

RESEARCH ARTICLE

Effect of ice cubes on pain and wound healing among the post natal mothers with episiotomy in selected PNC wards

Mrs. Vinita Sawant¹ Mrs. Sindhu Gaikwad² Mrs. Archana Dhanawade³, Dr. Vijaya Kumbhar⁴, Mrs. Tejaswini Chougule⁵

¹MSc. Nursing Scholar, Department of Obstetrics & Gynaecological Nursing Bharati Vidyapeeth (Deemed to be) University, College of Nursing, Sangli, Maharashtra, India

²Assistant Professor, Department of Obstetrics & Gynaecological Nursing Bharati Vidyapeeth (Deemed to be) University, College of Nursing, Sangli, Maharashtra, India

³Assistant Professor, Department of Obstetrics & Gynaecological Nursing Bharati Vidyapeeth (Deemed to be) University, College of Nursing, Sangli, Maharashtra, India

⁴Professor and HOD, Department of Obstetrics & Gynaecological Nursing Bharati Vidyapeeth (Deemed to be) University, College of Nursing, Sangli, Maharashtra, India

⁵Clinical Instructor, Department of Obstetrics & Gynaecological Nursing Bharati Vidyapeeth (Deemed to be) University, College of Nursing, Sangli, Maharashtra, India

*Corresponding Author
Mrs. Vinita Sawant

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Abstract: Episiotomy pain is the most common complaint among postpartum women. One of the simple nursing interventions to decrease it and improve the healing process is applying the Ice cubes. The present study aimed to evaluate the effect of applying ice cubes on episiotomy pain and wound healing among postpartum women. A quasi-experimental study design was used. A total of 90 postnatal women (interventional and control group) were selected from the postpartum wards from the selected hospitals from Sangli and Miraj, Maharashtra, India. Three tools were used for data collection : “Demographic variables, Visual analog scale for pain, REEDA scale for wound healing status”. The result of the study revealed that the mean age of the sample was 24-28 years, majority women are primi and non-vegetarian, having body weight between 45-55kg, all of them were having medio-lateral episiotomy. There was statistically significant reduction in the level of pain at 1st day and 3rd day of postpartum between the two group. Most of the intervention group (60 %) had good episiotomy wound healing while more than half of the control group (82.22%) still had mild healing of episiotomy wound. Ice cube application is a simple, cost-effective, and non-invasive intervention that significantly reduces episiotomy pain and improves wound healing in postnatal mothers. It should be considered as part of routine postnatal care.

Keywords: Ice cubes, Episiotomy, Wound healing, Postnatal mothers.

INTRODUCTION

Episiotomy is a surgical incision made in the perineum during the second stage of labor to widen the vaginal opening and facilitate childbirth [1]. It was traditionally considered an integral part of labor management, especially for primiparous women, as it was thought to prevent urinary incontinence, maternal pelvic organ prolapse, and poorly healed lacerations [2]. However, recent evidence indicates that routine episiotomy does not prevent pelvic floor dysfunction or fetal complications; instead, it may increase the risk of blood loss, infection, and delayed wound healing [3].

Despite growing evidence against its routine use, episiotomy continues to be performed as a hospital policy in many settings, particularly in developing countries. There are three types of episiotomy midline, mediolateral, and ‘Z’ shaped with mediolateral being the most common. Although mediolateral episiotomy reduces the risk of anal muscle tears and facilitates instrumental delivery, the procedure carries disadvantages such as pain, swelling, hematoma, infection, wound dehiscence, and dyspareunia. Furthermore, healing outcomes are influenced by the skill of the healthcare provider and the quality of postnatal care [4].

Pain following episiotomy can significantly affect mobility, urination, breastfeeding, and overall maternal

well-being. Globally, complications of childbirth, including poorly managed perineal trauma, contribute to maternal morbidity and mortality, with 50 million women experiencing negative health outcomes annually in developing countries. High-quality, midwifery-led care is essential for reducing these burdens during the postnatal period, which remains one of the most neglected phases of maternal health [5].

Wound healing after episiotomy is an ongoing biological process, generally completed within one month of childbirth, although pain and discomfort often persist for 2–3 weeks. Stitches usually dissolve within 1–2 weeks, but discomfort can delay recovery. Non-pharmacological methods such as cold therapy are simple, safe, and effective approaches to pain relief and wound healing [6].

