



Perineal pain in the immediate postpartum period, prevalence, severity and its determinants in women giving birth at three teaching hospitals, Addis Ababa, Ethiopia, 2022GC

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ADDIS ABABA UNIVERSITY
DEPARTMENT OF OBSTETRICS AND GYNECOLOGY
PERINEAL PAIN IN THE IMMEDIATE POSTPARTUM
PERIOD, SEVERITY AND ITS DETERMINANTS AMONG
WOMEN WHO GAVE BIRTH IN THREE TEACHING
HOSPITALS

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POSTGRADUATE PROGRAM

I, Dr. Yoseph Teshome hereby declare that this research report entitled “Perineal pain in the Immediate Postpartum Period, Prevalence, Severity and its determinants in women giving birth at three teaching hospitals, Addis Ababa, Ethiopia, 2023GC ” in line with the requirement of graduate studies was fully undertaken by me under the guidance of my advisors and that I have, to the best of my knowledge and effort, avoided plagiarism or duplication of materials unless and otherwise cited and/or acknowledged and that it has not been so far submitted for any form of research application or consideration.

Dr. _____	_____	_____
Principal investigator	Signature	Date

We hereby certify that we have read and evaluated this research report relating to “Perineal pain in the Immediate Postpartum Period, Prevalence, Severity and its determinants in women giving birth at three teaching hospitals, Addis Ababa, Ethiopia, 2023GC” under our guidance from its inception up to in its current format and that it can be submitted for final approval for his partial fulfilment to the Degree of Specialty in Obstetrics and Gynaecology.

_____	_____	_____
1. Advisor	Signature	Date

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Dr. Yoseph Teshome

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Abbreviations and Acronyms

AAU	Addis Ababa University
TASH	Tikur Anbessa Specialized Hospital
ZMH	Zewditu Memorial Hospital
GMH	Gandhi Memorial Hospital
TH	Teaching Hospital
SPSS	Statistical Package for Social Science
CI	Confidence interval
OR	Odds Ratio
WHO	World Health Organization
PP	Perineal Pain

Abstract

Background – Perineal pain after vaginal delivery is one of the most common causes of postpartum pain. However, with maternal needs perceived as less of a priority than those of the neonate, it is often ignored. However, minimizing perineal pain after childbirth increases the comfort of the woman and enables her to fulfill her maternal roles and to continue breastfeeding.

Objectives – The purpose of this study is to determine the prevalence and severity of Perineal pain in the immediate postpartum period after vaginal delivery and determining the associated factors in order to provide a recommendation to introduce a standard.

Methods – Institutional based cross-sectional study design. The study area was at postnatal wards at three teaching Hospitals of AAU namely, Tikur Anbessa Specialized hospital (TASH), Zewditu Memorial Hospital (ZMH), and Gandhi Memorial Hospital (GMH) from March 1st, 2023, to May 30th, 2023. . Data were cleaned, coded, and entered using SPSS and then exported to SPSS version 28 for analysis. A p-value <0.05 was considered significant. Variables which were significantly associated by bivariate analysis were further processed by multivariate analysis.

Result - Among the 408 women who were studied, **364 (89.2%)** women complained of pain at 6 hours postpartum. Among these women, **185(45.3%)** complains of mild pain, **135 (33.1%)** complains of moderate pain and **44 (10.8%)** of them complains of severe pain. The mean severity pain score is **4.02 ± 1.03**. The odds perineal pain of participants with 2nd degree perineal tear is 3.13 times higher than participants with no perineal tear. (AOR=3.134, 95%CI (2.004, 6.356).

Conclusion and recommendations - The results of this study indicate most women have perineal pain after vaginal deliveries in the immediate postpartum period, and therefore all should be considered eligible for analgesic strategies. Further large-scale research is recommended to represent the general population, to see causal relationship and address limitations of this study

Introduction

Perineal pain defined as any pain occurring in the perineal body, the area of muscular and fibrous tissue, which extends from the symphysis pubis to the coccyx. [1]

Pain is an inevitable consequence of giving birth, with the greatest focus usually given to options for pharmacological and non-pharmacological pain relief during labor. Pain is also an outcome of labor and birth, because of perineal or abdominal wounds, bruising of perineal tissues and breast pain. [2]

Vaginal delivery is advantageous in that it provides a faster postpartum healing process and earlier initiation of mother-baby bonding. However, perineal trauma occurring during delivery has physical, psychological and social effects in the early and late postpartum periods.[3]

Perineal pain in hours after delivery causes pain and discomfort while sitting, walking, urinating and defecating, restricted motility, prevention of infant care, failure to provide lactation and sleeplessness in the short-term and depression, maternal anxiety, stress urinary incontinence, dyspareunia, communication problems, anger and tiredness in the long-term.[4]
[5]

Whether episiotomy is performed or not, perineal pain is a serious problem even 8 weeks after delivery and persists for 24 months.[6]

It has a negative impact on daily life activities and the quality of life and decreases postpartum comfort in postpartum women.[5]

Statement of the Problem

- **Most deliveries are vaginal deliveries**

WHO recommends an overall cesarean section rate to be 10% -15% to decrease the perinatal morbidity and mortality rate worldwide.

Ethiopian national cesarean section rate is about 2%, but the rate varies widely among administrative regions, suggesting unequal access. Cesarean sections were highest among urban mothers, first births, births to women with higher education, and births to women from the richest quintile of household wealth. This indirectly shows that most of the deliveries are vaginal. Hence, most women experience pain and trauma of the perineal area during the process of childbirth.

- **Perineal pain is over looked**

Perineal pain after vaginal delivery is one of the most common causes of postpartum pain. It is in fact the most distressing and disturbing pain that a woman can experience in her postpartum period, which can hinder her from performing her daily activities to the extent, affecting her social and sexual life then after.[5] Nevertheless, with maternal needs perceived as less of a priority than those of the neonate, it is often ignored. [7]

Not only the pain that the mother is going through is ignored and overlooked, but efforts and researches to study and know the magnitude of the problem are also scant.

