

Magnitude of Episiotomy Practice and Associated Factors among Mothers Who Give Birth in Hospital

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Abstract

Episiotomy is the most common obstetric procedure, performed when the clinical circumstances place the mothers at a high risk of high-degree laceration. However, episiotomy should be done with judicious indication to lower perineal laceration with fewer complications. Despite its adverse effects, the magnitude of episiotomy is increasing due to different factors. The study aimed assesses the magnitude of Episiotomy practice and associated factors among mothers who give birth in Wolaita Sodo University Comprehensive Specialized Hospital 2022.

Institution based cross-sectional study design was conducted from September-1 October 30/ 2021. The total sample size of the study was 369. A systematic random sampling technique was used to select study participants. Descriptive statistics, bivariate and multivariable logistic regression analyses was performed to identify factors associated with the magnitude of episiotomy. Adjusted odds ratio with 95% CI should be reported mean while the level of statistical significance variables at P-value ≤ 0.05 . The results were presented with text, table and figures.

The magnitude of episiotomy practice is 48.2 % [95% CI (43.1, 53.4)]. Spontaneous onset of labor [AOR= 2.85(1.55,5.23)], prolonged 2nd stage of labor (>30 minutes) AOR=2.71(1.73,4.25)] in comparison with duration of 2nd stage of labor <30 minutes, non-vertex presentation [AOR= 0.23(0.07,0.73)], use of oxytocin [AOR= 1.86(1.15,3.00)] deliveries attended by obstetricians [AOR=3.09(1.33,7.18)] were found to be associated with exposure to episiotomy among mothers. The overall rate of episiotomy in this study was much higher than the standards recommended by the World Health Organization (WHO). Factors associated with episiotomy practice were spontaneous onset of labor, prolonged second stage of labor, fetal presentation, use of oxytocin and obstetrician. Therefore, to reduce unnecessary rate of episiotomy practice, should be give adequate training to HCWs.

Keywords: episiotomy; vaginal delivery; hospital and labor

Introduction

Peritoneal episiotomy is one of the most frequently practiced obstetric procedures and refers to a surgical incision on the perineum during the second stage of labor to widen the diameter of the vulval outlet to ease passage of the fetal head and prevent an uninhibited tear of the perineal tissue[1-3]. An episiotomy is performed to enlarge the birth outlet in order to facilitate the delivery of the fetus [4]. The procedure called episiotomy is one of the widely used obstetric interventions which is done by the birth attendant to minimize the risk of severe tears that occur due to enlarging of the birth canal during childbirth at a time when the fetus's head descends [5, 6]. The magnitude of episiotomy practice is by far higher than the WHO recommendation of 10% for all normal deliveries

among studies conducted in different countries. It is recommended selectively for women who have a past history of lower genital tract surgeries and for women who require assisted vaginal deliveries. For other women in labor, episiotomy may be given on an emergency basis when there is presumed imminent perineal tear scar of the lower genital track, operative vaginal delivery, macrosomia, and tight perineum [7-10]. Incidences associated with episiotomy practice complications include accidental extension into the anal sphincter or rectum, damage to the Bartholin's gland, unsatisfactory anatomic results such as skin tags, asymmetry or excessive narrowing of the introits, vaginal prolapse, recto-vaginal fistula, perineal pain that lasted an average of 5.5 days, oedema, increased blood loss, hematoma, infection and dehiscence[11].

In addition, complications associated with episiotomy include a higher risk of psychological trauma, a higher frequency of dyspareunia, and insufficient lubrication compared to women who gave birth without an episiotomy. So, it may affect women's sex lives during the second year postpartum with more frequent pain and vaginal dryness at intercourse, although the role of episiotomies in the causation of dyspareunia in the long term is not clear [12, 13]. The study showed that mean time from delivery to maternal rest and time taken to bond with the infant were significantly longer in the episiotomy groups compared to mothers who delivered without an episiotomy procedure. Because of the maternal perineal nerve block with lidocaine during the episiotomy procedure, the newborn is at risk of toxication [1, 2]. Even though episiotomy practice is on a decreasing trend in some developed countries, statistics still reveal an overall high rate of episiotomy practice around the world. Its proportions ranged from 9.7% in Sweden to 100% in Taiwan, and included both primiparous and multiparous women. The rates for only primiparas ranged from 63.3% (South Africa) to 100% (Guatemala), demonstrating that overall, there is a greater likelihood of primiparas undergoing episiotomies. In many parts of the world (e.g., Central and South America, South Africa, and Asia), in France, a population-based study showed that the episiotomy rate for vaginal deliveries overall significantly decreased from 26.7% in 2007 to 19.9% in 2014 [3].