Application of ice cubes reduces inflammation, minimizes edema, and numbs local nerve endings, thereby providing pain relief. It also facilitates faster wound healing and reduces the risk of infection. Compared to pharmacological interventions, ice application is inexpensive, non-invasive, and free from systemic side effects, making it a practical option for routine postnatal care [7].

Given the persistent use of episiotomy and the significant burden of postnatal pain and morbidity, there is a need to explore effective, evidence-based nursing interventions. This study was conducted to evaluate the effect of

applying ice cubes on episiotomy pain and wound healing among postnatal mothers [8].

OBJECTIVES OF THE STUDY

1. To assess the existing level of pain and episiotomy wound healing status among postnatal mothers before intervention in experimental and control group.
2. To assess the level of pain and episiotomy wound healing status after the intervention in experimental group.
3. To assess the pretest and post-test score of level of pain and episiotomy wound healing status among postnatal mothers after the intervention in experimental group.
4. To compare the post test score of level of pain and episiotomy wound healing status among postnatal mothers after the intervention in between experimental and control group.

METHODOLOGY

This prospective hospital-based A quasi-experimental design with intervention and control groups was adopted. The quasi experimental study was conducted in 90 patients who underwent normal vaginal delivery with episiotomy. A quasi-experimental design with intervention and control groups was adopted. This study was conducted at the postpartum inpatient ward at Sangli, Miraj Hospitals, Maharashtra, India, for a period of one month, December, 2024. This study was approved by the Institutional Ethics Committee (IEC), and informed consent was obtained from all the patients before the study initiation.

Inclusive criteria

It included Postnatal mothers, both primipara and multipara who had a normal vaginal delivery with episiotomy, from 1st - 3rd day. Postnatal mothers who are willing to participate and ready to give the written consent.

Exclusion criteria

The women who are having DM, The women's who are critically ill (Postpartum Haemorrhage, Eclampsia), Women's who are not willing to give the written consent. The women's who had instrumental deliveries. The referral cases (Who deliver outside the hospital).

Demographic baseline information of the participants included age, parity, education, diet pattern, body weight and type of episiotomy performed was included in this section. The **VAS tool** is used to measure the intensity of pain experienced by an individual. It provides a simple and subjective way for patients to convey how much pain

they are feeling. Observational standardized **REEDA SCALE** is a clinical tool used primarily to assess **perineal healing** after childbirth, particularly in women who have undergone an episiotomy.

Pre intervention phase.

The postnatal mothers according to inclusion criteria was selected and the informed consent was taken from selected postnatal mothers, demographic data was collected and recorded the level of pain and wound status was assessed with the help of REEDA SCALE and pain is measured by VISUAL ANALOGUE SCALE in both experimental and control group.

Intervention phase: In the experimental group, ice cube application was initiated from the first day of a normal delivery with episiotomy till third day. It applied twice a daily. The ice cubes rapped in sterile gauze piece. Size of ice cubes is 3 x 3 x 3. In control group routine episiotomy care was carried out.

Post intervention phase: The extent level of pain and wound healing was evaluated by using **VAS** scale and **REEDA** scale. after application of ice cubes in experimental group and controlled group on 1st day of delivery till 3rd postnatal day.

Evaluation Phase :

For both groups, the intensity of perineum pain was evaluated by using the VAS score. Postpartum women were assessed on their episiotomy pain level during the first two hours after birth as a basic assessment, then at first day and after 3rd day postpartum. Episiotomy wound healing was evaluated by inspecting the episiotomy site for ecchymosis, tenderness, redness, swelling, purulent discharge or hematomas, and suture approximation of the wound edges using a REEDA scale at first day and 3rd day of postpartum, daily living activities were evaluated before and after the intervention.

STATISTICAL ANALYSIS :

Data were coded and transformed into a specially designed format suitable for computer feeding. All entered data were verified for any errors. The analysis includes both descriptive and inferential statistics, providing a comprehensive evaluation of the study's findings. The mean S.D frequency, percentage is calculated under descriptive statistics. Statistical package for social sciences (SPSS) version 20 windows and we presented in tables and graphs. Frequency analysis was performed and Chi-square test was used in comparison between two related groups having qualitative data. Also, repeated measures ANOVA, mean and standard deviations were computed. An alpha level of 0.05 was used to assess significant differences.

