



“EFFECT OF ALOE VERA GEL ON EPISIOTOMY PAIN AND WOUND HEALING AMONG POSTNATAL MOTHERS”

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ABSTRACT:

BACKGROUND: Postpartum period is the period during which the woman adjusts, physically and psychologically post pregnancy and birth. It is the period after the end of labour during which the attendance of a midwife upon the woman and baby is required, postpartum period is very important for both short-term and long-term health and well-being of mother and her newborn¹. Pain and healing are the important aspect in postnatal period related to episiotomy. A quasi experimental study was conducted to assess the Effect of Aloe Vera Gel on Episiotomy Pain and Wound Healing among Postnatal Mothers. **OBJECTIVES OF THE STUDY:** **1.** To assess the effect of aloe vera gel on Episiotomy Pain in Experimental group. **2.** To assess the effect of aloe vera gel on episiotomy wound healing in Experimental group. **3.** To compare the pain and wound healing in control and experimental group. **4.** To find out the association of selected demographic variable with episiotomy pain and wound healing among postnatal mothers. **METHODOLOGY:** Design of the study is quantitative quasi experimental post test only design. A total 90 samples (45 in experimental and 45 in control group) were enrolled by convenient sampling method. The tool used for the study had demographic variable, visual analogue scale and REEDA scale. **RESULT:** It was observed that the findings of the study revealed that mean value of pain score on day 1 in experimental group is 8.49 and in control group is 8.62 whereas mean value of pain score on day 3 in experimental group is 2.93 and in control group is 3.93. The mean value of wound healing on day 1 in experimental group is 3.36 and in control group is 3.44 whereas mean value of wound healing on day 3 in experimental group is 0.22 and in control group is 0.44. It indicates that experimental group has better results in reduction of pain and improving wound healing than control group. Hence the null hypothesis H_{01} and H_{02} are rejected at 0.05 level of significance. Also, the study shows that there is no significant association of pain and wound healing with demographic variables. So the null hypothesis H_{03} and H_{04} are accepted at 0.05 level of significance. **CONCLUSION:** Hence the researcher concluded that aloe vera gel is effective in episiotomy pain and wound healing among postnatal mothers.

KEYWORDS: Aloe vera gel, Pain, Episiotomy wound, Postnatal mothers

INTRODUCTION: Pregnancy is a wonderful creation with life's greatest blessings, dreams and expectation in women's lives. During pregnancy mother is going through a lot of changes both physically and psychologically. Pregnancy is the time where a mother experience all emotions together as love, happiness, surprise, tiredness, anxiety, fear, anger, sadness, confusion, proud etc.² Parturition takes place around 16 to 18 hours. In parturition 2nd stage of labour is crucial phase where mother may require episiotomy incision to aid the normal vaginal delivery. The postpartum period begins soon after the delivery of the baby and usually lasts six to eight weeks during which the body tissues, especially pelvic organs revert back approximately to pre-pregnant state². Postpartum period is the period during which the woman adjusts, physically and psychologically post pregnancy and birth. It is the period after the end of labour during which the attendance of a midwife upon the woman and baby is required, postpartum period is very important for both short-term and long-term health and well-being of mother and her newborn¹. Pain and healing are the important aspect in postnatal period related to episiotomy. Many measures have been recommended to reduce episiotomy pain and improve wound healing such as observing the perineal hygiene, keeping the wound dry, and also using various pharmacological and non-pharmacological treatments³. The nurse should be aware of the effective treatment of pain and episiotomy wound healing which can reduce the suffering of mothers and enhance wound healing. Aloe vera is an ancient herb used for its medicinal, health, beauty and skincare properties. Aloe vera has various medicinal properties like analgesic, anti-inflammatory, antibacterial, anti-viral, anti-tumor. Studies shown that aloe vera inhibits thromboxane, (an inhibitor of wound healing), helps healing and reduces inflammation. Magnesium lactate in aloe vera gel prevents the reaction of histamine, which cause itching and irritation to skin. The gel also contains salicylic acid and other anti-prostaglandin compounds which relieve inflammation and pain⁴.

BACKGROUND OF THE STUDY: Episiotomy was determined as 93.3% in primipara women and as 30.2% in multipara women. High episiotomy frequencies often justified as a way to prevent severe perineal trauma. Rate of morbidity increased due to episiotomy, vaginal bleeding, infection, suture dehiscence, and increased pain in early puerperal period⁵. Any delay in the healing can increase the risk of wound infection, sepsis, vulval hematoma; discharge, rectal pain and discomfort related to episiotomy⁶. Therefore having in mind the physiological and psychological consequences, effective treatment is crucial both from patients and economical point of view. Synthetic drugs, despite their efficiency, have many adverse effects. Recently, use of complementary medicine has increased; besides, there is a growing attention to traditional products such as aloe vera for wound healing and reducing pain⁷.