Data on episiotomy practice is not available in the study setting. And yet, it is one of the countries with a high birth rate and whose health system is more financed by the population. In addition, the economy of the country was affected by the conflict between internal and external enemies. The cost of avoidable episiotomy places an additional burden on both mothers and the government. And in our community, I see different complications related to episiotomy; and also, my work place is near to this hospital and I work in the OPD and delivery room, so I face a number of postpartum cases and mothers come with complaints and complications due to episiotomy practice. So, the aim of our study is to determine the magnitude of episiotomy practice and associated factors among mothers who give birth in the study setting. Avoiding inadvertent invasive procedures is one of the best ways to prevent communicable diseases. As the evidence from the studies on the magnitude of episiotomy shows us, there was a higher

number of episiotomy procedures performed in different parts of the world in comparison with the recommendation of the World Health Organization of 10%. On the other hand, the episiotomy procedure may increase the transmission of communicable diseases compared to normal delivery without episiotomy to the neonate. Finally, given the magnitude of episiotomy practice and associated factors of episiotomy practice at Wolaita zone Sodo town, it is important to give recommendations for this practice. It is used to apply the necessary preventive and appropriate measures to use evidence-based restrictive episiotomy practice and information reporting to HMIS in these hospitals.

Methodology

Study setting

The study was conducted at Wolaita Sodo University comprehensive specialized hospital, in Southern Ethiopia. The hospital is located in Wolaita Zone, which is one of the zonal administrations in Ethiopia's southern region, 390 kilometers south of Addis Ababa (the capital city). In 2021, the Wolaita Zone had an estimated population of 2,067,159. Of this, about 1,054,251 were females in 2015. The monthly average number of deliveries attended in the hospital was 710. There are 8 specialists, 12 resident doctors in gynecology and obstetrics in the area, 15 general practitioners, 38 midwives and 5 nurses in the hospital.

Study Design and Period

An institution-based cross-sectional study design was conducted from September 1–October 30, 2021.

Sample size and sampling technique

Sample size determination and sampling procedure

The sample size for the magnitude of episiotomy was determined by using a single population proportion formula using a basic assumption of 95% confidence interval, 5% margin of error and proportion of the prevalence of episiotomy used in the study done by Kassahun Fikadu et al. in Arbaminch General Hospital, 2020; (p as (68.0%)) [8].

$$\text{Sample size } n = \frac{(Z_{\alpha})^2 * P(1-p)}{d^2}$$

Where: Z= Standard normal distribution value at 95% CI = (1.96)²

p= proportion of treatment outcome (68.0% %)

d = margin of error (0.05)

n = sample size (x)

Therefore, $n = 335$

By adding 10% of the nonresponse rate, the minimum sample size for this study was 369 mothers who gave birth at a public health institution. The sample size for the first objective is larger than the sample size calculated for the second objective. Thus, for the better representativeness of the sample size, the largest sample size selected is 369.

Data Collection Procedure

Data was collected using a pretested and semi-structured questionnaire. This tool was developed from similar studies conducted in different parts of the world [8, 10, 14-17].

Result

Socio-demographic characteristics of study subjects

A total of 369 mothers who gave birth through vaginal delivery were interviewed, with a response rate of 100%. Two hundred thirty-three, or 63.1%, of the women giving birth were from urban areas. The majority, 147 (39.8%) of respondents who gave birth were in the age group of younger than 24, followed by 121 (32.8%) at the age of 25–29 years. The mean is 26.24 and the median age of the respondents was 25 years, with an inter quartile range (IQR) of 8 years, and 351 (95.1%) were married. Of the total of respondents, 157 (42.5%) were housewives and 137 (42.5%) were students. Related to the educational status of the respondents, 113 (30.6%) were in secondary school and 225 (61.0%) were in a protestant religion (table 1).

