Research Square

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Prevalence and factors associated with episiotomy among women in Eastern Uganda: A cross-sectional study

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Abstract

Background:

The World Health Organization recommends episiotomy rates of about 10–15%. However, studies in Uganda have reported higher episiotomy rates than the WHO-recommended rate. Higher episiotomy rates may suggest overmedicalization of childbirth. The study was conducted to determine the prevalence and factors associated with episiotomy in our setting.

Methods:

A cross-sectional study was conducted in a tertiary hospital in Eastern Uganda. We recruited 370 women who had uncomplicated vaginal birth. Participants were recruited during discharge from the postnatal unit of the hospital. An interviewer-administered questionnaire was used for data collection. Logistic regression analyses were used to assess factors associated with episiotomy.

Results:

Nearly a third (29.7%, n = 110/370) of women sustained perineal tears during childbirth. The prevalence of episiotomy was 11.6% (43/370). The factors associated with the practice of episiotomy were the birth attendant being a doctor (adjusted odds ratio [AOR] = 4.28; 95% CI: 1.36–13.44), multiparity (AOR = 0.01; 95% CI: 0.03–0.34), increasing fetal head circumference (AOR = 1.51; 95% CI: 1.04–2.20), having perineal tears (AOR = 0.16; 95% CI: 0.06–0.48), and labor augmentation (AOR = 2.92; 95% CI: 1.14–7.48).

Conclusion:

Episiotomy rates were within the WHO-recommended range. Episiotomy was associated with parity, type of birth attendant, fetal head circumference, perineal tears, and use of labor augmentation.

Background

Episiotomy is a surgical incision of the perineum to facilitate vaginal births[1]. Routine episiotomy is done for all primigravida women, sometimes without a medical indication[2]. In contrast, restrictive episiotomy is only done for women with a medical indication[2]. Episiotomy is recommended to hasten delivery, such as following fetal compromise and difficult childbirths[3]. Conditions such as shoulder dystocia, malpresentation, malposition, macrosomia, non-reassuring fetal heart rate, and maternal exhaustion necessitate the use of restrictive episiotomy[4, 5].

The World Health Organization (WHO) recommends the use of restrictive episiotomy for women with a medical indication[2, 3]. Restrictive episiotomy policy effectively reduces the risk of severe perineal trauma and the need for episiotomy repair, while it conforms to women's needs for minimal medical interventions during childbirth[2, 6–8]. Routine episiotomy is linked to adverse birth outcomes including increased risk of postnatal bleeding, puerperal sepsis, postpartum sexual dysfunction, bladder and

bowel incontinence[7, 9]. Routine episiotomy is associated with poor wound healing complications such as hematoma, skin tags, and wound dehiscence[9].

The WHO recommends episiotomy rates of 10% among women with spontaneous vaginal deliveries[2, 10]. However, episiotomy remains one of the most common obstetrical interventions with rates that exceed the WHO recommendation[11]. In Africa, a 42% prevalence of episiotomy has been reported[11]. In East Africa, episiotomy rates reach about 48%, which suggests one of the highest episiotomy rates in Africa [11].In Uganda, episiotomy rates vary between 31% in Western Uganda[12] and 73% in Central Uganda [13].

Several factors are associated with increasing episiotomies[14–16]. Factors such as oxytocin use and local regional anesthesia during labor were associated with episiotomy[14, 15]. Episiotomy was significantly more likely among women with younger age, short birth intervals, primigravida, prolonged second stage of labor, forceps-assisted delivery, and macrosomia [14, 15, 17, 18]. Limited expertise on perineal support and fear of tears were some of the reasons given for unselective episiotomy use among the midwives in Nigeria [19]. In South Africa, 51% of healthcare workers thought that episiotomies helped hasten delivery in busy and congested maternity units[16]. This suggests that episiotomy may be carried out for non-medical reasons such as to decongest the ward[16]. In Uganda, limited studies have investigated the magnitude and factors associated with episiotomy in spontaneous vaginal deliveries[12, 13]. The study was conducted to investigate the prevalence and factors associated with episiotomy practice among women in Eastern Uganda.

Methods and materials

Study design, setting and population.

We used a cross-sectional study design to determine the prevalence and factors associated with episiotomy. The study was conducted in a tertiary hospital in Eastern Uganda. The hospital serves a population of about 4.5 million people. The maternity unit has a high volume of patients, with about 200–300 vaginal deliveries conducted per month. The obstetrics and gynecology department comprises specialists, medical officers, midwives, intern midwives, and intern doctors. The hospital averages six to seven emergency caesarean sections daily, and has six functional delivery beds and two operating theater beds. The study population consisted of mothers who had spontaneous normal vaginal births.

