[2] Pain is a highly unfriendly and personal feeling that cannot share with others. As the labor progress intensity of pain increases which becomes unbearable and it need elicit management which can be pharmacological or non-pharmacological³. Non pharmacological pain relief such as continuous support, touch and massage, maternal movement and positioning so among these measures, massage releases endorphin when these endorphins attach to opiate receptor neurons, they reduce the intensity of pain in the human body and naturally block the pain signals which are produced by the nervous system.^[3] Further massage is a cost effective nursing intervention that can decrease pain and anxiety during labor. The study performed by **Semra Akkoz Cevik et. al. 2020** showed that sacral massage during labor reduced labor pain and lowered the levels of concern and anxiety.^[4]

The wealth of the nation is its healthy population. Majority mothers contribution in creating a healthy population. So mother need to be kept physically emotionally and socially healthy. Massage not only reduces pain and anxiety, but shortens labor and lowers new mothers risk of experiencing postpartum depression. Scientific study conducted by **Michel Tournaire et al. 2007** on complementary & alternative therapies to pain relief during labor reveled that about 80 -90% of women who get massaged during labor, pain has reduced and felt psychologically supported and reduced anxiety about labor and delivery.^[5]

Massage decreases the intensity of pain during labor. An ideal labor pain relief method should meet the certain criteria that mother and fetus have the least possible side effects and will have everlasting effects.^[6] Massage helps in reduction of pain and anxiety during labor and also partner contribution in the massage can give positive inspiration to the quality of women's birth experience. Literature showed that massage was applied for 30 minutes give positive impact, so that in this study for the experimental group massage on the sacral region were administered to the mothers under the supervision of a doctor for 30 minutes in active phase of labor.^[7]

Another study showed that lower back massage was effective to reduce labour pain during strong contraction. Massage was given by using hand very firmly over the base of the spine and over surrounding muscles.⁸ Since there were not much research studies on effect of sacral massage on reduction of labor pain in Himachal Pradesh. So we decided to conduct this study to "assess the effectiveness of sacral massage on labor pain among antenatal mother in active phase of labor in Maharishi Markandeshwar Medical College and Hospital Solan, H.P.

II. Objectives:

The objectives of the study were to assess and evaluate pre-test and post test score of sacral massage on labour pain among antenatal mothers in both groups and to find out association between post test score of labor pain among antenatal mothers with socio- demographic variables.

III. Methodology

Study Design and Setting

This was a randomized controlled experimental study. A quantitative research approach and true experimental research design was adopted. The study was conducted in the months of March, 2023 to May, 2023 at First stage and labour room situated in 6th floor at Maharishi Markandeshwar Medical College & Hospital Kumarhatti-Solan Himachal Pradesh. The study was performed in volunteer antenatal mothers.

Data Collection

A structured questionnaire was pilot tested. The population of the research consisted of antenatal mothers who were admitted to the delivery room. When the power analysis was performed, the sample size was calculated with 5% error level, bidirectional significance level, 95% confidence interval, and 80% ability to represent the universe. It was found that total 60 antenatal mothers needed (30 antenatal mothers were in the experimental group and 30 antenatal mothers were in the control group). The following inclusion criteria were used to determine participation in the study were pregnant mothers 18-30 years old, singleton pregnancies between 37-40 weeks with a healthy fetus, without any complications that may cause dystocia during labour, for whom analgesia and anesthesia were not used during the first phase of labour, who volunteered to participate in the research and who were able to establish verbal communication. In addition, pregnant mothers with high-risk pregnancies, with caesarean section indication and with a chronic illness were excluded.^[8]

Sample for the study was selected after sample size estimation using the formula that is

$$n = \frac{(Z1 - \alpha/2 + Z1 - \beta)^2}{(\sigma1 + \sigma2)^2} \frac{(m1 - m2)^2}{(m1 + m2)^2}$$

Z1- α /2: The level of significance for two trails, when researcher considers that intervention may have positive or negative effect on outcome variables. Otherwise, one tail effect is considered only in one direction (Z1- α)

Z1- β : The power researcher considers for detecting the difference, which is generally considered 80% or 90%. Z0.90 = 1.28 from Gaussian table.