Significance of the study

Every year in Ethiopia, an estimated 2.7 million infants are born. Of these deliveries, roughly only 2% are via cesarean delivery. However, to date, there is not a single paper published in Ethiopia with a particular intent on incidence and severity of perineal pain in postpartum mothers. Therefore, this research aims to break the ice and reveal the degree of morbidity associated perineal pain in the immediate postpartum period.

Literature review

How common is perineal pain in the postpartum period?

Perineal pain has been tried to be studied in some part of the continent and different prevalence rates, average severity and determinants has been found. The incidence of perineal pain among the groups during the first week with an intact perineum was 75% (day 1) and 38% (day 7). With first- and second-degree tears, the incidence of perineal pain was 95% (day 1) and 60% (day 7). With episiotomies, the incidence of perineal pain was 97% (day 1) and 71% (day 7), and with severe perineal trauma, it was 100% (day 1) and 91% (day 7).[3]

Other research also revealed that the prevalence of perineal pain could be even higher and the research showed about **90%** of women reported some perineal pain, with **37%** reporting moderate or severe pain. [7]

Research that aimed to identify the place of postpartum perineal pain as morbidity in the immediate postpartum period, revealed that the occurrences of perineal pain among the groups during hospitalization day one versus day three were as follows: intact perineum 18(38.3%), 13(27.7%); 1st / 2nd -degree tears 29(71%) and 14(50%); and episiotomies 59(86.8%) and 47(69.1%). Episiotomy was twice likely to produce perineal pain than no trauma group at time of discharge on day 3. [8]

How severe is perineal pain?

In the study mentioned earlier, which was done in Toronto, Canada, on day 1 only **13%** of women with an intact perineum used the words distressing or worse for their perineal pain, while **24%** in the minimal trauma group, **36%** in the episiotomy group, and **48%** in the third-/fourth-degree group selected these terms.[9]

A study involving 86 postpartum women, revealed that the perineal pain score was 6.35 ± 1.97 in the postpartum 2nd hour, 5.70 ± 1.88 in the postpartum 6th hour. It also concluded that the primipara had a higher mean perineal pain score in the postpartum 6th hour. Surprisingly, the women with intact perineum had a higher pain score in the postpartum 2nd hour and the women having episiotomy and/or spontaneous tears had a higher pain score in the postpartum 6th hour.[10]

Another study conducted in USA with sample size of 576 women which aimed to assess postpartum perineal pain showed that, when perineal pain was assessed using the PPI scale at the time of hospital discharge, **19.4** percent of women reported no pain, **40.4** percent mild pain, **35.8** percent discomforting pain, **3.5** percent distressing pain, and **0.92** percent horrible or excruciating pain.

Determinants

Following vaginal birth, postpartum pain is likely to be influenced by the extent of perineal trauma sustained. Robust evidence from a range of studies including observational studies and randomized controlled trials (RCTs) shows that perineal tissue damage is associated with diverse birth interventions including episiotomy, forceps, vacuum extraction, pushing methods, prolonged expulsive period and fetal conditions including birth weight and position of the baby at the time of birth.[2]

Age

Age is one of the factors studied to find out if there is any correlation with perineal pain in different studies. Mixed results were found on different studies. A study of 1809 primiparous women who had a vaginal birth found the probability of perineal trauma increased by 6% for each year of life.[11]

One other study also reported similar outcome regarding age and perineal pain association. Hundreds of postpartum women were studied and it indicated that there was a statistically significant age difference among the women who reported perineal pain; **women who reported perineal pain were older than those without pain.**[2]

Contrary to the above studies, the variable maternal age was felt to be statistically different, but not clinically different. [9]

Parity

A population survey which was done in Australia states that sexual problems and perineal pain are more common in the primiparous as compared to multiparous women in the postpartum period.

Another study done in Australia also shows perineal pain is more pronounced in the primipara as compared to multipara.

On the other hand, a study done in Brazil shows that there **are no** statistically significant differences between parity and perineal pain outcomes found.[2]

Perineal Trauma

Despite evidence that use of routine episiotomy cannot be justified, clinicians in Brazil and other parts of the world continue to assume that a surgical incision to the perineal body will protect the woman and her infant from a range of birth-related injuries. Women who reported pain in one study were more likely to have an episiotomy, an association reported also on different researches. [2]

One study of 119 primiparous women which compared pain outcomes following medium-lateral episiotomy, intact perineum and first- and second-degree spontaneous laceration found higher perineal pain scores among the episiotomy group. [12]

In the study done in Austria, on day 1, the 3 trauma groups were **30%** more likely to report perineal pain compared with the no trauma group. [3]

A UK study found significant differences in pain scores among women who had more severe perineal lacerations compared with women who had an intact perineum or first-degree tear on day one, day five and at seven weeks after birth. [13]

Several studies have reported less postnatal pain among women who have an intact perineum. (2-3) found less pain among women with intact perineum than women who had a second-degree laceration. [9][13][2]

Other Obstetric variables

studies which compared outcomes following assisted and spontaneous vaginal births found a statistically significant association between assisted vaginal births and perineal pain at a number of follow-up times within the first 24 weeks of birth after taking account of type of perineal trauma. [3]

A Cochrane Library review recommended that polyglactin thread should be the material of choice as it is associated with less perineal pain during the first three postpartum days (OR¼0.62) and less requirement for analgesia (OR¼0.63), compared to outcomes among women who had perineal trauma sutured with catgut thread.[6]