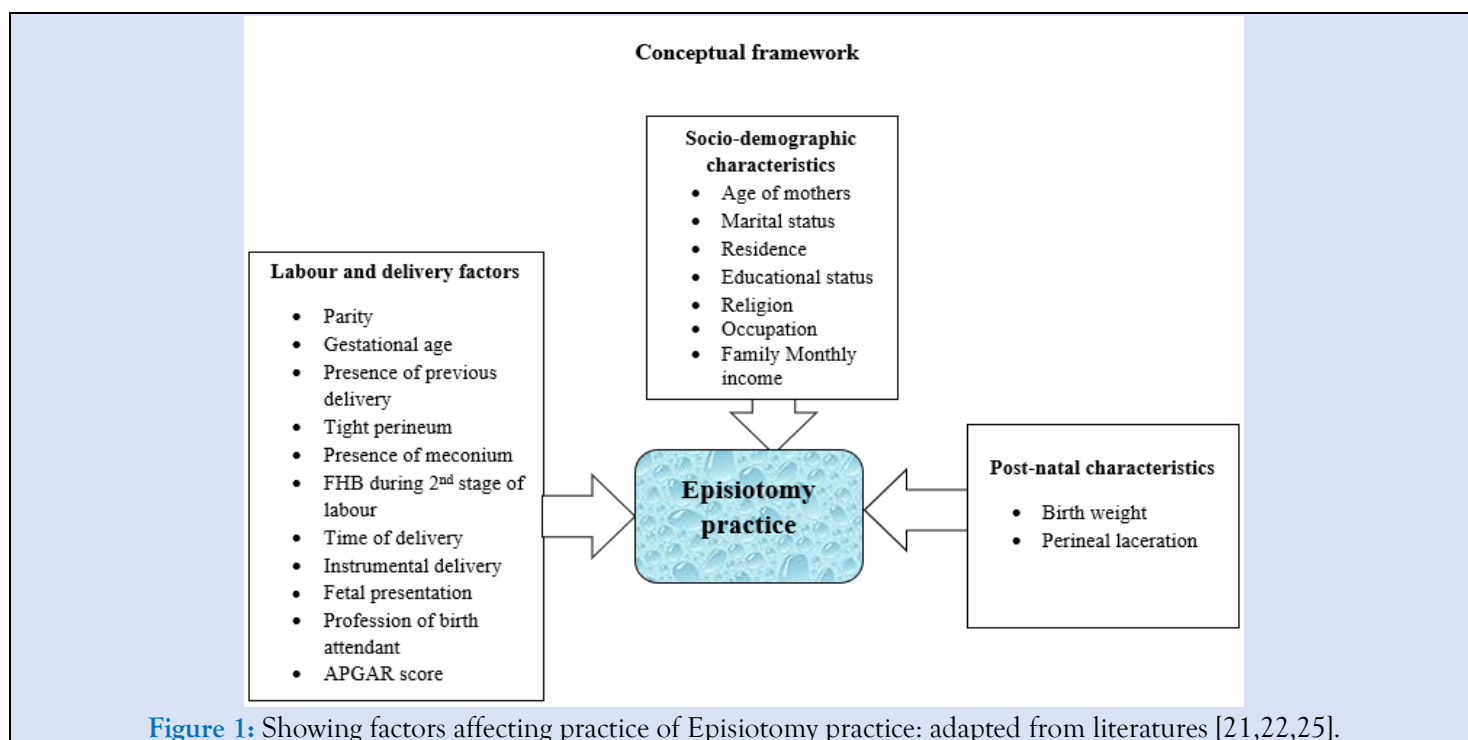
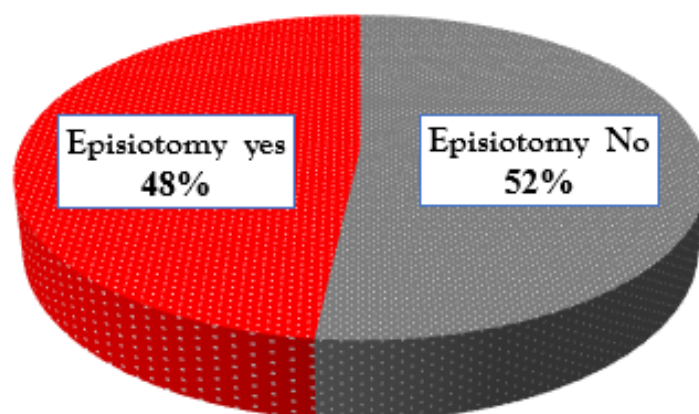


Table 1: Socio-demographic characteristics of the mothers given vaginal delivery from September-October 2021 at WSUCSH SNNPR, Ethiopia (n=369).

