

# PREVALENCE OF EPISIOTOMY AND FACTORS ASSOCIATED WITH PRACTICE OF EPISIOTOMY AT SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE: A CROSS SECTIONAL STUDY

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## ABSTRACT

**INTRODUCTION:** Episiotomy is a surgical incision made on the perineum to widen the vaginal opening for delivery. Although rate of episiotomy decreased, it is still one of the most commonly performed procedures in obstetrics (1).

**OBJECTIVE:** The objective of the study is to determine the prevalence of episiotomy and identify risk factors associated with the practice of episiotomy at (Saint Paul's Hospital Millennium Medical College) SPHMMC.

**METHODOLOGY:** Hospital-based cross-sectional study was conducted from February 1/2016 to July 1/2016. All mothers who gave birth vaginally were included in the study. Data was entered in to epi info version 7 and exported into SSPS statistical package version 16 and analyzed. Both bivariate and multivariate analysis were used to see the association of the dependent and independent variables with p-value <0.05 considered statistically significant.

**RESULT:** A total of 405 participants were included in the study. The prevalence of episiotomy was 65.4%. Both Bivariate & Multivariate analysis showed that nulliparity, duration of second stage of labor more than 90-minute, instrumental delivery, assisted breech delivery & birth weigh more than 4,000 gm were strongly associated with episiotomy (p- value < 0.005).

**CONCLUSIONS AND RECOMMENDATIONS:** The prevalence of episiotomy (65.4%) at SPHMMC is higher than the findings in other studies in Ethiopia & the WHO's recommendation of 5-10%. Nulliparity, duration of second stage of labour more than 90 minutes, instrumental & breech vaginal deliveries and birth weight of more than 4000 gm were independent risk factors for episiotomy.

**KEYWORDS:** Episiotomy, prevalence, risk factors

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## INTRODUCTION

Episiotomy is a surgical incision made on the perineum to widen the vaginal opening for delivery. It is one of the most commonly performed procedures in obstetrics<sup>1</sup>. Routine use of episiotomy originally began by Pomeroy in 1918 & this routine practice was accepted and taught in obstetrics services till 1970s when the first consistent clinical trials questioning the value of episiotomy were published. Since then many studies, reviews and meta-analyses have evidenced that there is no scientific basis for maintaining the routine practice of episiotomy. The procedure is shown to increase intra and post-operative complications, suggesting its practice to be restricted to selected deliveries<sup>2, 4, 5</sup>. Multiple studies have demonstrated complication after episiotomy, including severe perineal tears, anal sphincter laceration, fecal & urinary incontinence & dyspareunia<sup>13, 17, 18, 19</sup>.

Episiotomy rates around the world range from 9.7% (Sweden) to 100% (Taiwan)<sup>8</sup>. For nulliparous women a range from 63.3% (South Africa) to 100% (Guatemala) has been recorded, indicating overall greater likelihood for primiparas to receive an episiotomy at birth<sup>8</sup>. There is a large variation in the use of episiotomy from country to country and also within countries. The prevalence of episiotomy is highest in Latin America and lower in Europe<sup>10, 11, 12</sup>.

Even though WHO suggested episiotomy rates of 10 % for primigravida & 5 % for multipara, the "Argentine Episiotomy Trial Collaborative Group" reported that episiotomy rates of 30 % & 40 % for multipara & primigravida, respectively<sup>6, 7</sup>. Though current studies show the prevalence of episiotomy is decreasing worldwide, its prevalence is still high in the developing country including Ethiopia despite the current recommendation<sup>1, 2, 9, 16</sup>.

Different factors affect the practice of episiotomy. Studies done in Brazil, Nigeria & Ethiopia showed younger (adolescence) age, age over 35 years, primiparity, occipito-posterior position, instrumental delivery, vaginal breech delivery, duration of the second stage of labor more 90 minutes & a history of caesarean section<sup>3, 6, 9, 16</sup>.

In Ethiopia, studies on episiotomy are limited to few hospitals and there is no study at SPMMC. Hence, this study was undertaken with the aim of determining the prevalence & risk factors associated with episiotomy at SPHMMC.

## METHOD

A cross sectional study was conducted at St. Paul's hospital, Addis Ababa, Ethiopia from February 1, 2016 to July 1, 2016. The Sample size was determined using a single population proportion formula with  $Z=1.96$  for 95% confidence level,  $d$  (degree of precision expected) of 0.05, and  $p$  of 40% (9). With a non-response rate of 10%, the desired sample size was 405.