Sample size, sampling, and data collection.

The sample size was 370, which was determined using Kish's formula. We used a 31% proportion from a study in Uganda to estimate the sample size[12]. We added a 10% proportion to account for any incomplete or missing responses. As a result, the final sample size was 370 participants. A consecutive sampling technique was used, which involved selecting participants as they came for discharge at the postnatal clinic.

Study variables and data collection methods.

Episiotomy was the dependent variable in the study. This was determined by asking women if they had an episiotomy during birth. Women were also asked if they had spontaneous perineal tears during delivery. Independent variables included parity, birth interval, duration of labor, type of birth attendant, birth weight, fetal presentation, head circumference, maternal age, meconium staining, and place of residence. Data were collected from April to May 2025. Quantitative data were collected using an interviewer-administered semi-structured questionnaire. The tools contained both open- and closed-ended questions focusing on demographic and obstetric factors related to episiotomy. The tools were pre-tested and refined for appropriateness.

Data analysis.

Data were analysed using Stata (version 15). Frequencies and percentages were used to describe categorical variables. Measures of central tendency were used to describe continuous variables. Logistic regression was done at the bivariate and multivariate levels. Variables with a probability value (p-value) of less than 0.2 were taken for multivariable logistic regression. Variables whose p-value was less than 0.05 at the 95% confidence interval (CI) were considered to be statistically significant.

Ethical consideration.

The study received approval from the Research Ethics Committee (reference number BUFHS-2025-791). We sought administrative clearance from the study site. Written informed consent was obtained from the study participants, and the study was conducted in line with the Belmont principles of research ethics.

Results

Description of study participants

The mean age of mothers was 25.64 years (standard deviation ±6.42) (Table 1). The majority of the respondents were Bagisu (70.8%). The majority (68%) of the participants resided in urban areas, while 32% came from rural areas.

Table 1: Maternal Demographic Characteristics.

Variable.	Frequency(n=370)	Percentage (%)
Age group(years) Mean (SD): 25 (20-30)		
Tribe Bagisu Bagwere Basoga Others*	 262 24 20 64	 70.8 6.5 5.4 17.3
Occupation. Unemployed Self-employed Employed	 211 126 33	 57.0 34.1 8.9
Education level. Primary and below Secondary and above	 104 266	 28.1 71.9
Place of residence. Urban Rural	 251 119	 67.8 32.2
Marital status. Married Single	 312 58	 84.3 15.7
Religion. Muslim Christian	 111 257	 30.2 69.8
Parity Primiparous Multiparous	 144 157	 47.8 52.2
Birth attendant. Midwife Doctor	 326 44	 88.1 11.9
Apgar score. < 7 7 – 10	 27 343	 7.3 92.7
Birth weight. Overweight > 4 kg Normal weight < 4kg	 8 362	 2.2 97.8
Color of amniotic fluid.		

Clear Meconium stain	342 28	92.4 7.6
Head circumference Median (Interquartile range) 34 (33-35)		

Prevalence of episiotomy and perineal tears

In this study, 29.7% (n=110/370) sustained perineal tears during childbirth (Figure 1). The prevalence of episiotomy was 12% (n=43/370).

4.1 Factors associated with episiotomy

In the unadjusted analyses, age, marital status, parity, birth attendant, fetal head circumference, birth weight, perineal tears, labor augmentation, and meconium staining were significantly associated with having an episiotomy (Table 2). After adjusting for confounders, multiparity, birth attendant being a doctor, fetal head circumference, perineal tears, and labor augmentation were significantly associated with having an episiotomy.

Table 2: Factors associated with episiotomy practice

Variable	COR (95% CI)	P-value	AOR (95% CI)	P-value
Age				0.813
<20	Ref	<0.001	Ref	
≥20	0.28 (0.14-0.54)		0.87 (0.29-2.65)	
Residence		0.098		0.078
Urban	Ref		Ref	
Rural	0.52(0.24-1.13)		0.39 (0.14-1.11)	
Marital status		<0.001		0.323
Single	3.54 (1.75-7.16)		1.76 (0.57-5.38)	
Married	Ref		Ref	
Parity		<0.001		**0.001**
Primiparous	Ref		Ref	
Multiparous	0.16 (0.07-0.38)		0.01 (0.03-0.34)	
Birth attendant		<0.001		**0.013**
Midwife	Ref		Ref	
Doctor	5.5 (2.64-11.47)		4.28(1.36-13.44)	
Fetal head circumference (continuous variable)	1.43 (1.13-1.80)	0.003	1.51 (1.04-2.20)	**0.030**
Birth weight (continuous variable)	2.82 (1.38-5.77)	0.005	2.17 (0.69-6.86)	0.186
Perineal tears		0.020		**0.001**
No	Ref		Ref	
Yes	0.35 (0.14-0.85)		0.16 (0.06-0.48)	
Labour augmentation		<0.001		**0.025**
No	Ref		Ref	
Yes	3.18 (1.66-6.08)		2.92 (1.14-7.48)	

