PREVALENCE AND RISK FACTORS OF PERINEAL TRAUMA AMONG POST-NATAL MOTHERS FOLLOWING VAGINAL DELIVERY- AN RETROSPECTIVE STUDY.

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ABSTRACT

Background: Perineal trauma is one of the most common maternal complications associated with vaginal delivery, ranging from minor perineal tears to severe obstetric anal sphincter injuries. It can lead to short- and long-term complications such as pain, infection, dyspareunia, and pelvic floor dysfunction, thereby affecting the quality of life of postnatal mothers. Identifying its prevalence and associated risk factors is essential for improving maternal outcomes.

Methods: A retrospective study was conducted among 340 postnatal mothers who underwent vaginal delivery in a tertiary care hospital. Data were obtained from hospital records using a structured record review tool. A non-probability purposive sampling technique with total enumeration method was adopted. Statistical analysis was performed to determine prevalence and association between selected maternal and obstetrical risk factors and perineal trauma.

Results: The findings revealed that perineal trauma was more common among primiparous mothers (69.6%). Significant contributing factors included higher birth weight (>3.5 kg), induced labor (26.8%), prolonged labor (21.4%), prolonged second stage of labor (19.6%), and instrumental delivery (14.3%). A statistically significant association was found between parity, birth weight, number of antenatal visits, and perineal trauma ($p<0.05$). **Conclusion:** Primiparity and labor-related complications emerged as major risk factors for perineal trauma. Early risk identification and implementation of evidence-based intrapartum care may help reduce maternal morbidity.

Keywords: Perineal trauma, vaginal delivery, primiparity, risk factors, postnatal mothers, obstetrical factors.

INTRODUCTION:

Perineal trauma is one of the most common maternal morbidities associated with vaginal delivery. It includes spontaneous perineal tears and episiotomy, which may vary in severity from first-degree superficial lacerations to severe third- and fourth-degree obstetric anal sphincter injuries[1]. Perineal trauma can result in significant short- and long-term complications such as perineal pain, haemorrhage, infection, dyspareunia, urinary and faecal incontinence, and psychological distress, thereby affecting the quality of life of postnatal mothers[2].

Globally, the prevalence of perineal trauma remains high, particularly in primigravida mothers and instrumental deliveries. Various maternal, fetal, and intrapartum factors contribute to the occurrence of perineal trauma. These include maternal age, parity, birth weight of the baby, duration of second stage of labour, instrumental delivery, episiotomy practices, and fetal malposition[3]. Early identification of modifiable risk factors is essential to implement preventive strategies and improve maternal outcomes.

A retrospective study design allows systematic analysis of hospital records to determine the prevalence and associated risk factors in a defined population, thereby contributing to evidence-based obstetric and nursing practices.

NEED OF THE STUDY:

Perineal trauma is one of the most common maternal morbidities associated with vaginal delivery. It includes spontaneous perineal tears and episiotomy, which may vary in severity from first-degree superficial lacerations to severe third- and fourth-degree obstetric anal sphincter injuries. Perineal trauma can result in significant short- and long-term complications such as perineal pain, haemorrhage, infection, dyspareunia, urinary and faecal incontinence, and psychological distress, thereby affecting the quality of life of postnatal mothers[4].

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AIM OF THE STUDY:

The aim of the study is to determine the prevalence and identify the risk factors associated with perineal trauma among postnatal mothers following vaginal delivery through retrospective analysis of hospital records.

OBJECTIVES:

1. To determine the prevalence of perineal trauma among post-natal mothers following vaginal delivery.
2. To identify maternal and obstetric risk factors associated with perineal trauma.
3. To assess the association between risk factors and perineal trauma.

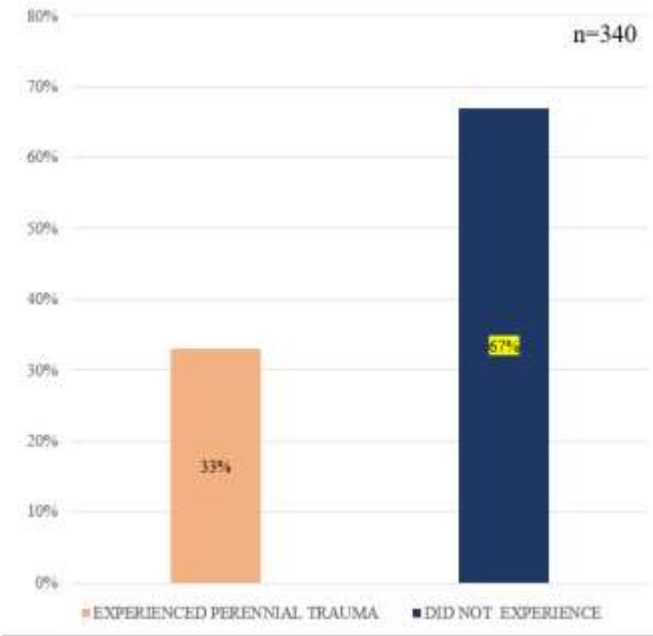
MATERIALS AND METHODS:

The study included 340 postnatal mothers who had undergone vaginal delivery in a tertiary care hospital. A non-probability purposive sampling technique was used, and total enumeration method was adopted to include all eligible records during the selected study period. Data were collected retrospectively from hospital records using a structured record review tool. The tool consisted of sections covering maternal demographic variables, obstetric variables, delivery-related factors, and perineal status details. Inclusion criteria comprised postnatal mothers who underwent vaginal delivery and whose records contained complete documentation of perineal assessment and delivery variables, whereas mothers who delivered by cesarean section and those with incomplete or missing perineal data were excluded. The tool was validated by 10 experts in the field of obstetrics and nursing, and reliability was established using the test-retest method with a reliability coefficient of 0.83. This approach enabled systematic assessment of the prevalence and identification of risk factors associated with perineal trauma among postnatal mothers following vaginal delivery.

RESULTS:

For tabulation and statistical analysis, the data was obtained from hospital records after gaining permission from hospital director and following ethical guidelines

SECTION A: PREVALENCE OF PERINEAL TRAUMA:



n=112

Sr. No	Degree Of Trauma	Total (f)	%
1	First Degree	82	72%
2	Second Degree	19	17%
3	Third Degree	8	8%
4	Fourth Degree	3	3%

SECTION B- DEMOGRAPHIC VARIABLES OF POSTNATAL MOTHERS:

Perineal trauma was more common among primiparous mothers (69.6%), whereas most mothers without trauma were multiparous (59.6%), indicating higher risk among primiparas. A greater proportion of trauma was observed in mothers delivering babies weighing >3.5 kg (26.8%) compared to those without trauma (14.9%). The majority of mothers in both groups were aged 20-30 years. Trauma was slightly higher among

mothers with height <150 cm (23.2%) and among overweight (19.6%) and obese mothers (8.9%) compared to those without trauma. Overall, primiparity, higher birth weight, shorter maternal height, and increased BMI appear to be associated with perineal trauma.

Section C - MATERNAL AND OBSTETRICAL RISK FACTORS:

Table 1: Risk Factors Related to Maternal and Obstetrical Factors Related to Perineal Trauma

n=112

S. No.	Risk Factors	f	%
Maternal Factors			
1	Advanced maternal age (>35 years)	20	17.9%
2	Short maternal stature (<150 cm)	14	12.5%
3	Obesity (BMI ≥30)	18	16.1%
4	Underweight (BMI <18.5)	10	8.9%
5	Primiparous	42	37.5%
6	Inadequate Antenatal Care	26	23.2%
Obstetrical Factors			
7	Induced labor	30	26.8%
8	Prolonged second stage of labor	22	19.6%
9	Malpresentation	8	7.1%
10	Instrumental delivery	16	14.3%
11	Macrosomia (>4000 g)	6	5.4%
12	Post-term pregnancy	12	10.7%
13	Large head circumference (>35 cm)	15	13.4%
14	Prolonged labor (overall)	24	21.4%
15	Significant pain	34	30.4%
16	Poor breastfeeding	18	16.1%

Table 1 shows the distribution of maternal and obstetrical risk factors contributing to perineal trauma. The most common factor was primiparity (37.5%), followed by significant pain (30.4%), induced labor (26.8%), and inadequate antenatal care (23.2%). Labor-related factors such as prolonged labor (21.4%), prolonged second stage (19.6%), and instrumental delivery (14.3%) were also notable. Among maternal factors, advanced age (17.9%), obesity (16.1%), and short stature (12.5%) were observed. Fetal factors including large head circumference (13.4%), post-term pregnancy (10.7%), malpresentation (7.1%), and macrosomia (5.4%) were less frequent. Overall, primiparity and labor-related complications were the predominant risk factors for perineal trauma.

SECTION D - RISK FACTORS ASSOCIATED WITH PERINEAL TRAUMA:

Table 3: Risk Factors Associated with Perineal Trauma

n=340

Maternal Factor	Perineal Trauma Present	Perineal Trauma Absent	χ^2	p-value	Significant at 5% level
Parity	112	228	**24.62**	**3.84**	Significant
Childs Birth Weight	112	228	**10.74**	**5.99**	Significant
Maternal Age	112	228	2.15	5.99	Not Significant
Maternal Height	112	228	2.96	5.99	Not Significant
BMI	112	228	4.33	7.81	Not Significant

Calculated value is more than the table value, $p<0.05$ level of significance hence, there is association between parity and birth weight with perineal trauma.

SECTION E - ASSOCIATION BETWEEN NUMBER OF ANTENATAL VISITS AND PERINEAL TRAUMA:

Table 4: Association of Antenatal visits and Perineal Trauma

n=340

Maternal Factor (Number of Antenatal Visits)	Perineal Trauma Present	Perineal Trauma Absent	χ^2	p-value	Significant at 5% level
< 2 Visits	32	28	**8.64**	**0.034**	**Significant**
3 Visits	40	70			
4 Visits	30	90			
> 5 Visits	10	40			

Calculated value is more than the table value, $p<0.05$ level of significance hence, there is association antenatal visits and perineal trauma.