All women who gave birth vaginally at SPHMMC during the study period & willing to participate were considered in the study. The study participants were selected by systematic random sampling. Over previous 6 months before the study, 1800 mothers gave birth vaginally. The expected total possible participants of 1,800 was then divided by the sample size (405) to get the sampling interval of 4. The first mother card number was selected using lottery method, then every fourth mother who delivered vaginally during the study period was selected until the desired sample size was achieved. Those whose chart were lost were excluded.

A structured & pretested questionnaire assessing sociodemographic characteristics, obstetrics factors & mode of deliveries were prepared in English & the introductory part was translated to Amharic language & it was filled by two trained midwives. Pretesting of the questionnaire was conducted on women who gave birth before the study period & appropriate modification was made. All filled questionnaires were checked daily for completeness, accuracy, consistency & necessary corrections were made by cross checking with the patients' clinical records.

Data was entered in to epi info version 7 and exported to SPSS statistical package version 16. Data cleaning was performed by checking outliers, missing values & inconsistencies. Descriptive statistics, bivariate and multivariate analysis was performed using SPSS. Taking the  $p$ -value  $< 0.2$  as a cut of point logistic regression analysis was performed. Practice of episiotomy was the dependent variable whereas socioeconomic, and

relevant clinical variables were considered as explanatory variables.

Ethical clearance was obtained from the Institutional Review Board of SPHMMC. The privacy of the client and confidentiality of the information was maintained.

## RESULT

The mean age ( $\pm$ SD) of the participant was 25 ( $\pm$  4.94) years, majority (n=361, 89.1%) were 20 - 34 years old. The majority were orthodox by religion (n=201, 49.6%) married (n=389, 96%), Addis Ababa residents (n=256, 62.2%), Oromo (n=104, 47.9%), were Amhara (128, 36.6%), housewife (200, 49.4%), merchant (88, 21.7%), and with secondary school or above (161, 39.8%) (Table 1).

**Table 1. Sociodemographic characteristics of mothers who gave birth at SPHMMC, Addis Ababa, Ethiopia, 2016/17 (n=405)**

Variables	Frequency	Percentage
<b>Age (in years)</b>		
< 20	22	5.4
20-34	361	89.1
35-45	22	5.4
<b>Religion</b>		
Orthodox	201	49.6
Protestant	110	27.2
Muslim	94	23.2
<b>Marital status</b>		
Single	11	2.7
Married	389	96.0
Divorced	3	0.7
Widow	2	0.5
<b>Ethnicity</b>		
Amhara	128	31.6
Oromo	194	47.9
Gurage	48	11.9
Tigre	9	2.2
Other	26	6.4
<b>Place of residence</b>		
Addis Ababa	252	62.2
Oromia region	150	37.0
Others	3	0.7
<b>Educational status</b>		
No formal education	121	25.2
Primary school	123	30.4
Secondary	130	32.1
Above secondary	31	7.7
<b>Occupation</b>		
Government employee	69	17.0
Merchant	88	21.7
Daily laborer	17	4.2
Housewife	200	49.4
Farmer	17	4.2
Other	14	3.5

One hundred ninety-seven of the participants (48.6%) of mothers were primigravida and 208 (51.4%) of mothers were multigravida. Two hundred fifteen (53.1%) were nullipara and 190(46.9%) were multipara. Three hundred twelve (77.0) of the mothers had ANC follow up (Table 2).

**Table 2. Reproductive performance of the study participant at SPHMMC, Addis Ababa, Ethiopia, 2016/17 (n=405)**

Variables	Frequency	Percentage
<b>Gravidity</b>		
Primigravida	197	48.6
Multigravida	208	51.4
<b>Parity</b>		
Nullipara	215	53.1
Para $\geq$ 1	190	46.9
<b>Abortion</b>		
Yes	353	87.2
No	52	12.8
<b>ANC follow up</b>		
Yes	312	77.0
No	93	23.0
<b>Place of ANC</b>		
SPHMMC	35	11.2
Catchment H/C	185	59.3
Non C H/C	92	29.5

Majority of the deliveries were singleton 378(93.3%) and the rest 27(6.7%) were twin delivery. Majority of the babies 343(79.5%) were in the normal birth weight range, 78(18%) between 1000 and 2499gm, and 11(2.5%) of babies were macrocosmic (> 4000gm) (Table 3).

Two hundred seventy-one (66.9%) of the participants had spontaneous labor. The majority of the fetal presentation (n=374, 92.3%) were in vertex presentation (Table 3), and most of them (n=318, 78.5%) were delivered by spontaneous vertex delivery, while 70 (17.3%) and 17 (4.2%) had instrument and assisted breech vaginally delivery, respectively. The duration of second stage of labor was more than one and half hour among 272 (67.2%) of the mothers.