NEED OF THE STUDY: In 2020 maternal mortality was 430 per 100,000 live births in low income countries and 12 per 100,000 live births in high income countries which is due to severe bleeding after childbirth, infection in postnatal period & complications during delivery. According to WHO 2020 Infection (usually after childbirth) is the 2nd most cause of 75% of all maternal deaths⁸. Perineum is a very sensitive area, in which there are muscles involved in sitting, walking, bending down, squatting, urination, defecation, any incision in this area cause pain and disorder. This cause various short term problems such as discomfort to the mother in sitting, carrying daily activities, infection, constipation, improper breast feeding. It also causes long term problems such as dyspareunia, urine and faecal incontinence, and pelvic floor problems¹⁰. Various pharmaceutical and non-pharmaceutical methods (cryo-therapy, laser therapy, pelvic floor muscle trainings, acupuncture, and perineal massage, and electrical stimulating) along these other measures such as topical creams, tablets, ice packs, etc. are attempted after labor following episiotomy to reduce perineal pain and accelerate wound healing¹¹. Aloe Vera is a cost effective, easily available, and easily acceptable plant, used for its medicinal, health, beauty and skincare effects. So, researcher suggested that that an experimental study can be undertaken with control group to see its effect on episiotomy pain and wound healing¹².

PROBLEM STATEMENT:

“Effect of Aloe Vera Gel on Episiotomy Pain and Wound Healing among Postnatal Mothers.

OBJECTIVES:

- To assess the effect of aloe vera gel on Episiotomy Pain in Experimental group.
- To assess the effect of aloe vera gel on episiotomy wound healing in Experimental group.
- To compare the pain and wound healing in control and experimental group.
- To find out the association of selected demographic variable with episiotomy pain and wound healing among postnatal mothers.

OPERATIONAL DEFINITIONS:

- 1) **Aloe vera Gel:** A preparation of gel from leaf pulp obtained by slicing its leaf from the parenchymal tissue of the plant.
- 2) **Pain:** Pain is defined as an unpleasant, subjective, sensory and emotional experience of postnatal mothers is assessed by VISUAL ANALOG pain scale.
- 3) **Episiotomy:** Episiotomy is the procedure performed on perineum during a vaginal delivery.
- 4) **Wound healing:** Wound healing is the process where the body repair tissues damaged during second stage of labour is assessed by REEDA scale.
- 5) **Postnatal mother:** Postnatal mothers who are in immediate postpartum period are those who are delivered in 24 hours with episiotomy during intrapartum period.

HYPOTHESIS:

- H₀₁ - There will be no significant effect of aloe vera gel on episiotomy pain at 0.05 level of significance.
- H₀₂ - There will be no significant effect of aloe vera gel on wound healing at 0.05 level of significance.
- H₀₃- There will be no significant association of episiotomy pain with selected demographic variable at 0.05 level of significance.
- H₀₄- There will be no significant association of wound healing with selected demographic variable at 0.05 level of significance.

CONCEPTUAL FRAMEWORK: The present study aims at evaluating the **Effect of Aloe Vera Gel on Episiotomy Pain and Wound Healing among Postnatal Mothers**. The framework of the present study is based on the Orem's self-care theory of nursing.

Orem's general theory of nursing which describes a derived situation and way to attain it into three related parts:-

- A. Theory of self-care
- B. Theory of self-care deficit
- C. Theory of nursing system

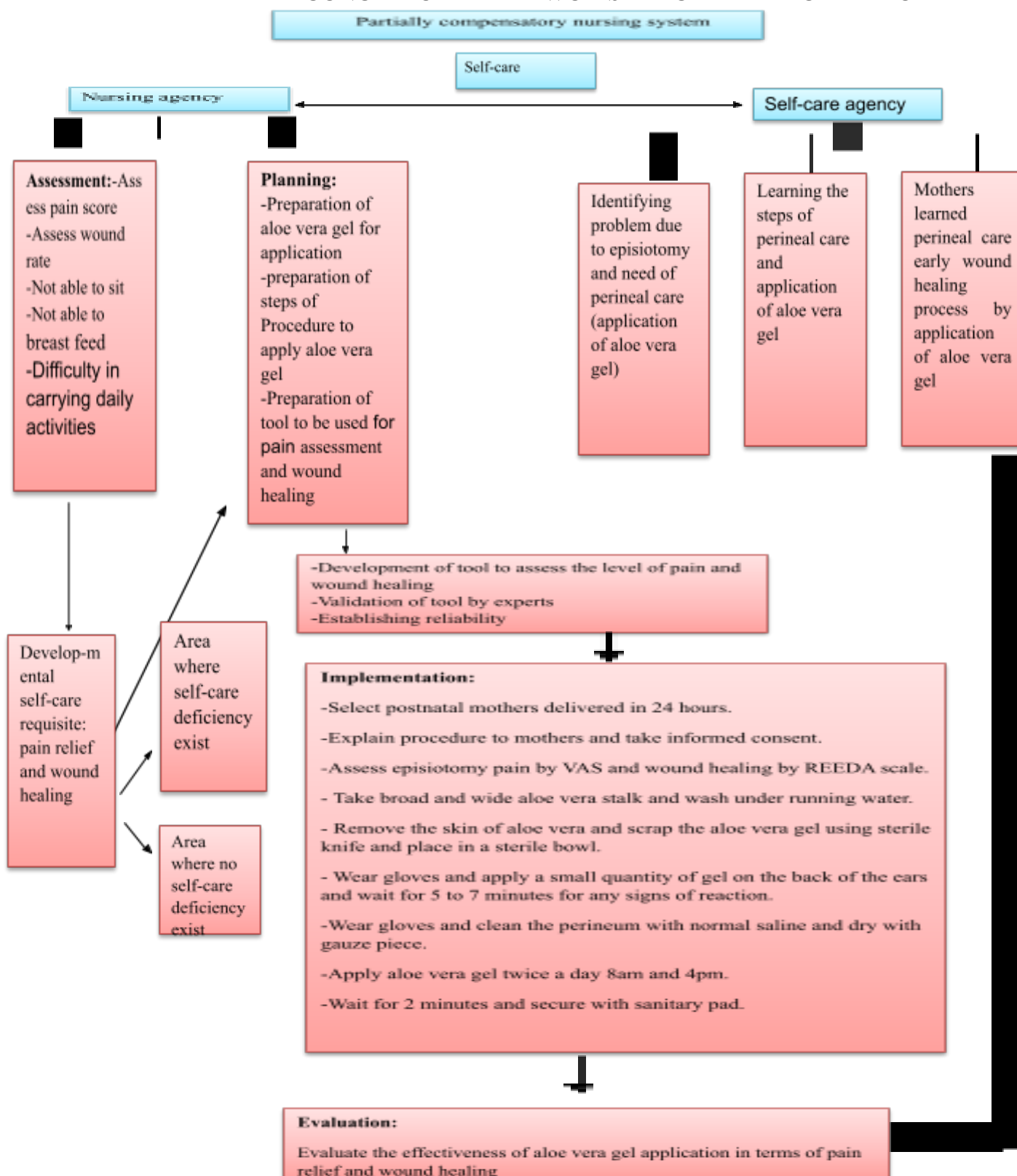
Theory of nursing system identifies 3 classifications of nursing system to meet the self-care requisites of the patient: - Wholly compensatory system, **Partly compensatory system**, Supportive educative system.