Conceptual frame work

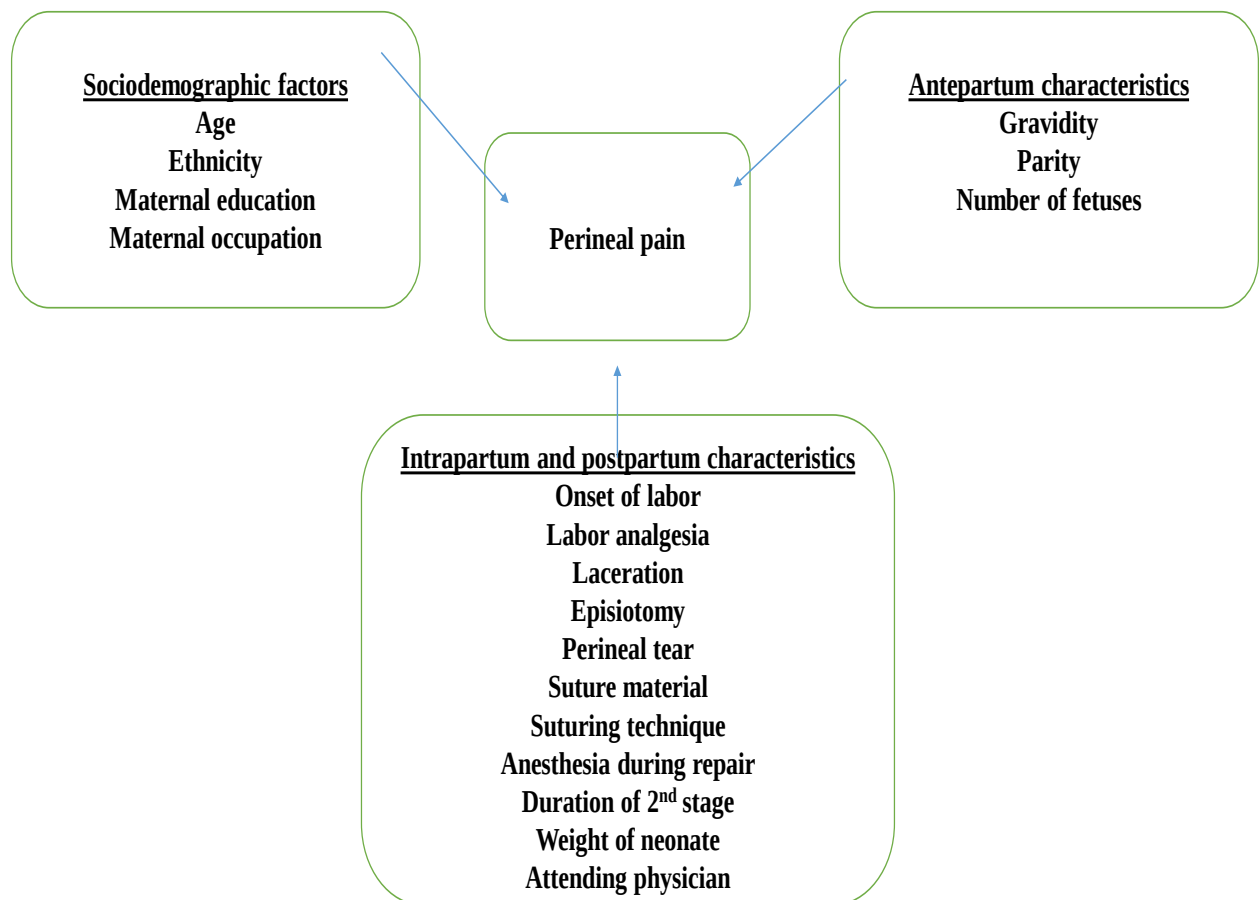


Figure 1. conceptual frame work of perineal pain

Objectives of the study

General objectives

- The purpose of this study is to determine the prevalence and severity of perineal pain in the immediate postpartum period after vaginal delivery and determining the associated factors in order to provide a recommendation to introduce a standard.

Specific objectives

- To assess the prevalence and severity of postpartum perineal pain in the three teaching hospitals.
- To identify determinants of perineal pain
- To assess the current practices regarding prevention of postpartum perineal pain

Material and Methods

Study design

Institutional based cross-sectional study design will be conducted to assess the incidence, severity and determinants of perineal pain in the immediate postpartum period at three teaching Hospitals of AAU.

Study area and period

The study area was in postnatal wards at three teaching Hospitals of AAU namely, Tikur Anbessa Specialized hospital (TASH), Zewditu Memorial Hospital (ZMH), and Gandhi Memorial Hospital (GMH).

Addis Ababa is the capital city of Ethiopia, a country in the horn of Africa. The capital city holds 527 kilometers of area and is at an elevation of 2,355 meters above sea level. Addis Ababa's 2020 population is estimated at 4,793,699 according to United Nations World Urbanization Prospects.

Regarding medical service, currently the city has more than 41 hospitals, 28 health centers, 35 health posts and more than 500 clinics. There are more than 12 public and more than 25 private hospitals in the city. Of the total 12 public hospitals, 3 of them are selected by convenience and included in the study. Tikur Anbessa Specialized Hospital is the largest referral and teaching hospital in the country and is managed by Addis Ababa University, while the rest two are under Addis Ababa Health Bureau. All of the selected hospitals give antepartum, Intrapartum and postpartum care including cesarean delivery service for 24 hours of a day. The study will be conducted from September 2022 to March 2023.

Source population

Women in their immediate postpartum period, Addis Ababa

Study population

All sampled mothers who are in the immediate postpartum period at postnatal wards in 3TH during the study period

Sampling procedure

The first sample was determined by lottery method. Then, simple consecutive sampling technique was used to include study participants until the required sample size was completed.

Inclusion and exclusion criteria

All women who are in a reproductive age group who delivered vaginally in the specified study period in the three teaching hospitals were included.