**Table 3. Obstetrics characteristics of the study participant at SPHMMC, Addis Ababa, Ethiopia, 2016/17 (n=405)**

Variables	Frequency	Percentage
<b>Gestation</b>		
Singleton	378	93.3
Twin	27	6.7
<b>Presentation</b>		
Vertex	374	92.3
Breech	17	4.2
Face	14	3.5
<b>Onset of labor</b>		
Spontaneous	271	66.9
Induced	134	33.1
<b>Sex of baby</b>		
Male	220	50.9
Female	212	49.1
<b>Birth weight</b>		
1000 - 2499 gm	78	18.0
2500 - 3999 gm	343	79.5
≥ 4000 gm	11	2.5

one & half hour are 8 times more likely to have episiotomy during delivery than those whose duration of second stage of labor was less than one hour (OR=7.6,95%CI:5.9,8.6). Both instrument or assisted breech delivery are 9 times more likely to have episiotomy than those mothers who delivered though SVD (AOR=8.9,95%CI:7.4,9.5). Finally, those mothers who gave birth to babies weighing ≥ 4000gm are 9.4 times more likely to have episiotomy than those who gave birth to babies weighing < 4000gm (AOR=9.4,95%CI:4.6,9.9).

The prevalence of episiotomy was 65.4% (n=265) had episiotomy. The prevalence of episiotomy in primiparas and multipara was 64.5% and 68.3%, respectively. In the bivariate / multivariate analysis gravidity, parity, presentation, duration of second stage of labor, mode of delivery, instrumental delivery, birth weight of the babies, maternal age and maternal disease were found to be significant risk factor for having episiotomy with p-value < 0.05. The above variables were included in the logistics regression model and finally gravidity, parity, presentation, duration of second stage of labor, mode of delivery and birth weight of the babies were found to be independent factors for episiotomy.

Gravidity is significantly associated (p-value≤0.039) with having episiotomy. Primigravida mothers are 3.1 times more likely to have episiotomy than multigravida mothers (AOR= 3.146,95%CI:1.058,9.357). nulliparous women are also 6 time more likely to have episiotomy than multiparous mothers (AOR=6.385,95%CI:3.690,11.050). This study also shows that mothers having breech baby presentation are 11 times more likely to have episiotomy during delivery than those mothers having cephalic presentation (AOR=11.638,95%CI:1.297,104.4). Those mothers whose duration of second stage of labor was greater than

Table 5. Bivariate and Multivariate analysis, obstetric and sociodemographic characteristics of the study participants by the outcome variables (episiotomy), SPHMMC, Addis Ababa, Ethiopia 2016/17 (n= 405)

Variable	Episiotomy				p- value
	number	Yes (%)	No Number	(%)	
<b>Gravidity</b>					
Primigravida	171	64.5%	26	18.6%	0.000
Gravida ≥2	94	45.2%	114	81.4%	
<b>Parity</b>					
Nullipara	181	68.3%	34	24.3%	0.000
Multipara	84	31.7%	106	75.7%	
<b>Presentations</b>					
Vertex	241	90.9%	133	95.0%	0.021
Face	10	3.8%	4	2.9%	
Breech	14	5.3%	3	2.1%	
<b>Duration of second stage</b>					
< 90 minutes	58	21.9%	75	53.6%	0.000
≥ 90 minutes	207	78.1%	65	46.4%	
<b>Mode of delivery</b>					
SVD	188	70.9%	130	92.9%	0.000
Instrument delivery	63	23.8%	7	5.0%	
ABD	14	5.3%	3	2.1%	
<b>Birth weight of babies</b>					
1000 – 2499gm	40	15.1%	33	23.6%	0.012
2500 – 3999gm	216	81.5%	106	75.7%	
≥ 4000gm	9	3.4%	1	0.7%	
<b>Maternal age</b>					
< 20 years	18	6.8%	4	2.8%	
20- 34 years	240	90.6%	121	86.4%	
35 – 49 years	7	2.6%	15	10.7%	0.001
<b>Maternal disease</b>					
Yes	65	24.5%	60	42.9%	
No	200	75.4%	80	57.1%	0.000