This study depends on partly compensatory system where nursing agency help postnatal mother to meet self-care requisite.

The conceptualization of nursing according to this theory consists of following steps:

- Assessment
- Planning
- Implementation
- Evaluation

CONCEPTUAL FRAMWOK SELF CARE DEFICIT THEORY



REVIEW OF LITERATURE:**Review of literature related to aloe vera gel application:**

A Quasi experimental study conducted by Kamble A D. (2023) to determine the effectiveness of application of aloe vera gel on pressure ulcers among patients admitted in selected hospitals. Quantitative evaluative approach, two group pre-test post-test design and through purposive sampling technique 40 samples were selected which were divided as 20 in control group & 20 in experimental group. Aloe vera gel was applied to the experimental group and regular measures used for the control group. Socio Demographic profile and Modified Pressure Ulcer Scale for Healing (PUSH) used as a tool in the study. In control group the pre-test and post-test mean score was 10.350 & 10.100 whereas in experimental group the pre-test and post-test mean score was 10.950 & 8.883. And pre-test value of standard deviation was 1.191 and post-test value was 1.078. Hence researcher concluded with significant difference in effect of aloe vera gel application on pressure ulcers among patients in experimental group¹³.

Review of literature related to episiotomy pain and wound healing:

A quasi-experimental, two-group, pre-post-test study conducted by Naglaa Z. Hassan R. Rasha M E. Zohour I. (2023): to investigate the effect of dry heat application on perineal pain and episiotomy wound Healing among primipara women. Random sampling technique was used to select 100 parturient women and divided into 2 groups' dry heat and moist (control) heat. Moist heat group were advised to sit in a basin (tub) of warm water for 10 minutes and dry heat group were instructed to set an infrared light at a distance of 45 cm from the perineum after 12 hours post episiotomy. The data was evaluated at baseline, 5th and 10th day. The result showed that the dry heat group had a significantly improved episiotomy wound healing and lower perineal pain intensity. So the researcher concluded that dry heat promoted episiotomy wound healing and reduced perineal pain during early postpartum period¹⁴.

Review of literature related to aloe vera gel application on episiotomy pain and wound healing:

A Quasi experimental study conducted by Maternity, D., Dwijayanti, R. ., & Susilawati, S. (2022): to see the effectiveness of aloe Vera as a wound medicine on the perineum of postpartum women. Mothers who experienced I and II degree perineal rupture were chosen as subjects. Data obtained from questionnaires by 51 samples and analysis done by independent t-test. The result showed that average score of perineal wound healing by use of aloe vera was 4.72 whereas who did not use aloe vera was 7.35 with a standard deviation of 1.815 and 2.545 respectively. Hence the researcher concluded that use of aloe vera was very effective for healing perineal wounds in postpartum mothers¹⁵.

RESEARCH METHODOLOGY:

Research approach: Quantitative research

Research Design: Quasi experimental research design

Variables under study:

Independent variable: Aloe vera gel

Dependant variable: 1. Demographic variable: age obstetrical score, socioeconomic status, education 2. Episiotomy pain and wound healing

Setting of the study: The study has been conducted in selected postnatal ward of selected hospital in selected area.

Population:

Target population: Postnatal mothers with episiotomy who delivered immediately or within 24 hours.