Women who delivered stillbirth and who had Early neonatal death within in 6 hours were excluded.

Women who delivered through cesarean route were excluded from the research.

Sample size determination

To determine the sample size, single proportion formula will be used.

$$n = \frac{(Z_{\alpha/2})^2 p (1-p)}{d^2}$$

Where: n = desired sample size

z = z value at 95% confidence interval (CI)

p = prevalence of perineal pain

d = margin of error

The Z value at 95% CI is 1.96 (from significance level $\alpha = 5\%$).

The Z value at 95% CI is 1.96 (from significance level $\alpha = 5\%$). Since, the prevalence of immediate postpartum perineal pain is not studied here in Ethiopia, I will take a P value of 50%. The tolerated margin of error is 5%. Therefore,

$$p = 0.5 \quad 1 - p = 0.5, \quad d = 0.05$$

$$n = \frac{(1.96)^2 (0.5) (1-0.5)}{(0.05)^2} = 384$$

Adding 10% non-response rate the total sample size calculated to be is 422 participants

Study Variables

Dependent Variable

- Dependent variable is perineal pain in the immediate postpartum period

Independent Variables

- **Socio demographic Factors** - age, maternal education level, maternal ethnicity, maternal occupation, estimated average monthly income.
- **Obstetrical related variables** – Gravidity, parity, abortion, number of alive children, multiple pregnancy, mode of delivery, episiotomy, suturing material, methods of repair, attending physician, duration of second stage, perineal tear and the weight of newborn

Data collection procedure

The socio demographic and clinical variables were collected using the standardized pretested questionnaire. The antepartum and postpartum characteristics were collected from maternal medical record. The participants were interviewed after 6hrs of delivery when they are comfortable but before they discharged from the Hospital.

The questionnaire was developed after reviewing different pieces of literature conducted in different parts of the world. Three interns and three residents were recruited for data collection and supervision, respectively. After taking verbal informed consent, data was collected through both face-to-face interview and retrospective maternal chart review by using a semi- structured pretested questionnaire.

Data Quality Control Measures

Training was provided for data collectors and supervisors for data accuracy and completeness and an appropriate modification will be made after discussing with the supervisors and data collectors before starting the actual data collection process. The questionnaire were pre tested on 5% of the study population in one of the 3TH 5 days before the actual data collection to ensure clarity, wordings, logical sequence and skip patterns of the questions. Every day, the filled questionnaires were checked before a respondent go from the setting by data collectors and supervisors. The principal investigator controlled the data collection procedure by

supporting the supervisors and data collectors and a close supervision, honest communication and on spot decision in the data collection phase was implemented.

Data Processing and Analysis

Collected data was checked for completeness, consistency, clarity, and missed values and will be entered into EPI-info version 4.6.0.0. Then cleaned and coded data were exported to SPSS (Statistical Package for Social Science) version 28 data management and further statistical analysis. Frequency counts were performed to assess completeness of all variables. The perineal pain was the major outcome variable in this study. The prevalence rates along with the 95% confidence intervals was estimated for each sub population. Correlates of postpartum perineal pain were assessed by multivariable logistic regression. All tests were two sided and statistical significances will be set at $p\text{-value} < 0.05$. From these models, crude and adjusted odds ratios along with 95% confidence intervals, separately for each age group will be estimated.

Operational Definitions

1. **Immediate postpartum period** - The first 6 hours after childbirth.
2. **Immediate Postpartum perineal pain**- Any pain occurring in the perineal body, the area of muscular and fibrous tissue which extends from the symphysis pubis to the coccyx. Or any pain that the postpartum woman feels between her urinary tract and GI tract ends.

Ethical Considerations

The proposal was submitted to my advisors for feedback and approved before conducting the study. Ethical approval was obtained from TASH department of research and publication committee of Addis Ababa University. The importance of the study was explained to the participants of the study. For this a one-page consent was attached to the cover page of each questionnaire. Verbal informed consent was obtained after the objectives, benefit and risks of the study explained to study participants. Participation was voluntary, confidentiality and private information were not requested from the participants. The right of the respondent to withdraw from the interview or not to participate was respected. The information collected from the study subjects were kept confidential and used only for the study and management of the patient. Mothers who had pain were managed according to their pain score after communication with their primary physician.

Dissemination plan and use of findings

The result of the study was presented to TASH, department of obstetrics and gynecology. The final report is submitted to TASH and Gandhi memorial Hospital and Zewditu Memorial

Hospital. Moreover, efforts will be done to publish the findings of the study and disseminate through different journals and scientific publications. Copy of the article will be placed in the library of college of health sciences, AAU for the future reference.

Results

Sociodemographic characteristics of study participants

In this study, **408** Participants were included. Most of our participant's age is between 20-29 years of age which is about **56.9%** and with only 3 mothers above the age of 40. Majority of the participants were Housewife making about **46.1%**. Ethnicity wise, most of the mothers were Amhara making about **30.9%** followed by Oromo which was around **28.4%**. Majority of the mothers have attended secondary school making about **33.3%** with about **8.3%** of mothers who are unable to read and write. Table 1 below

Table 1 The sociodemographic characteristics of study participants in TASH, GMH, and ZMH, Addis Ababa, 2023

Variable	List of categories	Frequency	Percent
Age of Participant	<20	19	4.7
	20 – 29	232	56.9
	30 – 39	154	37.7
	>=40	3	0.7
Ethnicity	Amhara	126	30.9
	Oromo	117	28.7
	Tigre	47	12
	Gurage	59	14.5
	Others	49	14
Educational status	Unable to read and write	34	8.3
	Able to read and write with out formal education	34	8.3
	Primary school	130	31.9
	Secondary school	136	33.3
	Beyond secondary school	74	18.1
Occupation	Housewife	188	46.1
	Daily laborer	31	7.6
	Merchant	66	16.2
	Government Employee	62	15.2
	Private Employee	44	10.8
	Other	17	4.2

Antepartum and postpartum characteristics of study participants

Most of our participants (52.9%) are multiparous and Full-term pregnancies account for 36.5%) of the pregnancies. Of the participants, 61.5% had no laceration while 55.1% had episiotomy. 2nd degree tear was the commonest with 34.5%. The most common suturing material used was vicryl (40.9%) and continuous suturing technique (83.8%). Most of the deliveries were SVD (93.8%).