RESULTS

Table No. 1: Frequency and percentage distribution of demographic variables
n = 45 + 45

Demographic variables		Experimental group		Control group
		f	%	f
Age (in yrs.)	19 – 23	20	44.44	16
	24 – 28	21	46.67	22
	29 – 33	4	8.89	7
Parity	1	30	66.67	17
	2	14	31.11	26
	3	1	2.22	2
Diet	Vegetarian	16	35.56	9
	Non- vegetarian	29	64.44	36
Body weight (in kg.)	45 – 55	27	60	29
	56 – 65	17	37.78	13
	66 – 75	1	2.22	3
Type of Episiotomy	Medial	0	0	0
	Medio- lateral	45	100	45
	Lateral	0	0	0

The above table indicates demographic variables that the highest proportion of participants, 46.67%, belonged to the 24-28 years of age group. Majority of the mothers 66.67% are Primi (parity 1), 64.44 were non vegetarian, Majority of mothers 60% were having body weight between 45 – 55 kg, all the mothers 100% were having medio-lateral episiotomy.

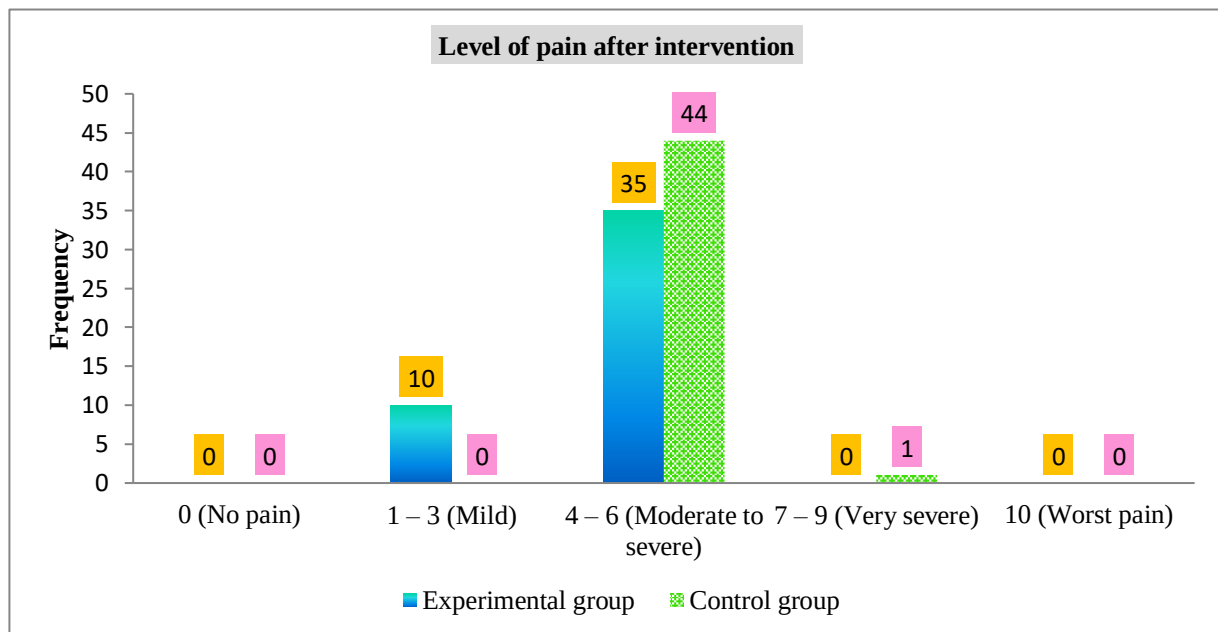


Figure 1: Post observation of the level of pain after intervention in experimental and control group.

It indicates that the level of pain among postnatal mothers after intervention in experimental group most of 35 (80%) had faced moderate to severe pain and remaining 10 (22.22%) had faced mild level of pain.

In control group most of 44 (97.78%) mothers had faced moderate to severe pain.