Accessible population: Immediate postnatal mothers present at the time of sample selection of selected hospital.

Samples: The sample consists of postnatal mothers who underwent episiotomy.

Sampling technique: Convenient sampling technique

Sample size: 90 (experiment 45, control 45).

Criteria for sample selection:

Inclusion criteria:

- Postnatal mothers with episiotomy
- Delivered in last 24 hours

Exclusion criteria:

- Known allergic to aloe vera
- Patients on digoxin and frusemide tablet
- Diabetic mothers
- Perineal tear

Tools and techniques:

Description and tool:

Section I: Demographic variable which includes age, obstetrical score, education, socioeconomic status.

Section II: Standardized visual analogue scale for pain assessment

A Visual Analogue Scale (VAS) used for the first time in 1921 by Hayes and Patterson to assess the level of pain. For example, the amount of pain that a patient feels ranges across a continuum from none to an extreme amount of pain.

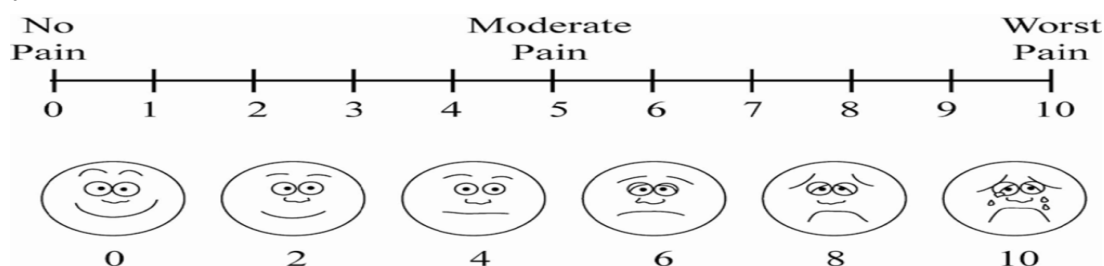
Score is determined by measuring the distance on the 10cm line between the 'no pain' and the patient's mark; provide a range of scores 0-10cm.

No pain: 0-1

Mild pain: 2-4

Moderate pain: 5-7

Severe pain: 8-10



Section III: Standardized Davidson's REEDA scale for episiotomy wound healing assessment

The REEDA scale was originally developed by (Davidson, 1974). Then, it was adapted by (Alvarenga et al., 2015). It is an observational scale used for assessing episiotomy wound healing. It has five components, namely, redness, edema, ecchymosis, discharge, and approximation of the wound edges. Each area is having a minimum score of 0 and a maximum score of 3.

Total score = 15

Completely healed = 0

Mildly healed = 1-5

Moderately healed = 6-10

Not healed = 11-15

Point Score	Redness	Edema	Ecchymosis	Discharge	Approximation
0	None	None	None	None	None
1	Within 0.25 cm of incision bilaterally	Perineal, less than 1 cm from incision	Within 0.25 cm bilaterally or 0.5 cm unilaterally	serum	skin separation 3mm, or less
2	Within 0.5 cm of incision bilaterally	Perineal or vulvar, between 1 to 2 cm, from incision	Between 0.25 to 1 cm bilaterally or 0.5 to 2 cm unilaterally	Serosanguinous	skin and subcutaneous fat separation
3	Beyond 0.5 cm of incision bilaterally	Perineal and vulvar greater than 2 cm, from incision	Greater than 1cm, bilaterally or 2cm unilaterally	Bloody, purulent	Skin, sub-cutaneous fat and fascial layer separation

INTERVENTIONAL PROCEDURE

Procedure for Aloe vera gel Application on Episiotomy Wound

1. Selection of Aloe vera

A dark green stalk of aloe vera. barbadensis (bottom or midportion).

2. Preparation of Aloe vera gel

- Wash hand as per medical asepsis.
- Cut the stalk of aloe vera and secure in a clean container.
- Leave the aloe vera leaf upright in a container for almost 30 min. to drain out the yellow sap.

- Wash aloe vera leaf under running water after 30 sec.

- Remove the skin of aloe vera and scrap the aloe vera gel using sterile knife and place in a sterile container.

- Arrange all articles at bed side.

3. Articles

A tray containing

1. Aloe vera gel

2. Sterile bowl



3. Sterile gloves
4. Normal saline
5. Sterile gauze pieces
6. Kidney tray
7. Mackintosh
8. Sanitary pads



4. Procedure

Step 1: -Select postnatal mothers delivered in 24 hours.

Step 2: -Explain procedure to mothers and take informed consent.

Step 3: Assess episiotomy pain by VAS and wound healing by REEDA scale.

Step 4: Take broad and wide aloe vera stalk and wash under running water.

Step 5: Remove the skin of aloe vera and scrap the aloe vera gel using sterile knife and place in a sterile bowl.

Step 6: Wear gloves and apply a small quantity of gel on the back of the ears and wait for 5 to 7 minutes for any signs of reaction.

Step 7: Wear gloves and clean the perineum with normal saline and dry with gauze piece.

Step 8: Apply aloe vera gel twice a day 8am and 4pm on the episiotomy wound and cover the whole edge.

Step 9: Wait for 2 minutes and secure with sanitary pad.