Variables	Categories	Frequency	Percent
Age of respondents	16-24 years	147	39.8
	25-29 years	121	32.8
	30-34 years	59	16.0
	35-49 years	42	11.4
Residence	Urban	233	63.1
	Rural	136	36.9
Religion of the respondents	Orthodox	115	31.2
	Protestant	225	61.0
	Muslim	22	6.0
	Catholic	7	1.9
Educational status of the mother	No formal education	36	9.8
	grade 1-8	100	27.1
	Grade 9-12	113	30.6
	Diploma and above	120	32.5
Marital status of the respondent	Married	351	95.1
	Single	11	3.0
	Others (Divorced and Widowed)	7	1.9
Occupation of the respondent	Housewife	157	42.5
	Government employee	80	21.7
	NGO	23	6.2
	Merchant	48	13.0
	No formal job	61	16.5
Family monthly income	less than 1000 ETB	88	23.8
	1001-3000 ETB	69	18.7
	3001-5000 ETB	54	14.6

From the total of 369 study participants included in the study, 178 mothers experienced the episiotomy during the current delivery. Therefore, the magnitude of episiotomy among the mothers given vaginal

delivery from September-October 2021 at WSUCSH was 178/369 (48.2%) with a 95% confidence interval [43.3, 53.4] figure 2).

Magnitude of Episiotomy Practice among the study participants**Figure 2:** Magnitude of episiotomy practice among the mothers given vaginal delivery from September-October 2021 at WSUCSH SNNPR, Ethiopia (n=369).

Obstetric and previous episiotomy history of the respondent

Of the total of 369 mothers interviewed, 197(53.4%) had a history of having ever given birth previously. Of the respondents, the majority age is 24 years old. The obstetric characteristics of the respondent participants 359(97.3%) of them were followed by antenatal care during the current pregnancy. Three

hundred sixteen (85.6%) were term and the remaining post-term in gestational age. Sixty-eight (18.4%) of the respondents were induced for the initiation of labor. A total of 346 (93.8%) of respondents delivered the baby by vertex presentation, and 216 (58.5%) were given birth at day time, whereas the remaining were at night time (Table 2).