σ_1 = SD of the outcome variable in group-1

σ_2 = SD of the outcome variable in group-2

m1 = mean of the outcome variable in group-1

m2 = mean of the outcome variable in group-2

The sample volume to represent the population was determined as minimum 30 subjects for each group. The mother who participated in the study were randomized into either the control or the experimental group. Allocation to groups carried out by simple randomization method. Participants were chosen, one sealed envelope out of ten (5 Experimental group, 5 control group), offered by the researcher. This process was continued for all participants with inclusion criteria

Enrollment:

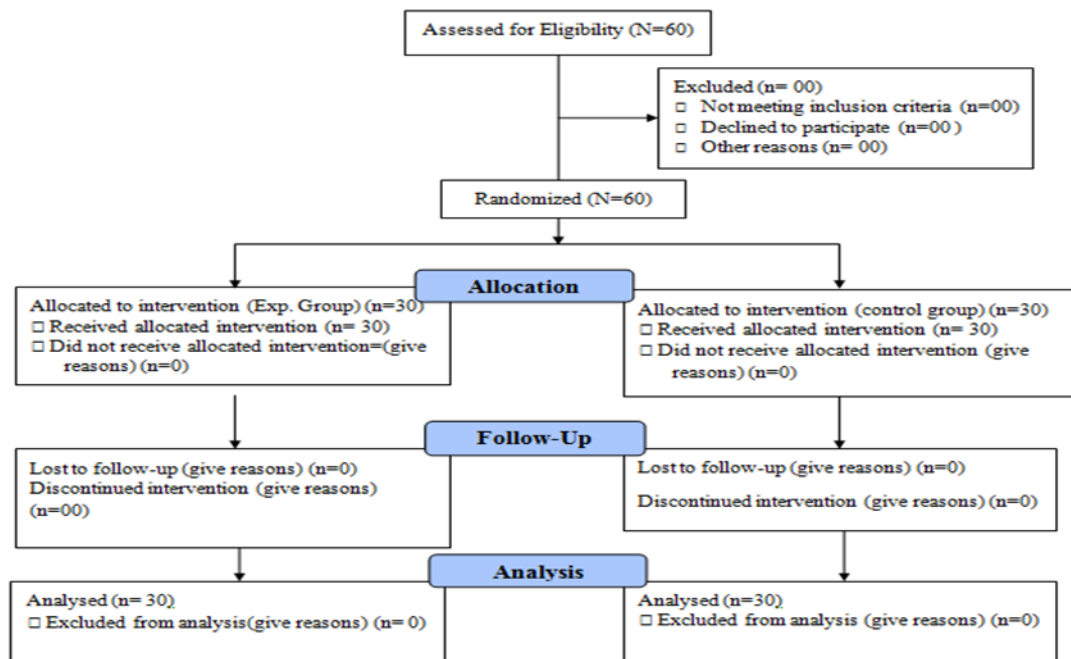


Figure 1: Consort Diagram Of Data Collection

Baseline Data Collection

After the approval and permission from the Ethical Committee of Maharishi Markandeshwar University with the approval letter no. MMMCH/IEC/23/759 on dated 27/09/2023. After approval hospital’s head nurse, delivery room incharge(nurse/midwife) and other nurse/midwife were informed about the purpose and scope of the study. Data were collected by one of the researcher. The researcher was aware of which patient was assigned to the experimental and control group. However, the researcher did not interfere in any way with the study results. When researcher encountered with antenatal mother who met the inclusion criteria of the study, then purpose of the study was explained and written consents were taken from the mother. Additionally, during the study, no mother was requested to withdraw and no mother was excluded from the study. Routine care and treatments for the mothers continued during data collection.

Data collection tools: Data was collected by using the self structured socio- demographic variables, self structured obstetrical variables and standardized Visual analog scale.

Socio – Demographic Variables - It was self structured tool used to collect the socio-demographic data. It includes age, marital status, educational status of mother and father, area of residence, occupation of mother and father, religion, type of family, family income(monthly), family support heard about sacral massage.