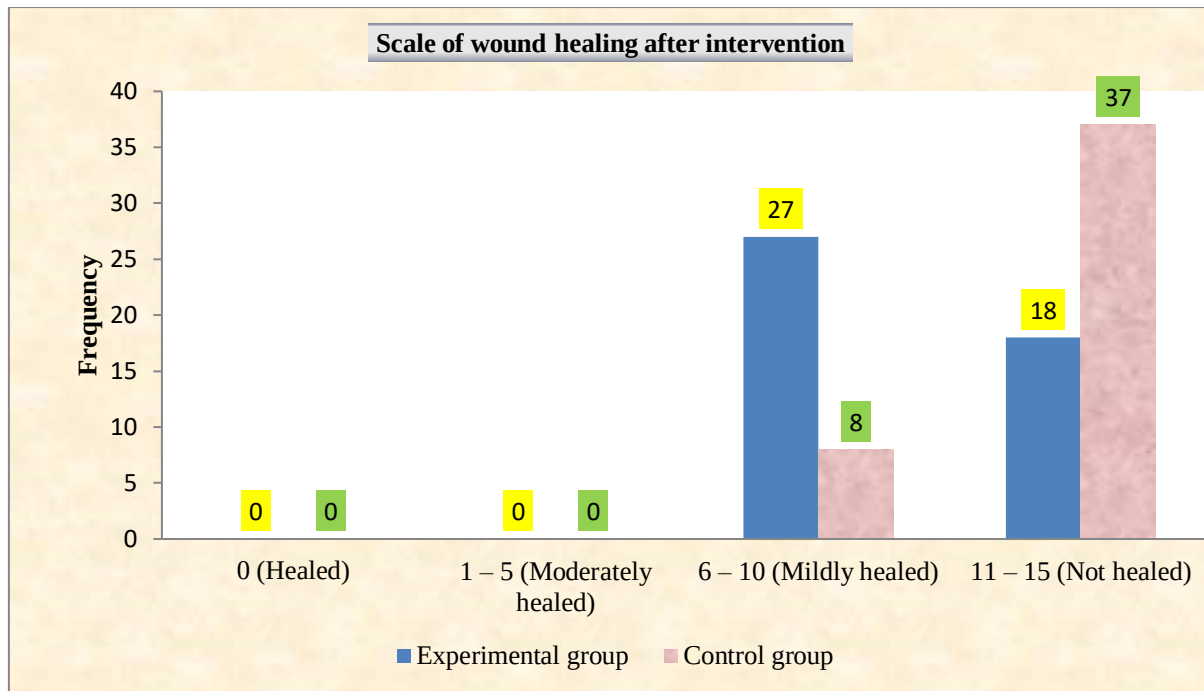


Figure 2: Assessment of the wound healing status after intervention in experimental and control group

It indicates that status of wound healing among postnatal mothers after intervention in experimental and control group. The control group's pre-observation of episiotomy wound healing scores for redness, edema, ecchymosis, discharge, and approximation. In experimental group most of 27 (60%) mothers showing moderately wound healing and remaining 18 (40%) mothers shows mildly wound healing, whereas in control group most of mothers 37 (82.22%) showing no healing of episiotomy wound.

Table 2: Mean score and S.D. of wound healing and level of pain in experimental and control group.

n = 45 + 45

	Wound		Pain	
	Experimental group	Control group	Experimental group	Control group
frequency	45	45	45	45
Mean	10.28	11.22	4.04	5.37
S.D.	0.72	0.79	0.70	0.61
t- value	5.8142		9.5632	
p - value	0.00001 > 0.05		0.00001 < 0.05	
Significance	Significant		Significant	

Unpaired t- test at 5% level of significance was applied to the observations and result was analyzed statistically. According to wound healing scale, after intervention of ice cubes on wound among postnatal mothers with episiotomy in experimental group mean was 11, S.D. was 0.8164 and in control group mean was 11.6, S.D. was 0.8432 and unpaired t- value was 1.6164 and p- value was 1.6164 > 0.05 (at 5% L. O. S.) According to pain scale, after intervention of ice cubes on pain in experimental group mean was 3.8, S.D. was 0.4216 and in control group mean was 4.4, S.D. was 0.5163 and unpaired t-value was 2.846 and p-value was 0,0107 < 0.05 (at 5% L. O. S.).