Table 2 the antepartum and postpartum characteristics

VARIABLES	LIST OF CATEGORIES	FREQUENCY	PERCENT
Gestational age	28-33+6	6	1.5
	34-36+6	27	6.6
	37-38+6	114	27.9
	39-40+6	149	36.5
	>=41	112	27.5
Parity	Primiparous	188	46.1
	Multiparous	216	52.9
	Grand multiparous	4	1
Laceration	No laceration	251	61.5
	Spontaneous laceration	157	38.5
Episiotomy	No episiotomy	183	44.9
	Episiotomy	225	55.1
Perineal Tear	2 nd degree	141	34.5
	3 rd degree	7	1.7
	4 th degree	0	0
Suture material	Vicryl	167	40.9
	Catgut	117	28.7
	No suture	124	30.4

Variables	List of categories	Frequency	Percent
Suturing Technique	Continuous	239	83.8
	Interrupted	38	13.3
	Combined	7	2.4
Labor analgesia	No analgesia	404	99
	Epidural	1	0.2
	Fentanyl	3	0.7
Anesthesia during Repair	Local infiltration	277	97.5
	Spinal/Epidural	7	2.5
Mode of Delivery	SVD	383	383
	Forceps	11	2.7
	Vacuum	11	2.7
	Assisted Breech Delivery	3	0.7
Onset of Labor	Spontaneous	245	60
	Induction	128	31.4
	Augmentation	35	8.6

Variables	List of categories	Frequency	Percent
Duration of Second Stage	<1hr	214	52.5
	1-2hrs	151	37
	2-3hrs	41	10
	>3hrs	2	0.5
Number of neonate	Singleton	398	97.5
	Twin	10	2.5
Weight of neonate	<2.5kg	50	12.3
	2.5- 4kg	339	83.1
	>=4kg	19	4.7
Attending physician	Midwife	193	47.3
	Intern	75	18.4
	Resident	149	34.3