Visual Analog Scale (Wong & Waker Faces Pain Rating Scale).^[9] It was standardized tool to assess the level of pain. This includes rating from (1– 10) (1-3) indicates mild pain, (4-6) indicates moderate pain and (7-10) indicates severe pain.

Intervention: Sacral Massage: Massage was administered to the antenatal mothers at sacral region under the supervision of midwife and obstetrician for 3 cycles each for 30 minutes at cervical dilatation 5-6cm, 7-8cm, 9-10cm using superficial massage (5 minutes), deep friction (5 minutes) and effleurage (5minutes) on each buttock during active phase (5-10cm) of labor.

To attain this, patient was placed in left lateral position or position desired by mothers. This technique was applied between T10 and S4 according to Fig. II.

For the correct application of the massage, we were trained by a certified Physiotherapist at MMMC& Hospital.

Procedure

The data was collected by the researchers through face-to-face interviews. Before data collection, an informative meeting regarding the purpose and scope of study was held for the members of healthcare team who worked in the unit, where study was conducted. Cooperation was provided by the members of the healthcare team also. For the correct application of massage, the researcher was trained by the physiotherapist who working at MMMC& Hospital. Massage was applied to the pregnant mothers only in the intervention group in active phase of labor. There was no intervention in the control group except for routine care.

Steps for data collection, in the experimental & Control group are following:

In Experimental Group

Face to face interview was conducted with the antenatal mothers.

The self structured socio- demographic variable, self structured obstetrical variable and Visual analog scale (Wong & Waker Faces Pain Rating Scale) was applied.

Massage was applied to the sacral region under the supervision of midwife and obstetrician for 3 cycles and routine care were given. After application of sacral massage posttest was conducted by using Visual analog scale (Wong & Waker Faces Pain Rating Scale).

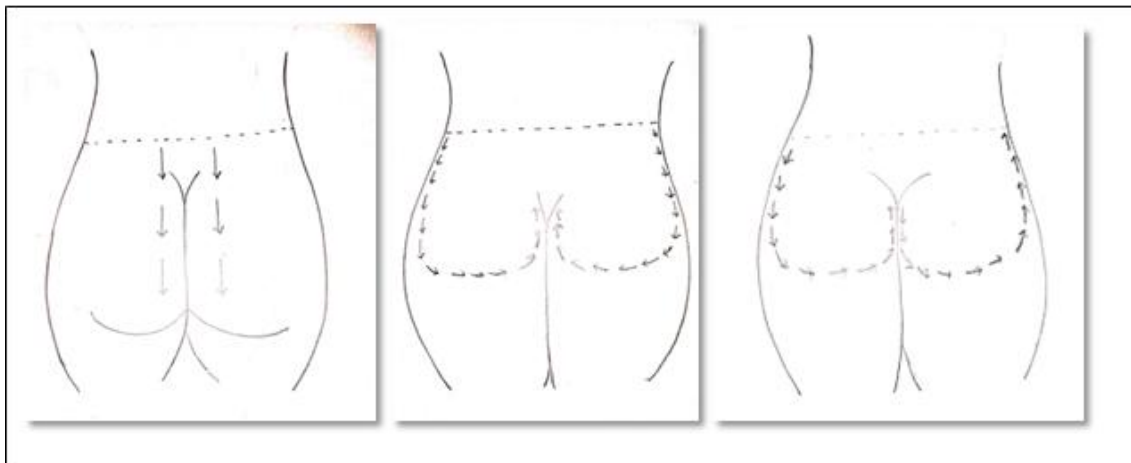


Figure 2: Steps Of Sacral Massage

Control Group

Face to face interview was conducted with the antenatal mothers. The self structured socio-demographic variables, self structured obstetrical variables, Visual analog Scale was applied and routine midwifery care was given.

Data Analysis

Data were analyzed on the basis of objectives of the study. Descriptive and inferential statistics were used. Calculation was carried out manually with the calculator and with help of MS EXCEL and SPSS Version 22.