DISCUSSION

Findings of present study have been discussed as per the objectives of the study. As per demographic variables. Total 90 samples were taken .46.67% samples belongs to age group of 24-28years from experimental group. Whereas 48.89% samples are from age group 24 – 28 years in control group. Maximum numbers of samples i.e.66.67% were

Primi para from experimental group. Whereas 57.78% were multipara in control group. According to Education it shows that maximum numbers of samples i.e.57.78% were undergraduate in experimental group. Whereas 51.11% were also undergraduate in control group. According to Dietary pattern 64.44% was taking non vegetarian food in experimental group and 80% in control group. According to Weight it shows that maximum

numbers of samples i.e. 60% body weight has between 45 – 55 kg in experimental group and(64.44%) between 45 - 55 kg body weight in control group. Maximum numbers of samples i. e. 100% were having medio-lateral episiotomy in experimental and control group. Existing level of pain assessed with the help of VISUAL ANALOGUE SCALE. The pre interventional score was severe pain (between 7-9). After the ice cube application the VISUAL ANALOGUE score was 1-3 mild(22.22%) and 7-9 moderate (77.78%)in experimental group respectively. Where as according to VISUAL ANALOGUE SCALE the score was 4-6, moderate (97.78%)and 7-9 severe (2.22%) in control group respectively.

Existing condition of episiotomy wound assessed with the help of ERRDA SCALE . The pre intervention episiotomy wound status as per REEDA Scale mean score of redness, edema, ecchymosis, discharge, approximation in control group are 3,2.93,3,2.44,2.04,2.46 respectively where as pre intervention episiotomy wound status as per REEDA SCALE mean score of redness, edema, ecchymosis, discharge, approximation, in control group are 3,3,2.48,2.02,2.68 respectively.

The ice cube application on episiotomy wound is done from 1st day of post partum to 3rd day of post partum, twice daily. The episiotomy wound observed according to REEDA Scale and while using VISUAL ANALOGUE SCALE pain score is documented. The episiotomy wound healing parameters scores of redness, edema, ecchymosis, discharge and approximation in experimental group after the intervention are 0.37,2.37,2.11,1.75,1.71 respectively. And pain score come from severe to moderate within 3days.

Similar study was conducted in outpatient clinic at El-Manali Maternity Hospital, An Egyptian study from 2018 evaluated how effectively crushed ice gel pads worked to help postpartum primiparous women with episiotomy pain and wound healing. Both the intervention and control groups comprised 200 women. For 20 minutes as tolerated, ice gel pads were used 30 minutes after delivery as part of the intervention. The Numeric rating scale, REEDA scale, the short form McGill pain questionnaire, and a structured questioning sheet were used to measure pain and wound healing. Evaluations of daily activities prior to and during the intervention were conducted on days 1,3, and 7, in addition to observations. Statistical analysis performed using SPSS version 20, revealed significant differences between the group is pain scores ($p < 0.001$). the study concluded that crushed ice gel pads are a safe and effective method for reducing episiotomy postpartum women.

Limitation

Conducted in selected hospitals so results may not be generalizable.

Small sample size.

Pain is subjective and may vary based on individual perception

CONCLUSION

This study highlights the effectiveness of ice cube application as a non-pharmacological intervention for reducing episiotomy pain and promoting wound healing among postnatal mothers. Participants who received the ice treatment exhibited a significant decrease in pain intensity and improved wound healing compared to those who did not receive the intervention. Due to its affordability, accessibility, and lack of side effects, ice therapy can be recommended as a routine nursing practice to enhance maternal comfort and recovery. Continuous education and training for healthcare providers on its benefits and proper application techniques can further improve episiotomy management outcomes.

Recommendation:

1. Findings can be generalized for larger population by conducting similar study on a large sample size with longer duration.
2. The research can be done on its effectiveness compared to other non-invasive interventions, such as sitz baths.
3. The research can be done on experiences of mothers using ice therapy and their overall satisfaction.
4. Suggestion can be given for research on tailoring ice therapy protocols based on individual factors like age, pain tolerance, and wound severity.
5. Qualitative research can be done on the knowledge of a health workers about the ice cube application and it's effects on episiotomy wound for pain and wound healing process.
6. To strengthen the findings in different settings the study can be replicated.

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