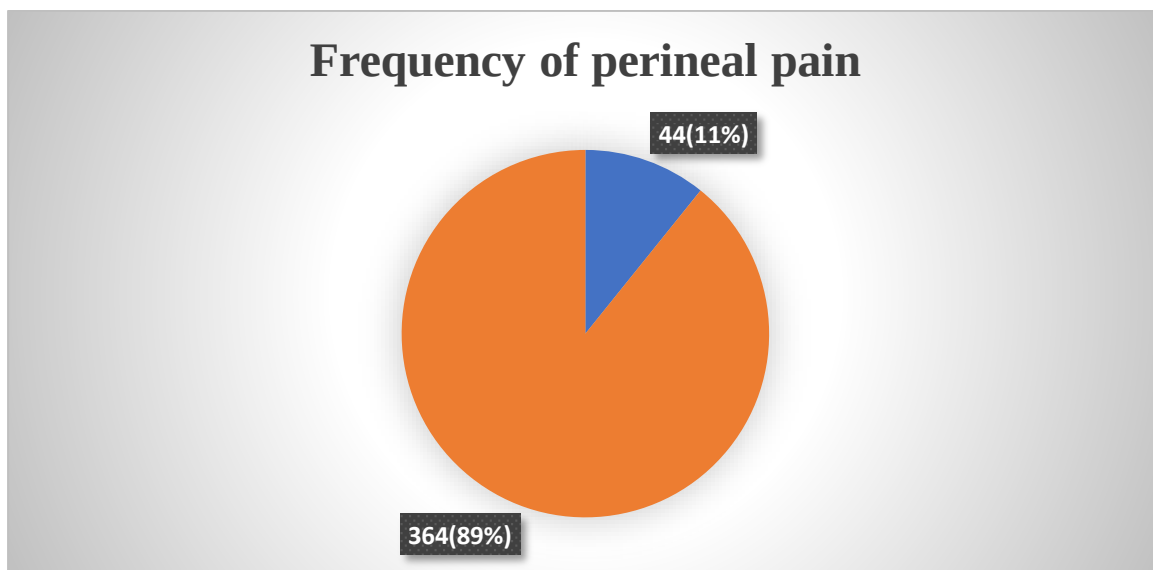


Figure 2, frequency of perineal pain

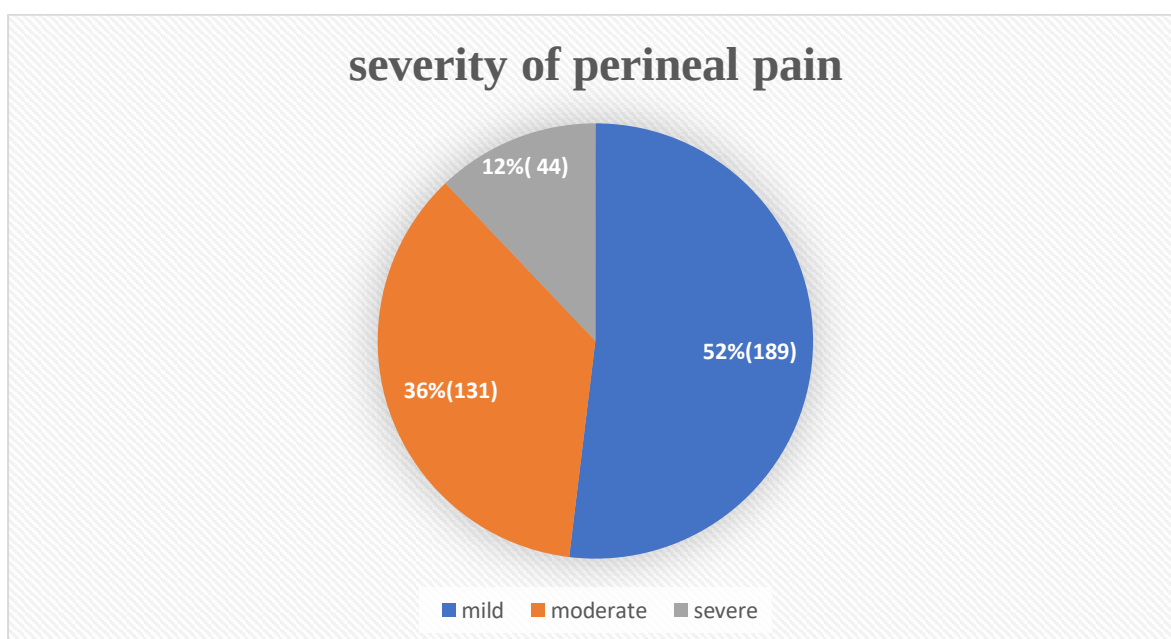


Figure 3 frequency by severity of perineal pain

Table 3 chi-square test of perineal pain and independent variables

Variables	Value	P value	Significance
Laceration	27.3	< 0.01	Significant
Age	2.984	0.394	Not significant
Ethnicity	11.546	0.021	Significant
Education	10.375	0.035	Significant
Occupation	12.6	0.027	Significant
Gestational Age	23.621	< 0.001	Significant
Parity	6.488	0.039	Significant
Episiotomy	0.3	0.578	Not significant
Suture Material	13.688	0.01	Significant
Suturing Technique	16.340	< 0.001	Significant
Perineal Tear	24.670	< 0.001	Significant
Labor analgesia	8.644	0.013	Significant
Anesthesia during repair	12.944	0.002	Significant
Mode of delivery	3.219	0.359	Not significant
Onset of labor	4.749	0.093	Not significant
Duration of second stage	30.821	<0.001	Significant
Number of neonate	0.007	0.935	Not significant
Weight of neonate	5.735	0.57	Not significant
Attending physician	4.471	0.107	Not significant

Table 4, chi-square test between severity of perineal pain and independent variables.

Likelihood Ratio Tests		
Variable	Likelihood Ratio Tests	
	Chi-Square	P value
Age	84.273	< 0.001
Ethnicity	79.796	< 0.001
Education	56.271	< 0.001
Gestational Age	31.814	0.001
Occupation	50.941	< 0.001
Perineal tear	12.745	0.005
Suturing Material	6.237	0.101
Suture Technique	23.389	< 0.001
Episiotomy	2.436	0.487
Parity	9.140	0.166
Labor Analgesia	1.276	0.973
Anaesthesia During Repair	0.439	0.932
Mode Of Delivery	19.377	0.022
Onset Of Labour	23.152	< 0.001
Duration of second stage	60.776	< 0.001
Number of neonates	0.176	0.981
Weight	31.988	< 0.001
Attending physician	2.916	0.819

The variables with significance outcomes on chi-square tests were taken multivariate logistic regression, and final findings are as follows.

- The odds of perineal pain of participants with 2nd degree perineal tear is 3.13 times higher than participants with no perineal tear. (**AOR=3.134, 95%CI (2.004, 6.356)**)
- The odds of having perineal pain is inversely related with maternal age with **AOR of 0.02 with CI of between 0.003 and 0.096.**
- Out of 408 participants, **185** of them had mild pain based on their description and **135** had moderate pain, while severe pain was reported in **44 mothers**. On the other hand, **44** mothers also reported to have **No pain**. Based on the result from the research, there was no significant association between Severe Perineal pain and any of the independent variables but 2nd degree perineal tear, induced labour have a significant association with Moderate perineal pain while suture material catgut have an inverse relationship with severity of pain.

Table 6, multivariate analysis of the final significant variables

		perineal Pain		p value	odds	Interval for Exp(B)	
		YES	NO			Lower Bound	Upper Bound
count							
ethnicity	Amhara	109	17	0.785	1.898	1.4099	20.45
	gurage	48	11	0.756	7.674	1.204	28.674
	oromo	105	12	0.809	6.872	0.09	12.098
	other	53	4	0.772	4.096	1.099	32.980
	Tigre	49	0	1			
education	able to read and write without formal education	31	3	0.209	0.092	0.002	3.795
	beyond secondary school	64	10	0.001	2.099	1.000472	3.0099
	primary school	109	21	0.743	1.337	0.235	7.604
	secondary school	130	6	0.193	3.766	0.512	27.709
	unable to read and write	30	4	1			
occupation	daily labourer	27	4	0.766	0.0067	0.00007	0.008
	government employee	54	8	0.863	0.892	0.0005	2.0008
	Housewife	160	28	0.753	0.0346	0.0066	0.0765
	merchant	62	4	0.771	3.76	1.2244	78.655
	others	17	0	0.969	0.035	0.00076	0.765
	Private employee	44	0	1			
Gestational Age	>41	98	14	0.16	0.172	0.041	0.717
	28-33+6	6	0	0.960	0.001	0.00008	0.002
	34-36+6	17	10	0.009	21.131	2.157	765.9
	37-38+6	107	7	0.069	0.204	0.037	1.129
	39-40+6	136	13	1			
parity	grand	2	2	0.041	0.0272	0.0136	0.087
	multiparous	193	23	0.421	1.764	0.443	7.030
	Primiparous	169	19	1			
Suturing Material	catgut	108	9	0.238	3.114	0.472	20.536
	vicryl	156	11	1			
SutureTechnique	continuous	218	20	1			
	interrupted	39	0	0.815	1.45	1.087	5.67
	combined	7	0	0.56	0.89	0.085	1.899
Perineal	2nd degree	140	1	0.004	3.134	2.004	6.356
	3rd degree	7	0	0.96	3.711	1.06	56.8
	no tear	217	43	1			
laborAnalgesia	fentanyl	3	0	0.950	3.26	2.008	8.997
	no analgesia	361	43	0.677	0.255	0.00678	0.998
	epidural	0	1	1			
Anesthesia During Repair	epidural/ spinal analgesia	7	0	0.058	3.535	1.560	6.557
	local infiltration	254	20	1			
Duration of second stage	<2.3	27	14	0.974	2.456	0.677	12.454
	(1,2)	145	6	0.952	1.87	0.45	3.78
	<1hr	190	24	1			
	>3hrs	2	0	0.956	5.66	1.64	12.56