Content validity:

- Visual analogue scale is universally accepted and a standardized valid and reliable tool. According to the Journal of Medical Cases Reports and Reviews, in 2019 it is a valid and reliable interval scale and can use as an outcome measure tool.
- The REEDA scale was originally developed by (Davidson, 1974). Then, it was adapted by (Alvarenga et al., 2015) and accepted as standardized tool.
- The steps of aloe vera gel extraction validated by validation committee of selected College of Nursing and Ayurvedic college. The expert committees member from nursing and Ayurveda college gave their suggestion and guidance on the appropriateness and relevance of steps to prepare aloe vera gel.

Reliability of the tool: The reliability of visual analogue scale was found reliable that is $r = 0.7680$ and for REEDA scale was $r = 0.9105$. Thus the visual analogue scale and REEDA scale was found to be reliable for further conducting study.

Pilot study:

A pilot study was conducted to ascertain feasibility of the study Total 12 out of which six experimental and six control group mothers who had normal vaginal delivery were selected for the pilot study by using convenient sampling method. Data collected and analyzed using **descriptive** and **inferential** statistics. Conduct of study was found **feasible**.

Data collection process: The subjects who fulfill inclusion criteria will be taken for intervention. The steps as follows:

Sr. No.	INTERVENTION
1.	DAY 1: - The researcher selected the postnatal mothers delivered in 24 hours. - Informed consent taken from mothers. - Procedure explained to mothers. - Episiotomy pain assessed by VAS and wound healing assessed by REEDA scale. - Aloe vera gel obtained as per procedure and arranged all articles at bed side. - Wear gloves and applied a small quantity of gel on the back of the ears and wait for 5 to 7 minutes for any signs of reaction. - Wear gloves and cleaned the perineum with normal saline and dried with gauze piece. - Applied aloe vera gel twice a day 8am and 4pm on the episiotomy wound and cover the whole edge. - Wait for 2 minutes and secured with sanitary pad.
2.	DAY 2: - Aloe vera gel obtained as per procedure. - Episiotomy pain and wound healing assessed before application at 8am in post-test -1. - Applied aloe vera gel twice a day 8am & 4pm.
3.	DAY 3: - Aloe vera gel obtained as per procedure. - Episiotomy pain and wound healing assessed before application at 8am in post-test -1. - Applied aloe vera gel twice a day 8am & 4pm.

RESULTS: The data analysis organized as follows –

SECTION I: Description of samples according to demographic variables

(N=90)			
	Parameters	Experiment (%) (n=45)	Control (%) (n=45)
Age (Years)	≤20	4 (8.9%)	3 (6.7%)
	21 – 24	24 (53.3%)	25 (55.6%)
	25 & above	17 (37.8%)	17 (37.8%)
Obstetrical score	G1	27 (60%)	27 (60%)
	G2	17 (37.8%)	18 (40%)
	G3	1 (2.2%)	0
Education	Primary school	2 (4.4%)	1 (2.2%)
	Middle school	14 (31.1%)	12 (26.7%)
	High school	21 (46.7%)	20 (44.4%)
	Intermediate or diploma	4 (8.9%)	10 (22.2%)
	Graduate	4 (8.9%)	2 (4.4%)
Socio economic status	Lower	19 (42.2%)	12 (26.7%)
	Upper lower	21 (46.7%)	25 (55.6%)
	Lower middle	5 (11.1%)	8 (17.8%)
	Upper middle	0	0
	Upper	0	0

SECTION II (A): Description of samples by frequency and percentage of episiotomy pain in experimental and control group.

Parameter	Experimental group			Control group		
Pain score	Day 1 (%)	Day 2 (%)	Day 3 (%)	Day 1 (%)	Day 2 (%)	Day 3 (%)
0 – 1 (No pain)	0	0	13 (28.9)	0	0	3 (6.7)
2 – 4 (Mild pain)	0	6 (13.3)	20 (44.4)	0	3 (6.7)	24 (53.3)
5 – 7 (Moderate pain)	1 (2.2)	39 (86.7)	12 (26.7)	0	41 (91.1)	18 (40)
8 – 10 (Severe pain)	44 (97.8)	0	0	45 (100)	1 (2.2)	0

SECTION II (B): Description of samples by frequency and percentage of wound healing in experimental and control group.

Parameter	Experimental group			Control group		
Wound healing score	Day 1 (%)	Day 2 (%)	Day 3 (%)	Day 1 (%)	Day 2 (%)	Day 3 (%)
0 (Completely healed)	0	0	35 (77.8)	0	0	25 (55.6)
1 – 5 (Mildly healed)	45 (100)	45 (100)	10 (22.2)	45 (100)	45 (100)	20 (44.4)
6 – 10 (Moderately healed)	0	0	0	0	0	0
11 – 15 (Not healed)	0	0	0	0	0	0

SECTION III (A) : Analysis of effectiveness of aloe vera gel on episiotomy pain in experimental group.

Parameter	Pain score		Wilcoxon Z Value	P Value
	Mean	SD		
Day 1	8.49	.549	-	-
Day 2	5.82	1.051	5.95	<0.0001
Day 3	2.93	1.839	6.21	<0.0001

Mean value of pain score on day 1 after application of aloe vera gel was 8.49, on day 2 it observes that mean value is 5.82 further by day 3 mean value comes to 2.93. There is significant difference observed in pain score on day1 to day2 and day2 to day 3 at significance level of 0.05.