**Table 6. Logistic regression model to show factors associated with episiotomy in SPHMMC, Addis Ababa, 2016 (n= 405)**

Variables	Episiotomy		p- value	COR(95%CI)	AOR(95%CI)
	Yes	No			
<b>Gravidity</b>					
Gravida ≥2	94	114		1	1
Primigravida	171	26	0.039	8.7(7.9,9.2)	3.146(1.0258,9.357)
<b>Parity</b>					
Multipara	84	106	0.000	1	1
Nullipara	181	34		8.5(7.6,9.1)	6.385(3.690,11.050)
<b>Presentations</b>					
Cephalic	251	137	0.028	1	1
Breech	14	3		1.86(0.340,10.246)	11.64(1.297,97.32)
<b>Duration of 2nd stage</b>					
< 90 minute	58	75	0.000	1	1
≥ 90 minute	207	65		4.118(2.65,6.405)	7.6 (5.9,8.6)
<b>Mode of delivery</b>					
SVD	188	130	0.000	1	1
Instrument/ABD	77	10		8.3(6,3,9.2)	8.9 (7.4,9.5)
<b>Birth weight of babies</b>					
1000 - 2499gm	40	33	0.012	1	1
2500 - 3999gm		216		106	4.1(1,6.4) 6.8(6.9,9.9)
≥ 4000gm	9		1	0.135(0.014,1.118)	9.4 (4,6,9.9)

## DISCUSSION

This study revealed that the prevalence of episiotomy is quite high (65.4%). This prevalence was lower than the finding in Argentina but higher than those result found in developing countries and previous studies in Ethiopia<sup>9,11,16</sup>. Rate was >65 % overall & 87% among primigravida. Though our patient profile is different This is quite high by most standards. In developing countries studies shows prevalence range from 36% to 40%<sup>11</sup>. A study done in Ethiopia the prevalence of episiotomy ranges from 25% in Jimma to 40% in Addis Ababa<sup>9,16</sup>.

Among factors influencing the practice of episiotomy this study showed that primigravids were 3 times more likely to have episiotomy as compared to multigravidas(AOR=3.14,95%CI:1.058,9.357). This finding was similar with the study done in Brazil (60%) and also the study done in Ethiopia<sup>6,9,15</sup>. nulliparas was 6 times more likely to have episiotomy as compared to multiparas (AOR=6.385,95%CI:3.690,11.05). Similar association was found in studies done at Brazil and Ethiopia<sup>6,9,15</sup>. Breech presentation were 11 times more likely to have episiotomy as compared to vertex presentation. (AOR=11.63,95%CI:1.297,97.32).

The duration of second stage of labor more than 90 minute is strongly associated with having episiotomy 78.1% with p- value <0.000 when compared to those mothers whose duration of second stage of labor is less than 90 minute (21.9%). duration of second stage of labor more than 90 minute were 7.6 times more likely to have episiotomy as compared to duration of second stage of labor is less than 90 minute AOR=7.6 (5.6, 8 9).This finding was similar with the study done in Ethiopia, as the duration of second stage of labor lasts longer than one and half hour the rate of episiotomy reaches up to 76%<sup>16</sup>.

Mothers who gave birth through instrument or breech delivery were 8.9 times more likely to have episiotomy than those mothers who gave birth through spontaneous vertex delivery AOR=8.9 7.4,9.5. Similar association was found with the study done in Ethiopia and Nigeria<sup>3,4,16</sup>.

This study also showed that those mothers who gave birth to babies weighing more than 4000gm were 9.4 times more likely to have episiotomy than mothers who gave birth to babies weighing between 2500 to 3999gm AOR= 9.4 (4,6,9.9).

Maternal age and maternal disease at the time of delivery was not significantly associated with the practice of episiotomy. This might be due to the number of those mothers who delivered were few (5.4%) and the mean age of mothers who delivered was 25 years  $\pm$  4.92.

The study done in Argentina showed that the rate of third or fourth degree perineal tear was 1.5% and it was most occurred in routine use of episiotomy<sup>2,6,19</sup>. In this study one mother had third degree perineal tear (0.2%) after she had episiotomy.

### CONCLUSION

More than two third of mothers who deliver in SPHMMC have episiotomy. This is much higher than the results found in developing countries and previous studies in Ethiopia. This is also quite higher than WHO recommendation (5-10%). Though further study is needed to explore reasons for the higher prevalence of episiotomy, high prevalence could be due to the high risk population as the hospitals deals with referral cases. Although there are many factors that influence the practice of episiotomy, primigravidity, nulliparity, duration of SSOL more than 90 minutes, instrumental & assisted breech delivery and baby weight more than 4000 gm were independent risk factors for episiotomy.

### RECOMMENDATIONS

1. In depth studies into the high prevalence of episiotomy is recommended to explore underlying reasons.
2. we recommend criterion based audit of episiotomy as part of quality improvement to decrease unjustified episiotomies and promote practice of elective episiotomy to decrease the high prevalence of episiotomy which was found in the study.

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