Hypertension during pregnancy		0.170		0.326
No	Ref		Ref	
Yes	0.36 (0.08-1.55)		0.39 (0.06-2.54)	
Meconium staining		0.001		0.569
No	Ref		Ref	
Yes	4.29(1.80-10.23)		1.47 (0.39-5.56)	

Discussion

The study was conducted to determine the prevalence and factors associated with episiotomy in Eastern Uganda. Overall, 12% of postpartum women had episiotomy. The factors that were significantly associated with the practice of episiotomy were multiparity, type of birth attendant, fetal head circumference, perineal tears, and labor augmentation. Our study could be subject to misclassification bias given that we relied on self-reports to diagnose episiotomy. This could have resulted in underreporting of episiotomy in our setting. Nevertheless, we investigated the association between episiotomy and several independent factors.

The prevalence of episiotomy in our study was 12%, which was lower than the 73% in central Uganda [13], 31% in southwestern Uganda, and the average estimate of 42% in African settings[11]. The magnitude of episiotomy lies within the recommended WHO rate of 10%[2, 10]. However, considering that 30% of women reported sustaining perineal tears suggests that the reported magnitude of episiotomy in our study could have been due to misclassification bias. Healthcare providers do not often inform and obtain consent from women before performing an episiotomy[16], which suggests that women may not have been aware of whether they had an episiotomy. The gaps in documenting episiotomy in the delivery records further compound the challenges of diagnosing episiotomy. Nevertheless, the magnitude of episiotomy in our setting reflects minimal use of episiotomies[20], which underscores a corresponding use of restrictive episiotomies based on medical indication[2].

Multiparous women were less likely to have an episiotomy compared to those who were primiparous. Our findings were consistent with those from Brazil and Ethiopia, which showed a higher likelihood of episiotomy among primiparous women[18, 21]. In the past, routine episiotomy was conducted for all primiparous women, a practice which has now been phased out [2]. While the odds of episiotomy are biologically plausible given a rigid perineum in primiparous women, episiotomy practice in our setting may be attributable to implementation challenges in clinical practice and practices which still promote routine episiotomy among primigravida[16]. Interventions such as perineal support and massage and the use of checklists to encourage midwives to identify medical indications for doing episiotomy have been found to reduce routine episiotomy among primigravida women[22, 23].

Macrosomia and increased fetal head circumference are associated with severe perineal tears, including severe obstetric anal sphincter injury[24]. The use of episiotomy is recommended to facilitate birth following confirmed macrosomia and large fetal head circumference[5, 25]. While previous studies have identified macrosomia as a significant factor for episiotomy[11], we found no evidence of association between macrosomia and episiotomy. However, our study found a significant association between fetal head circumference and the odds of episiotomy. This was contrary to findings that found no evidence of association between episiotomy and fetal head circumference of more than 34 cm[26]. Our study was consistent with findings in China which noted that large biparietal diameter was linked to increased odds of episiotomy[22]. Fetal head size contributes largely to the overall fetal weight, which is often assessed clinically and through the use of ultrasonography [22]. Fetal weight and size may be used as a proxy to estimate fetal head circumference to determine the need for episiotomy.

Previous systematic reviews and meta-analyses have identified labour augmentation with oxytocin as a significant risk factor for episiotomy[11, 27]. These findings were consistent with increased odds of episiotomy among women who had labor augmentation with oxytocin observed in our study and other similar settings in Africa[28]. Episiotomy following labour augmentation may be plausible considering the associated risk of non-reassuring fetal heart rate and the urgency to expedite delivery[11]. However, higher odds of episiotomy following labour augmentation may indicate overmedicalization of childbirth. Overmedicalization often results in overuse of other childbirth interventions which may account for the association between labour augmentation and episiotomy practices[29]. The likelihood of overmedicalization may be possible given that episiotomy was similarly likely observed in our study and other settings when birth was attended by a doctor[11, 20]. Although the increased odds of episiotomy in doctor-led birth may be attributable to their likelihood to attend to complicated vaginal births[22], overuse of medical interventions is often common in obstetric-led care compared to midwife-led care[30]. Therefore, promoting a midwife-led model of care may play a role in reducing the odds of episiotomy from overuse of medical interventions.