Hence H_{01} is rejected.

SECTION III (B) : Analysis of effectiveness of aloe vera gel on wound healing in experimental group.

Parameter	Wound healing score		Wilcoxon Z Value	P Value
	Mean	SD		
Day 1	3.36	.609	-	-
Day 2	1.49	.695	5.99	<0.0001
Day 3	.22	.420	5.99	<0.0001

Mean value of wound healing on day 1 after application of aloe vera gel was 3.36, on day 2 it observes that mean value is 1.49 further by day 3 mean value comes to 0.22. There is significant difference observed in pain score on day1 to day2 and day2 to day 3 at significance level of 0.05. Hence H_{02} is rejected.

SECTION IV(A): Analysis of comparison of pain score in experimental and control group.

Pain score on	Experiment (%) (n=45)		Control (%) (n=45)		MW test	P Value
	Mean	SD	Mean	SD	Z Value	
Day 1	8.49	0.549	8.62	0.535	1.03	0.31
Day 2	5.82	1.051	6.24	0.883	1.88	0.06
Day 3	2.93	1.839	3.93	1.195	2.54	0.011

SECTION IV(B): Analysis of comparison of wound healing score in experimental and control group.

Wound healing score on	Experiment (%) (n=45)		Control (%) (n=45)		MW test	P Value
	Mean	SD	Mean	SD	Z Value	
Day 1	3.36	0.609	3.44	0.586	0.34	0.73
Day 2	1.49	0.695	1.91	0.9	2.26	0.024
Day 3	0.22	0.42	0.44	0.503	2.22	0.026

SECTION V: Analysis of comparison of pain score according to demographic variable in experimental group.

(a) Comparison of pain score on day1, day2, day3 according to age in experimental group

Age in years	n	pain score on day1		pain score on day2		pain score on day3	
		Mean	SD	Mean	SD	Mean	SD
21 – 24	28	8.50	.509	5.82	1.156	2.93	1.942
25 & above	17	8.47	.624	5.82	.883	2.94	1.713
MW test: Z Value		0		0.18		0.13	
P Value		1		0.86		0.90	

(b) Comparison of pain score on day1, day2, day3 according to gravida in experimental group.

Gravida	n	pain score on day1		pain score on day2		pain score on day3	
		Mean	SD	Mean	SD	Mean	SD

G1	27	8.44	.506	5.78	1.086	2.78	1.968
G2	18	8.56	.616	5.89	1.023	3.17	1.654
MW test: Z Value		0.87		0.31		0.50	
P Value		0.38		0.75		0.62	

(c) Comparison of pain score on day1, day2, day3 according to education in experimental group.

Education		pain score on day1		pain score on day2		pain score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
Up to middle school	16	8.56	.629	5.81	1.276	2.81	2.007
High school	21	8.43	.507	5.81	.873	3.24	1.609
Intermediate or diploma & above	8	8.50	.535	5.88	1.126	2.38	2.134
F Value		0.26		0.01		0.68	
P Value		0.77		0.99		0.51	

(d) Comparison of pain score on day1, day2, day3 according to socio economic status in experimental group.

Socio economic status		pain score on day1		pain score on day2		pain score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
Lower	19	8.47	.612	5.68	1.204	2.74	1.939
Upper lower	21	8.52	.512	5.95	.973	3.33	1.683
Lower middle	5	8.40	.548	5.80	.837	2.00	2.000
F Value		0.11		0.32		1.26	
P Value		0.90		0.73		0.29	

There was no significant difference in mean values of pain score on day 1, day 2, day 3, according to demographic variables in experimental group as $p > 0.05$. Hence H_0 is accepted.

SECTION VI: Analysis of comparison of wound healing scores according to demographic variable in experimental group.

(a) Comparison of wound healing score on day1, day2, day3 according to age in experimental group.

Age in years		Wound healing score on day1		Wound healing score on day2		Wound healing score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
21 – 24	28	3.32	.670	1.57	.742	.29	.460
25 & above	17	3.41	.507	1.35	.606	.12	.332
MW test: Z Value		0.29		0.98		1.30	
P Value		0.77		0.33		0.19	

(b) Comparison of wound healing score on day1, day2, day3 according to gravida in experimental group.

Gravida		wound healing score on day1		wound healing score on day2		wound healing score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
G1	27	3.33	.679	1.52	.753	.26	.447
G2	18	3.39	.502	1.44	.616	.17	.383
MW test: Z Value		0.08		0.12		0.72	
P Value		0.94		0.90		0.47	

(c) Comparison of wound healing score on day1, day2, day3 according to education in experiment group.

Education		Wound healing score on day1		Wound healing score on day2		Wound healing score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
Up to middle school	16	3.50	.516	1.69	.793	.31	.479
High school	21	3.29	.644	1.48	.680	.24	.436
Intermediate or diploma & above	8	3.25	.707	1.13	.354	.00	.000
F Value		0.70		1.82		1.54	
P Value		0.50		0.17		0.23	

(d) Comparison of wound healing score on day1, day2, day3 according to socio economic status in experimental group.