Discussion

The study found out that the prevalence of Perineal pain to be **89.2%** which is comparable with study done in Melbourne, Victoria, Australia, using structured interviews involving 215 women in a postnatal ward, the structured interviews revealed that **90%** of women reported some perineal pain. But it has different result to the study done in Brazil where the reported prevalence of perineal pain in the immediate postpartum period was **18.5%**.

The odds of perineal pain of participants with 2nd degree perineal tear is 3.13 times higher than participants with no perineal tear. (**AOR=3.134, 95%CI (2.004, 6.356)**). The finding is consistent with the results in research done in Australia which was **30%** more likely to report perineal pain compared with the no trauma group. A UK study also found significant differences in pain scores among women who had more severe perineal lacerations compared with women who had an intact perineum or first-degree tear on day one.

The odds of having perineal pain is inversely related with maternal age with **AOR of 0.02 with CI of between 0.003 and 0.096**. This is in accordance with the study done in Brazil. Our study also revealed that there is a statistically significant relationship between occupation of the mother and perineal pain but is not supported by any of the researches.

Severity wise,

Out of 408 participants, **185** of them had mild pain based on their description and **135** had moderate pain, while severe pain was reported in **44 mothers**. On the other hand, **44** mothers also reported to have **No pain**. Based on the result from the research, there was no significant association between Severe Perineal pain and any of the independent variables **BUT** 2nd degree perineal tear, induced labour has a significant association with Moderate perineal pain while suture material catgut has an inverse relationship with severity of pain.

- Participants with 2nd degree perineal tear have a likelihood of **60*** to have moderate perineal pain as compared to participants with no tear **AOR of 60.4 with CI of 95% Between 9.06 and 100.6**

- Participants with induction of labor have a likelihood **16 *** of having moderate perineal pain as compared to participants with spontaneous labor **AOR 16.59 with CI of 95% between 1.423 and 194.**
- Participants whose episiotomy is repaired with catgut have less likely hood of having moderate perineal pain with **AOR of 0.55 with 95% CI between 0.003 and 0.99.**

Limitation of the study

The study was institutional based and difficult to represent for the entire population and the study is also conducted where only selected patients are offered to have analgesia during labor and delivery which can further affect the overall prevalence of pain.

Conclusion

- Among women in study, **185(45.3%)** complains of mild pain, **135 (33.1%)** complains of moderate pain and **44 (10.8%)** of them complains of severe pain.
- The mean severity pain score is **4.02.**
- Perineal tear and maternal age are the two determinants of perineal pain.
- Severity of perineal pain was affected by perineal tear, onset of labor and suturing material.

Recommendation

Further large-scale research is recommended to represent the general population, to see causal relationship and address limitations of this study.

References

- [1] "Module title: Core Midwifery Practice."
- [2] A. Amorim Francisco, S. M. Junqueira Vasconcellos de Oliveira, F. M. Barbosa da Silva, D. Bick, and M. L. Gonzalez Riesco, "Women's experiences of perineal pain during the immediate postnatal period: a cross-sectional study in Brazil.," *Midwifery*, vol. 27, no. 6, pp. e254-9, Dec. 2011, doi: 10.1016/j.midw.2010.10.012.
- [3] A. J. Macarthur and C. Macarthur, "Incidence, severity, and determinants of perineal pain after vaginal delivery: a prospective cohort study.," *Am. J. Obstet. Gynecol.*, vol. 191, no. 4, pp. 1199–204, Oct. 2004, doi: 10.1016/j.ajog.2004.02.064.
- [4] C. MacArthur et al., "Effects of redesigned community postnatal care on womens' health 4 months after birth: a cluster randomised controlled trial.," *Lancet (London, England)*, vol. 359, no. 9304, pp. 378–85, Feb. 2002, doi: 10.1016/s0140-6736(02)07596-7.
- [5] G. Persico, P. Vergani, C. Cestaro, M. Grandolfo, and A. Nespoli, "Assessment of postpartum perineal pain after vaginal delivery: prevalence, severity and determinants. A prospective observational study.," *Minerva Ginecol.*, vol. 65, no. 6, pp. 669–78, Dec. 2013.
- [6] C. Kettle, R. K. Hills, and K. M. K. Ismail, "Continuous versus interrupted sutures for repair of episiotomy or second degree tears.," *Cochrane database Syst. Rev.*, no. 4, p. CD000947, Oct. 2007, doi: 10.1002/14651858.CD000947.pub2.
- [7] C. E. East, M. Sherburn, C. Nagle, J. Said, and D. Forster, "Perineal pain following childbirth: prevalence, effects on postnatal recovery and analgesia usage.," *Midwifery*, vol. 28, no. 1, pp. 93–7, Feb. 2012, doi: 10.1016/j.midw.2010.11.009.
- [8] C. O. Imarengiaye and A. B. A. Andet, "Postpartum perineal pain among Nigerian women.," *West Afr. J. Med.*, vol. 27, no. 3, pp. 148–51, Jul. 2008.
- [9] A. J. Macarthur and C. Macarthur, "Incidence, severity, and determinants of perineal pain after vaginal delivery: A prospective cohort study," *Am. J. Obstet. Gynecol.*, vol. 191, no. 4, pp. 1199–1204, Oct. 2004, doi: 10.1016/j.ajog.2004.02.064.
- [10] C. M. Glazener, M. Abdalla, P. Stroud, S. Naji, A. Templeton, and I. T. Russell, "Postnatal maternal morbidity: extent, causes, prevention and treatment.," *Br. J. Obstet. Gynaecol.*, vol. 102, no. 4, pp. 282–7, Apr. 1995, doi: 10.1111/j.1471-0528.1995.tb09132.x.
- [11] "No Title", doi: 10.1016/j.ajog.2022.06.021.
- [12] R. Angioli, O. Gómez-Marín, G. Cantuaria, and M. J. O'sullivan, "Severe perineal lacerations during vaginal delivery: the University of Miami experience.," *Am. J. Obstet. Gynecol.*, vol. 182, no. 5, pp. 1083–5, May 2000, doi: 10.1067/mob.2000.105403.
- [13] V. Andrews, R. Thakar, A. H. Sultan, and P. W. Jones, "Evaluation of postpartum perineal pain and dyspareunia--a prospective study.," *Eur. J. Obstet. Gynecol. Reprod. Biol.*, vol. 137, no. 2, pp. 152–6, Apr. 2008, doi: 10.1016/j.ejogrb.2007.06.005.