About the socio demographic variables present study revealed that in experimental group majority (43.4%) of mothers were in age group of 23-27 years In control group majority (43.3%) of mothers in the age group of 28-32 years. Majority of mother (100%) in experimental and (100%) in control group are married. Majority of mothers (36.6%) were secondary educated in experimental group. Majority (43.3%) of mothers

were secondary educated In control group. Majority (43.3%) father were graduates in experimental group. Majority (43.3%) fathers were in control group. In experimental group maximum (70%) mothers were lived in rural area. In control group (66.6%) of mothers were lived in urban area. Majority fathers in experimental group (66.6%) were having private job .In control group (50%) fathers were having private job. Majority mothers in experimental group (83.3%) mother were having other occupation. In control group (60%) mothers having other occupation Maximum mothers in experimental group belongs to Hindu religion (96.6%) in control group (93.3%) were belong to Hindu .Majority mothers (46.6%) were belongs to joint family. In control group majority mothers (43.3%) were belongs to joint family. In experimental group majority (40%) mother’s having family income Rs \geq 15,000 per. Control group (53.3%) were having Rs \geq 15,000 per month. In experimental group majority (96.6%) were having adequate family support. In control group majority (93.3%) were having adequate family.

Further about the obstetrical variables study showed that on assessing the progress of labor majority mothers (100%) in both experimental and control group were having 5cm cervical dilatation . In experimental group majority (60%) mothers had intact fetal membrane In control group majority (53.3%) mothers has ruptured fetal membrane In experimental group majority (73.3%) mothers had of uterine contractions 20-40 seconds .In control group majority (63.3%) mothers had duration of uterine contractions was 20-40 seconds. Majority mothers (100%) in experimental group and control group had 3-4 uterine contractions in 10 minutes.

Table 1: Frequency And Percentage Distribution of Pain Scores of Antenatal Mothers on active in Active Phase of Labor in Experimental Group and Control Before Intervention
N=60

Sr. No	Level Of Pain	Pain Score	Experimental Group (n=30)			Control group (n=30)		
			5-6cm f(%)	7-8cm f(%)	9-10cm f(%)	5-6cm f(%)	7-8cm f(%)	9-10cm f(%)
1	Mild Pain	1-3	3 (10%)	0	0	9(30%)	0	0
2	Moderate Pain	4-6	27 (90%)	9 (30%)	0	21(70%)	10 (33.3%)	0
3	Severe Pain	7-10	0	21(70%)	30(100%)	0	20(66.6%)	30(100%)

Table 1 depicts that assessment of pain level before sacral massage among antenatal mothers in active phase of labor in both experimental and control group. In experimental group before sacral massage at **5-6cm** of cervical dilatation majority (90%) mothers had moderate pain followed by few (10%) mothers had mild pain . At **7-8cm** of cervical dilatation majority (70%) mothers had severe pain followed by (30%) of mothers had moderate pain. Further **9-10cm** cervical dilatation majority (100%) of mothers had severe pain. In Control group before sacral massage at **5-6cm** majority (70%) mothers had moderate pain, very few (9%) mothers had mild pain. At **7-8cm** of cervical dilatation (66.6%) mothers had severe pain, nearly half (33.3%) mothers had moderate pain. At **9-10cm** cervical dilatation all (100%) of mothers has severe pain.

Table 2: Frequency and Percentage Distribution of Pain Scores of Antenatal Mothers on active in Active Phase of Labor in Experimental Group and Control After Intervention
N=60

Sr. No	Level Of Pain	Pain Score	Experimental Group (n=30)			Control group (n=30)		
			5-6cm f(%)	7-8cm f(%)	9-10cm f(%)	5-6cm f(%)	7-8cm f(%)	9-10cm f(%)
1	Mild Pain	1-3	29(96.6%)	17 (56.6%)	1(3.3%)	1 (3.3%)	0	0
2	Moderate Pain	4-6	1 (3.3%)	13 (43.3%)	29(96.6%)	21(70%)	3 (10%)	0
3	Severe Pain	7-10	0	0	0	8 (26.6%)	27 (90%)	30(100%)