Socio economic status		Wound healing score on day1		Wound healing score on day2		Wound healing score on day3	
	n	Mean	SD	Mean	SD	Mean	SD
Lower	19	3.42	.507	1.68	.749	.32	.478
Upper lower	21	3.24	.700	1.38	.669	.19	.402
Lower middle	5	3.60	.548	1.20	.447	.00	.000
F Value		0.90		1.47		1.24	
P Value		0.41		0.24		0.30	

There was no significant difference in mean values of wound healing score on day 1, day 2, day 3, according to demographic variables in experimental group as $p > 0.05$. Hence H_{04} is accepted.

DISCUSSION:

Objective 1: To assess the effect of aloe vera gel on Episiotomy Pain in Experimental group

In present study the mean value of pain score on day 1 after application of aloe vera gel was 8.49, on day 2 it observes that mean value is 5.82 and further by day 3 mean value comes to 2.93. There is significant difference observed in pain score on day 1 to day 2 and day 2 to day 3 at 0.05 level of significance.

Similar study was conducted by **Maheswari V. (2019)** on 60 postnatal mothers, 30 in experimental group and 30 in control group. The findings in the study shows that after application of aloe vera gel posttest mean value of episiotomy pain in experimental group was 1.37 and in control group 2.27¹⁶

Objective 2: To assess the effect of aloe vera gel on episiotomy wound healing in Experimental group.

In present study the mean value of wound healing on day 1 after application of aloe vera gel was 3.36, on day 2 it observes that mean value is 1.49 further by day 3 mean value comes to 0.22. There is significant difference observed in wound healing on day1 to day2 and day2 to day 3 at 0.05 level of significance.

Similar study was conducted by **Maheswari V. (2019)** on 60 postnatal mothers, 30 in experimental group and 30 in control group. The findings in the study shows that after application of aloe vera gel posttest mean value of wound healing in experimental group was 2.27 and in control group post-test mean value was 1¹⁶.

Objective 3: To compare the pain and wound healing in control and experimental group

The study result shows that mean value of pain score on day1 was 8.49 in experimental group and 8.62 in control group whereas on day3 was 2.93 in experimental group and 3.93 in control group. There is significant difference observed in pain score on day1 to day 3 in experimental group than control group at 0.05 level of significance. Similar study conducted by **Limbachiya N. Parmar N. (2022)** on 60 postnatal mothers, 30 in experimental group and 30 in control group. The findings in the study shows that mean value of pain score on day 3 was 3.46 in experimental group and 6.26 in control group¹⁰.

The study result shows that mean value of wound healing score on day1 was 3.36 in experimental group and 3.44 in control group whereas on day3 was 0.22 in experimental group and 0.44 in control group. There is significant difference observed in wound

healing on day1 to day 3 in experimental group than control group at 0.05 level of significance. Similar study conducted by **Maternity, D., Dwijayanti, R. , & Susilawati, S. (2022)** on 51 postnatal mothers, 26 in experimental group and 25 in control group. The findings in the study shows that mean value of wound healing in experimental group was 4.72 and in control group 7.35¹⁷.

Objective 4: To find out the association of selected demographic variable with episiotomy pain and wound healing among postnatal mothers.

In present study there was no significant association found between pain and wound healing score according to age, gravida, education and socio economic status in experimental and control group. Similar study was conducted by **Maheswari V. (2019)** which shows that there was significant association between the post test level of pain with their demographic variables of age of the mother and there was no significant association with education and other variables of the study whereas there was a significant association between the post-test level of episiotomy wound healing with their demographic variables of education and there was no significant association with the age, parity and other demographic variable of study¹⁶.

CONCLUSION:

The Mann-Whitney test was used to see the effect of aloe vera gel on episiotomy pain and wound healing among postnatal mothers. The findings of the study revealed that mean value of **pain score** on **day 3** in experimental group was **2.93** and in control group is **3.93**. The mean value of **wound healing** on **day 3** in experimental group was **0.22** and in control group is **0.44** which indicates that experimental group has better results in reduction of pain and improving wound healing than control group. Hence the null hypothesis H_{01} and H_{02} are rejected at 0.05 level of significance.

Also, the study shows that there is no significant association of pain and wound healing with demographic variables. So the null hypothesis H_{03} and H_{04} are accepted at 0.05 level of significance.

Hence researcher concluded that aloe vera gel is effective in episiotomy pain and wound healing among postnatal mothers.

NURSING IMPLICATIONS:

Nursing practice

- Availability of aloe vera gel into postnatal wards.
- Accurate assessment of episiotomy wound and level of pain
- Train the mothers about application of aloe vera gel on episiotomy wound.
- Teach the mothers during antenatal period about the effectiveness of various evidenced based non-pharmacological measures such as aloe vera gel

Nursing education

- Encourage the students for effective utilization of evidence based practice.
- Augmenting in to the nursing syllabus as alternative therapies and evidenced-based practice.
- Adequate clinical exposure

Nursing administration

- In-service education programme
- CNE for nurses about effective use of aloe vera gel
- Conduct workshops, conferences, seminars, clinical research on non pharmacological methods

Nursing research

- Promote more research on non- pharmacological and alternative methods
- Disseminate the findings of the research through conferences, seminars and publishing in nursing journal.