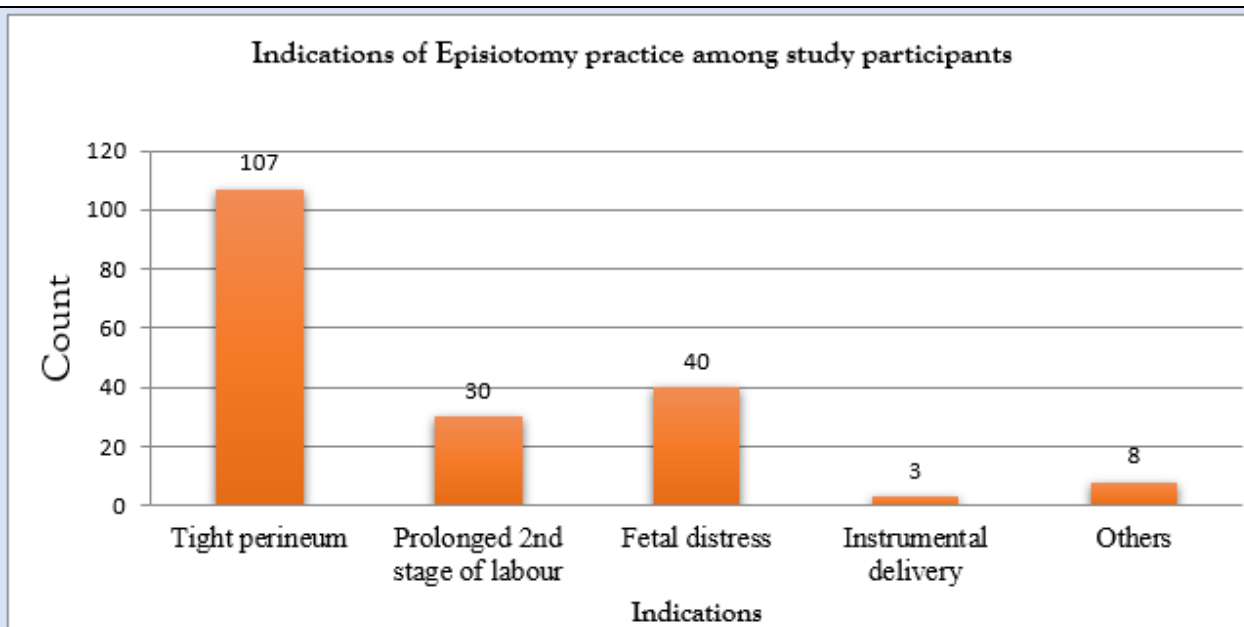


Figure 3: Indications of episiotomy practices among the of the mothers given vaginal delivery from September-October 2021 at WSUCSH, SNNPR Ethiopia (n=369).

Maternal and Newborn medical conditions

In the current study, the number of delivering mothers exposed to perineal laceration was 50(13.4%). The maternal and newborn medical conditions of respondents reveal that more than half (50.9%) of the babies were born with stained meconium. Fortunately, except a few, i.e., 7(1.9%) and 12(3.3%) of the newborns were tachy-cardiac and Brady-cardiac, respectively, whereas the outstanding majority had normal heart rate during the delivery.

From the total of 369 babies delivered, 19 (5.1%) were LBW, 295(79.9%) were normal, and 55(14.9%) of them were macrocosmic of big babies. Some of the technical factors presumed for the episiotomy study; the use of oxytocin was 132 (35.8%), fundal pressure was 43(11.7%) and 173(46.9%) of the participants were given analgesics to relieve pain. During the study period, 35(9.5%) of births were attended by obstetricians, 154 (41.7%) were by resident physicians, and 180 (48.8%) of deliveries were attended by midwives (Table 3).

Table 2: Previous obstetric history, practice among the mothers given vaginal delivery from September-October 2021 at WSUCSH, SNNPR, Ethiopia (n=369).

Variables	Categories	Frequency	Percent
Previous obstetric history			
Have you ever given birth	Yes	197	53.4
	No	172	46.6
How many births you experienced till now	One	170	46.1
	2-4 births	159	43.1
	5 and more	40	10.8
Have you ever had history of Episiotomy	Yes	128	34.7
	No	241	65.3
Have you ever had history of instrumental delivery	Yes	30	8.1
	No	339	91.9
Pregnancy and delivery characteristics of the respondent			
ANC follow up during their pregnancy time	Yes	359	97.3
	No	10	2.7
Gestational age in weeks	Term	316	85.6
	Post-term	53	14.4
Onset of labor	Spontaneous	301	81.6
	Induced	68	18.4
Perineal massage application	Yes	25	6.8
	No	344	93.2
Ineffective pushing efforts	Yes	21	5.7
	No	348	94.3
Fetal presentation	Vertex	346	93.8
	Breach	20	5.4
	Face	3	0.8
Duration of 2 nd stage of labor	<30 minutes	163	44.2
	30-60 minutes	196	53.1
	>60 minutes	10	2.7
Time of the delivery conducted	Day time	216	58.5
	Night time	153	41.5
Mode of delivery	SVD	357	96.7
	Instrumental	12	3.3
Inability to maintain cooperation with the midwife	No	369	100

Table 3: Medical and technical conditions of episiotomy practice among the mothers given vaginal delivery from September-October 2021 at WSUCSH (n=369).