Conclusions

The prevalence of episiotomy in our setting was 12%. The factors which were associated with the practice of episiotomy were parity, birth attendant being a doctor, increased fetal head circumference, and sustaining perineal tears.

Abbreviations

AOR: Adjusted odds ratios; COR: crude odds ratios; CI: confidence intervals; SD: standard deviation; WHO: World Health Organisation.

Declarations

Consent for publication

The authors consent to the manuscript being published.

Declaration of Competing Interest

The authors declare no known competing interests

Funding

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Availability of data and materials

The data are available upon reasonable request from the corresponding author.

Author's contributions

JT, MP, and JE conceptualised the study, obtained ethical clearance, and conducted data analysis. JT collected data and wrote the first draft of the manuscript. RCN, MP, SO, and JE revised the draft manuscript.

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Figures

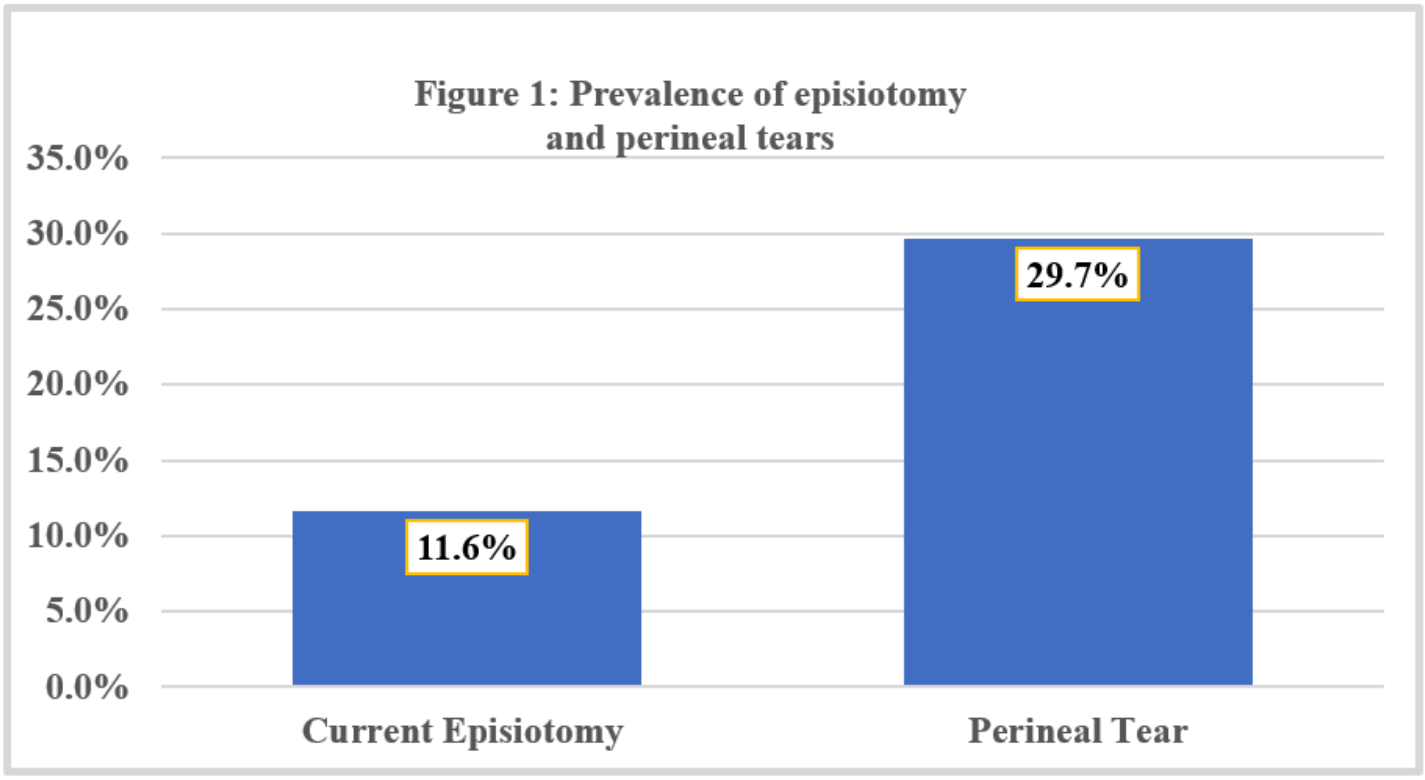


Figure 1

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