Table 2 depicts that assessment of pain level after sacral massage among antenatal mothers in active phase of labor in both experimental group and control group. In experimental group before sacral massage at **5-6cm** of cervical dilatation pain score majority (96.6%) mothers had mild pain, very few (3.3%) of mothers had moderate pain . Further at **7-8cm** of cervical dilatation (56.6%) of mothers had mild pain, nearly half (43.3%) mothers had moderate pain. Further at **9-10cm** cervical dilatation (96.6%) of mothers has moderate pain, very few (3.3%) mothers had mild pain. In control group after sacral massage at **5-6cm** of cervical dilatation majority (70%) mothers had moderate pain, followed (26.6%) mothers has severe pain and very few (3.3%)

mothers has mild pain. At **7-8cm** of cervical dilatation majority (90%) mothers had severe pain few (10%) mothers had moderate pain. Further at **9-10cm** cervical dilatation majority (100%) of mothers had severe pain .

Table 3: Mean, Mean Difference, Standard Deviation Difference, Standard Error of Mean Difference and ‘t’ Value of Pre Test Highest Pain Scores of Antenatal Mothers during Active Phase of Labor in Experimental Group and Control Group .
(N=60)

Group	Mean±SD _D	Mean _D	SE _{MD}	t value	p value
Experimental Group (n=30)	8.56±0.18	0.66	0.103	-0.36	0.71 ^{NS}
Control Group (n=30)	8.63±0.18				

*Significant(p≤0.05)

^{NS} Not Significant (p≥0.05)

Table 3 depicts that mean pre test pain score of antenatal mothers during active phase of labor in experimental group was 8.56 and in control group was 8.63. Mean difference 0.66, standard deviation difference 0.18 with standard error of mean difference of 0.103. The computed ‘t’ value (-0.36) was found to be statistically non significant at 0.05 level of significance.

Table 4: Mean, Mean Difference, Standard Deviation Difference, Standard Error of Mean Difference and ‘t’ Value of Post Test Highest Pain Scores of Antenatal Mothers during Active Phase of Labor in Experimental Group and Control Group
N=60

Group	Mean±SD	Mean _D	SE _{MD}	t value	p value
Experimental (n=30)	4.86±0.81	-4.66	0.14	-24.7	0.00*
Control Group (n=30)	9.53±0.62				

*Significant (p≤0.05)

^{NS} Not Significant (p≥0.05)

Table 4 depicts that mean post test pain score of antenatal mothers during active phase of labor in experimental group was 4.8667 and in control group was 9.5333. Mean difference -4.6667, standard deviation difference 0.14958 with standard error of mean difference of 0.18856. The computed ‘t’ value (-24.749) was found to be statistically significant at 0.00 level of significance. This showed that there will be significant difference in mean post test score of labor pain in antenatal mothers of experimental group and control group.

The post test scores regarding sacral massage was not associated with demographic variables such as age, marital status, education of mother, education of father, area of residence, occupation of husband, occupation of mother, religion, type of family, family income, family support chi square were not found statistically significant at 0.05 level of significance.

IV. Discussion

Present study showed that majority (43.3%) antenatal mothers in experimental were in age group of 23-27 years and (43.3%) mothers in control group were in the age group of 28-32 years. Alike findings were reported by **Pwale (2020)** who did study on effectiveness of back massage on pain relief during first stage of labor in primi mothers admitted at a tertiary care center which revealed that in experimental group majority (45%) mothers were in age group of 22-25 years and in control group majority (35%) were in age group of 26-29 years. ^[10]Another study done by **Janssen (2012)** on Massage therapy and labor outcomes: a randomized controlled trial showed that in experimental group majority (38.9%) and in control group majority (55.9%) mothers were in the age group of (30-34 years) ^[11]

Present study revealed that the post test mean pain score was in experimental group 4.86±0.81 and in control group 9.53±0.62 which was found statically highly significant at $p \leq 0.05$ level, which means sacral massage, is effective to reduce labor pain. Similar findings were reported by **Devi et.al** who did study on effectiveness of Back Massage in First stage labour pain among pregnant women (2020) showed that post test score regarding back massage post test mean pain score was in experimental group 14.63 and in control group 14.7 which was found statically highly significant at $p \leq 0.05$ level, which means sacral massage is effective to reduce labor pain. ^[3] Further studies also revealed that sacral massage is effective to reduce labour pain **Sethi (2017)** ^[12] **Purwandari (2022)** ^[13] **Rosmiarti (2020)** ^[14] **Iskandar (2018)** ^[15] **Shahbazzadegan (2022)** ^[16].