Annexes

Study instruments and tools

Informed Consent:

Dear Sir/Madam;

Hello, my name is _____. I am working as a data collector for the study being conducted in this hospital by Dr. Yoseph Teshome who is studying for specialty of Obstetrics and Gynecology at Addis Ababa University, College of Health Sciences. I kindly request you to give me your attention to explain about the study and about you being selected as the study participant.

The Study Title: Immediate postpartum pain, prevalence, severity and determinants in 3 teaching Hospitals in Addis Ababa, Ethiopia, 2022 G.C. and _____ hospital is one of the hospitals selected.

Importance and Purpose of the Study:

Procedure and Duration: I will be interviewing you using questionnaire, there are few questions to answer. I will not take more than 5 minutes of your time.

Risks and Benefits: The risk of being participated in this study is negligible, but only taking a few minutes from your time. There would not be any direct payment for participating in this study and your input has great value for the success of the study.

Confidentiality: The data you will provide us will be confidential. There will be no information that will identify you. The findings of the study will be general for the study population and will not reflect anything particular of individual person. The questionnaire will be coded to exclude showing names. No reference will be made in oral or written reports that could link participants to the research. You have full right to refuse to take part or to interrupt the interview at any time.

Are you willing to participate in the study? 1- Yes (continue to the next page)

2 -No.....Thank you (skip to the next participant)

Name of Enumerator _____ Signature _____ Interview Date

Questionnaire Code_____

Name of the supervisor _____Signature _____Checking Date

Questionnaire for the interview

Respondent's information sheet, face to face survey on prevalence, severity and determinants of postpartum perineal pain in the immediate postpartum period.

Section 1

Assessment of perineal pain

1.1 Do you have perineal pain?

- 1. Yes**
- 2. No**

1.2 If the answer to the above question is YES, how do you grade the severity from “no” being 0 to the worst possible pain being “10”?

1 2 3 4 5 6 7 8 9 10

Section 2

Socio-demographic and economic characteristics

No.	Questions	Answers (Circle your choices)	Codes	
Q201	How old are you?	-----Years (age in completed years)	<20	1
			20-29	2
			30-39	3
			>or=40	4
Q202	What ethnic group do you belong to?	1. Oromo 2. Amhara 3. Tigre 4. Gurage 5. Other (Specify).....		1 2 3 4 5
Q203	What is your educational status (Highest Level)?	1. Unable to read and write 2. Able to read and write without formal education 3. Primary school (Grade 1-8) 4. Secondary School (Grade 9-12) 5. Beyond Secondary School (College and above)		1 2 3 4 5
Q204	What is your current Occupation?	1. House wife 2. Daily laborer 3. Merchant 4. Government employee 5. Private employee 6. Other (specify).....		1 2 3 4 5 6

Section 3

Obstetric variables, which will be obtained from both the participant and chart.

301	Parity	1. Primiparous 2. Multiparous 3. Grand multiparous	1 2 3
302	Laceration	1. No laceration 2. Spontaneous Laceration	1 2
303	Episiotomy	1. No episiotomy 2. episiotomy	1 2
304	Perineal tear	1. 2 nd degree 2. 3 rd degree 3. 4 th degree	1 2 3
305	Suture material	1. Catgut 2. Vicryl 3. Other	1 2 3
306	Suturing technique	1. Continuous 2. Interrupted	1 2
307	Labor analgesia	1. No analgesia 2. Opioid analgesia 3. Epidural analgesia	1 2 3
308	Mode of delivery	1. SVD 2. Assisted vaginal delivery	1 2
309	Duration of second stage	1. < 1hr 2. (1, 2) hrs 3. (2, 3) hrs 4. >3hrs	1 2 3 4
310	Number of fetuses	1. Singleton 2. Twin	1 2
311	Weight of the neonate	1. < 2.5kg 2. B/n 2.5 and 4kg 3. > 4kg	1 2 3
312	Attending physician	1. Midwife 2. Intern 3. Resident 4. Consultant	1 2 3 4