DISCUSSION:

The present retrospective study was conducted to determine the prevalence and risk factors of perineal trauma among postnatal mothers following vaginal delivery. Perineal trauma remains a significant contributor to maternal morbidity, leading to pain, infection, dyspareunia, and long-term pelvic floor dysfunction. The findings of this study highlight important maternal and obstetrical determinants associated with perineal injury.

The current study found that perineal trauma was more common among primiparous mothers (69.6%), indicating primiparity as a major risk factor. This finding is consistent with the systematic review by Jiang et al. (2017), which reported that primiparity significantly increases the risk of perineal trauma due to reduced perineal elasticity and increased tissue resistance during first vaginal birth.[7] Similarly, Pergialiotis et al. (2014) identified primiparity as a strong predictor of obstetric anal sphincter injuries (OASI).[2] These findings support the strong association between first vaginal delivery and increased perineal injury.[8]

In the present study, a greater proportion of trauma was observed among mothers delivering babies weighing more than 3.5 kg. Increased birth weight contributes to excessive stretching of the perineum and higher risk of tears. This is in agreement with the findings of Baghestan et al. (2010), who reported that higher neonatal birth weight significantly increases the likelihood of severe perineal tears.[9] Likewise, Dahlen et al. (2013) found a positive association between fetal macrosomia and perineal trauma.[10]

Maternal anthropometric factors such as short stature and increased BMI were also associated with trauma in the present study. Research by Sartore et al. (2004) demonstrated that maternal body characteristics, including BMI, influence perineal outcomes following vaginal delivery.[11] Additionally, obesity has been identified as a contributing factor to prolonged labor and instrumental delivery, indirectly increasing perineal injury risk.

Among obstetrical risk factors, induced labor, prolonged labor, and prolonged second stage were notable contributors in the current study. A systematic review by Räisänen et al. (2010) showed that prolonged second stage of labor significantly increases the risk of perineal trauma.[12] Instrumental delivery was also identified as a risk factor in the present study, which aligns with findings from Fitzpatrick et al. (2000), who reported higher rates of severe perineal trauma in assisted vaginal deliveries.[13]

The present study also demonstrated a statistically significant association between parity and birth weight with perineal trauma ($p<0.05$). Furthermore, a significant association was observed between the number of antenatal visits and perineal trauma. Adequate antenatal care allows early identification of high-risk conditions such as macrosomia and malpresentation. This is supported by WHO recommendations on antenatal care (2016), which emphasize that quality antenatal care reduces maternal complications through timely risk assessment and management.[14]

Overall, the findings of the present study are consistent with existing evidence, highlighting primiparity, higher birth weight, and labor-related complications as major contributors to perineal trauma. These results

underscore the importance of risk stratification during antenatal and intrapartum periods, careful monitoring of labor progress, and evidence-based perineal protection strategies to reduce maternal morbidity**.**

CONCLUSION:

The present retrospective study concluded that perineal trauma remains a common complication among postnatal mothers following vaginal delivery. The findings identified primiparity as the most significant maternal risk factor associated with perineal trauma. Other contributing factors included higher birth weight, induced labor, prolonged labor, prolonged second stage of labor, instrumental delivery, advanced maternal age, short maternal stature, and increased BMI. A statistically significant association was observed between parity and birth weight with perineal trauma, as well as between the number of antenatal visits and perineal trauma ($p<0.05$).

These findings emphasize the importance of early identification of high-risk mothers during antenatal care and careful monitoring during labor. Implementation of evidence-based intrapartum practices, appropriate labor management, and adequate antenatal counselling may help reduce the incidence and severity of perineal trauma, thereby improving maternal outcomes and postnatal recovery.

LIMITATIONS:

- The study adopted a retrospective design, which relied on existing hospital records and may have been limited by incomplete or inaccurate documentation.
- The study was conducted in a single tertiary care hospital, which may limit the generalizability of the findings to other healthcare settings.
- The analysis was restricted to the variables documented in medical records; therefore, other potential contributing factors such as perineal support techniques and provider skill level could not be assessed.
- The study did not differentiate between the severity grades of perineal trauma in detailed analysis.
- Being observational in nature, the study establishes association but cannot confirm causality between identified risk factors and perineal trauma.

IMPLICATIONS:

The findings have implications for nursing practice, education, administration, and research.

RECOMMENDATIONS:

1. Early identification of high-risk mothers such as primiparous women, mothers with higher BMI, short stature, and suspected fetal macrosomia during antenatal visits should be emphasized.
2. Regular and adequate antenatal care should be encouraged to facilitate timely risk assessment and planning for safe delivery.
3. Evidence-based intrapartum practices such as controlled delivery of the head, perineal support techniques, selective episiotomy, and careful monitoring of the second stage of labor should be implemented to reduce perineal trauma.

4. Close monitoring and appropriate management of prolonged labor and induced labor cases should be ensured.

5. Training programs and skill-based workshops should be conducted for nurses and midwives to enhance competency in perineal protection techniques.

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