LIMITATIONS OF THE STUDY:

- The study is only limited to the postnatal mothers only.
- The study was limited only to normal delivery mothers.
- This is a single centred study.
- Researcher went through long process in acquiring government permission.

RECOMMENDATIONS:

- A similar study can be performed on a larger population to generalize the findings.
- A similar study can be done with other alternative methods.

- A comparative study can be conducted with aloe vera gel.
- A comparative study can be conducted between urban and rural population and also on primi and multigravida mothers.
- A similar study can be conducted to reduce intravenous therapy complication as thrombophlebitis.

REFERENCES:

1. Hannah G J .Eva N. Lidewij S. Paul J L. Maternal stress in the postpartum period is associated with altered human milk fatty acid composition, 2022[internet], Research Gate, Available from: <https://www.researchgate.net/publication/363931381>
2. Konar H. Textbook of obstetrics; Jaypee brothers medical publishers (P) Ltd. 2018. 9th edition. Page no. 528 to 530.
3. H. Shahrahmani. Nourasadat K. S. Jannesari s. Ghalandari , A systematic review on the type of treatment methods to reduce pain and improve wound healing in Iran, January 2016 Iranian Journal of Obstetrics, Gynecology and Infertility 19(9):17-31
4. Farideh Eghdampour, Homa Dastgheib shirazi, Arezow Haseli, Mehri Kalhor and Somayyeh Naghizadeh, The impact of aloe vera on episiotomy pain and wound healing in primiparous women,2014[internet], Available from: <https://go.gale.com/ps/i.do?p=AONE&u=googlescholar&id=GALE|A417895251&v=2.1&it=r&sid=AONE&asid=78538404>
5. Bahtışen K. Aynur K. Pelin C. Gökçe D. Retrospective analysis of episiotomy prevalence J Turk Ger Gynecol Assoc. 2017 Dec; 18(4): 190–194
6. Episiotomy, Wikipedia, Available from: <https://en.wikipedia.org/wiki/Episiotomy>
7. Golezar S. Ananas comosus Effect on Perineal Pain and Wound Healing After Episiotomy: A Randomized Double-Blind Placebo-Controlled Clinical Trial. Iran Red Crescent Med J. 2016 Mar; 18(3) Available from: <https://doi.org/10.5812%2Fircmj.21019>
8. Maternal mortality - World Health Organization (WHO), Available from: <https://www.who.int/news-room/fact-sheets/detail/maternal-mortality#:~:text=A%20woman's%20lifetime%20risk%20of,49%20in%20low%2Dincome%20countries>
9. El-Azim M H A. El-Nagger S N. Effect of Self Perineal Care Instructions on Episiotomy Pain and Wound Healing of Postpartum Women. Journal of American Science, 2012;8(6) Available from: <http://www.americanscience.org/>
10. Ismet G. Bulent D. Ozkan O. Long- and short-term complications of episiotomy, Turk J Obstet Gynecol. 2016 Sep; 13(3): 144–148. Available from: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5558305/>
11. Toomari E. Hajian S. Mojab F. Omidkhah T. Evaluation the effect of Silybum marianum ointment on episiotomy wound healing and pain intensity in primiparous women: a randomized triple blind clinical trial. October 2021. Available from: DOI:10.1186/s12906-021-03413-z
12. Rahmani N. Khademloo M. Vosoughi K. Assadpour S. Effects of Aloe vera cream on chronic anal fissure pain, wound healing and haemorrhaging upon defecation: a prospective double blind clinical trial, European Review for Medical and Pharmacological Sciences, 2014; 18: 1078-1084, Available from: <https://www.europeanreview.org/wp/wp-content/uploads/1078-1084.pdf>
13. Kamble A D. “To assess the effectiveness of application of aloe vera gel on pressure ulcers among patients admitted in selected hospitals” April 2023, International Journal of Advanced Research 11(04):823-826, Available from: <http://dx.doi.org/10.21474/IJAR01/16731>
14. Effect of Dry Heat Application on Perineal Pain and Episiotomy Wound Healing among Primipara Women, Available from: <https://pubmed.ncbi.nlm.nih.gov/36643188/>
15. Maternity, D., Dwijayanti, R. ., & Susilawati, S. (2022). Aloe Vera Effectiveness for Perineal Wound Healing for Post-Partum Mothers. Women, Midwives and Midwifery, 2(2), 5-24. Available from <http://www.wmmjournal.org/index.php/wmm/article/view/66>
16. Angelis C D. Stadio A D. Vitale S. et al. Use of calendula ointment after episiotomy: a randomized clinical trial, National Library of Medicine, 2022 May; 35(10):1860-1864. Available from: <https://pubmed.ncbi.nlm.nih.gov/32460565/>
17. Dayana. Suvetha J. Impact of Aloe Vera gel on Pressure Ulcers: An interventional study, December 2020 , Research Gate, International Journal of Research in Pharmaceutical Sciences 11(SPL4):399-402, Available from: <https://www.researchgate.net/publication/348268476>