Present study revealed that pain score of labor is not associated with socio demographic variables such as age ($p=0.49^{NS}$), marital status, educational status of mother ($p=0.61^{NS}$), educational status of father ($p=0.75^{NS}$), area of residence ($p=0.12^{NS}$), occupation of husband ($p=0.77^{NS}$), occupation of antenatal mothers

(0.90^{NS}), religion(p=0.85^{NS}), type of family(p= 0.55^{NS}), family income (p=0.67^{NS}), family support (0.85^{NS}). Chi square was not found statistically significant at 0.05 level of significance. Similar study was reported by **Devi et.al.** who did study on effectiveness of Back Massage in First stage labour pain among pregnant women (2020) showed that socio demographic variables were not associated with post test labour pain score.^[3] **Mwakawanga (2022)** find effectiveness of Back Massage in First stage labour pain among pregnant women showed that no association with the demographic variables such as age, family income, education, occupation, religion, type of family.^[17] **Chaillet (2014)** uses non-pharmacologic approaches based on continuous support with sacral massage, were the most effective for reducing obstetric interventions during labor.^[18]

V. Limitation:

One of the limitations of the current study is the small sample size. Thus, studies with larger sample size are recommended.

VI. Conclusion:

Sacral massage applied during labor was found effective to reduced pain. So it should be recommended as a routine care in parturient women.

VII. Recommendations:

A study can be conducted to assess the knowledge and practice of sacral Massage for labour pain management among nurse midwives. Effect of back massage and relaxation training on the act of labor: RCT

References:

- [1] Beigi NM, Broumandfar K, Bahadoran P, Abedi HA. Women's Experience Of Pain During Childbirth. *Iranian Journal Of Nursing & Midwifery Research*. 2010; 15(2):77-82. [Cited 2024 Mar 29]. Available From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3093177/>
- [2] Jagdish G S, Abirami P. Effectiveness Of Circular Hip Massage On First Stage Labour Pain Among Primi Gravida Mothers. *International Journal Of Pharmacy And Biological Sciences*. 2016; 6(2): 17-22. [Cited 2024 Mar 29]. Available From: https://ijpbs.com/ijpbsadmin/upload/ijpbs_575720e007774
- [3] Devi Mamta Akojiam, Sharma Shalu, Sharma Deepak. Effectiveness Of Back Massage In First Stage Labour Pain Among Pregnant Women. *European Journal Of Translational And Clinical Medicine*. 2020 January 7(11):6644-6652. [Cited 2024 Mar 29]. Available From: <https://www.researchgate.net/publication/351049679>.
- [4] Akköz Çevik S, Karaduman S. The Effect Of Sacral Massage On Labor Pain And Anxiety: A Randomized Controlled Trial. *Jpn J Nurs Sci*. 2020 Jan; 17(1):E12272. [Cited 2024 Mar 29]. Available From: <https://pubmed.ncbi.nlm.nih.gov/31298494/>. PMID: 31298494.
- [5] Ranjbaran M, Khorsandi M, Matourypour P, Shamsi M. Effect Of Massage Therapy On Labor Pain Reduction In Primiparous Women: A Systematic Review And Meta-Analysis Of Randomized Controlled Clinical Trials In Iran. *Iranian Journal Of Nursing & Midwifery Research*. 2017 Jul-Aug; 22(4):257-261. [Cited 2024 Mar 29]. Available From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5590352/>
- [6] Bolbol-Haghighi N, Masoumi SZ, Kazemi F. Effect Of Massage Therapy On Duration Of Labour: A Randomized Controlled Trial. *Journal Of Clinical & Diagnostic Research*. 2016 April; 10(4):12-5. [Cited 2024 Mar 30]. Available From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4866196/>
- [7] American SPA Staff, Massage And Endorphins | American Spa [Internet]. 2004 April. [Cited 2024 Mar 30]. Available From: <https://www.americanspa.com/business/massage-and-endorphins>.
- [8] Sharma SK. *Nursing Research & Statistics*. 2nd Edition. New Delhi: Elsevier; 2014;P-282
- [9] Wong-Baker Faces Pain Scale: <https://www.sciencedirect.com/topics/medicine-and-dentistry/faces-pain-scale>
- [10] Pawale MP, Salunkhe JA. Effectiveness Of Back Massage On Pain Relief During First Stage Of Labor In Primi Mothers Admitted At A Tertiary Care Center. *J Family Med Prim Care*. 2020 Dec 31;9 (12):5933-5938. [Cited 2024 Mar 30]. Available From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7928123/> PMID: 33681022; PMCID: PMC7928123.
- [11] Janssen P, Shroff F, Jaspar P. Massage Therapy And Labor Outcomes: A Randomized Controlled Trial. *Int J Ther Massage Bodywork*. 2012;5(4):15-20. [Cited 2024 Mar 30]. Available From: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3528187/> PMID: 23429706; PMCID: PMC3528187.
- [12] Sethi Deepika, Barnabas Seema 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. *International Journal Of Reproduction, Contraception, Obstetrics And Gynecology*. 2017 Jan;6(1):76-83. [Cited 2024 Mar 30]. Available From: <https://www.ijrcog.org/index.php/ijrcog/article/view/641/589>
- [13] Purwandari Atik, Tuju O Sjenny Et. Al. Effleurage Massage By Husband On The Level Of Pain In Maternal When The 1 Phase Is Active. *Journal Of Positive School Psychology*. 2022, Vol. 6, No. 5, 5527 – 5540. [Cited 2024 Mar 30]. Available From: <https://journalppw.com/index.php/jpsp/article/view/7684>
- [14] Rosmiarti, Marlin Riska, Murbiah. Reduction Of Labour Pain With Back Massage. *Enferm Clin*. 2020;30(S5):209--212. [Cited 2024 Mar 30]. Available From: <https://www.sciencedirect.com/science/article/abs/pii/S1130862120300954>
- [15] Iskandar Siraj Rawah Et. Al. The Effectiveness Of Lower Back Massage On Reducing Labor Pain For Primiparous At Maternity And Children's Hospital. *Nursing & Primary Care*. 2018 May; 2(3): 1-4. [Cited 2024 Mar 30]. Available From: <https://www.scivisionpub.com/pdfs/the-effectiveness-of-lower-back-massage-on-reducing-labor-pain-for-primiparous-at-maternity-and-childrens-hospital-425>
- [16] Shahbazzadegan Samira, Nikjou Roya. The Most Appropriate Cervical Dilatation For Massage To Reduce Labor Pain And Anxiety: A Randomized Clinical Trial. *BMC Women's Health*, 2022; 22:282. [Cited 2024 Mar 30]. Available From: <https://bmcwomenshealth.biomedcentral.com/articles/10.1186/s12905-022-01864-1>

- [17] Mwakawanga DL, Mselle LT, Chikwala VZ, Sirili N. Use Of Non-Pharmacological Methods In Managing Labour Pain: Experiences Of Nurse-Midwives In Two Selected District Hospitals In Eastern Tanzania. *BMC Pregnancy And Childbirth*. 2022 Dec; 22(1):1-9. [Cited 2024 Mar 30]. Available From: <https://Bmcpregnancychildbirth.Biomedcentral.Com/Articles/10.1186/S12884-022-04707-X#Citeas>
- [18] Chaillet N, Belaid L, Crochetière C, Roy L, Gagné GP, Moutquin JM, Et Al. Nonpharmacologic Approaches For Pain Management During Labor Compared With Usual Care: A Meta-Analysis. *Birth*. 2014; 41: 122–37. [Cited 2024 Mar 30]. Available From: <https://Pubmed.Ncbi.Nlm.Nih.Gov/24761801/>