Variables	Categories	Frequency	Percent
Maternal and Newborn medical conditions			
Is there meconium stained during birth of the child?	Yes	188	50.9
	No	181	49.1
New born condition	Alive	359	97.3
	Death	10	2.7
Sex of newborn	Male	176	47.7
	Female	193	52.3
Fetal hearth beat	Normal condition of FHB	337	91.3
	Abnormal fetal heart beat	13	3.5
	Brady cardiac	12	3.3
	Tachycardia	7	1.9
Birth weight of new born	Low birth weight	19	5.1
	Normal birth weight	295	79.9
	Macrosomia/ Big baby	55	14.9
Perineal lacerations	Yes	50	13.6
	No	319	86.4
Technical factors for episiotomy			
Use of oxytocin	Yes	132	35.8
	No	237	64.2
Fundal pressure	Yes	43	11.7
	No	326	88.3
Use of analgesia	Yes	173	46.9
	No	196	53.1
Profession of health worker conducted the delivery service	Obstetrician	35	9.5
	Residents	154	41.7
	Mid wife	180	48.8

Table 4: Bivariate and multivariable analysis of episiotomy practice among the mothers given vaginal delivery from September-October 2021 at WSUCSH (n=369).

Variables	Category	Episiotomy		COR (95% C.I.)	AOR (95% C.I.)
		Yes	No		
Onset of labor	Spontaneous	157(42.5%)	144(39.0%)	2.440(1.391,4.280)	2.851(1.553,5.233)
	Induced	21(5.7%)	47(12.7%)		
Duration of 2 nd stage of labor	<30 minutes	107(29.0%)	56(15.2%)	1	1
	> 30 minutes	84(22.2%)	122(30.9%)	7.643(1.570,37.212)	2.716(1.735,4.253)
Fetal presentation	Vertex presentation	174(47.2%)	172(46.6%)	1	1
	Other than vertex presentation	4(1.1%)	19(5.1%)	0.208(0.069,0.624)	0.230 (0.072.738)
Use of oxytocin	Yes	73(19.8%)	59(16.0%)	0.643(0.419,0.987)	1.865(1.159,3.002)
	No	105(28.5%)	132(35.8%)	1	1
Profession of HCWs conducted the delivery service	Obstetrician	23(6.2%)	12(3.3%)	2.564(1.202, 5.470)	3.092(1.332,7.181)
	Residents	78(21.1%)	76(20.6%)	1.373(0.891, 2.116)	1.283(0.808,2.037)
	Mid wife	77(20.9%)	103(27.9%)	1	1

Factors associated with episiotomy Practice

APGAR-score in the first and fifth minutes, episiotomy indication, fetal presentation, analgesic used, meconium-stained baby, Oxytocin used, mode of delivery, current delivery instrument used,

ineffective pushing effort, and time of delivery were variables with a p-value of 0.25 and were candidates for multivariable logistic regression.

Accordingly, mothers who delivered after the spontaneous onset of their labor were about three

times more likely to have an episiotomy compared to mothers whose labor was started by induction [AOR = 2.85 (1.55, 5.23)]. Mothers who remained for more than 30 minutes [AOR = 2.71 (1.73, 4.25)] 2.71 times more likely to be exposed to episiotomy than those who stayed less than 30 minutes in their 2nd stage of labor. Regarding the fetal presentation during labor, mothers with non-vertex presentation were 77% less likely to be exposed to episiotomy compared to those mothers who encountered vertex presentation [AOR = 0.23 (0.07, 0.73)]. The odds of episiotomy were about 2 times more likely among laboring mothers where oxytocin was used to enhance labor compared to those without oxytocin [AOR=1.86(1.15, 3.00)]. Moreover, those mothers attended by obstetricians are about 3 times more likely to encounter episiotomy than those attended by midwives [AOR=3.09(1.33, 7.18)].

Discussion

This study shows that the magnitude of episiotomy practiced among mothers who give birth in Wolaita Sodo University Comprehensive Specialized Hospital during the study period was 48.2%. This result shows that episiotomy practice is higher than the 10% WHO recommended rate. A nationwide cross-sectional survey of episiotomy practice in China also showed in line magnitude (41.7%)[18], Iran 41.5%[19] Axum Town 41.44% [29]. The result of this study was very close to the other studies than in Metema district, which was 44.15% [20]. However, this study finding is higher than the studies done in Nigeria (32% [15] and also Addis Ababa (35.2%) [40]. This may be due to better health care referral linkage in the areas to manage some uncomplicated deliveries stepwise; and other hands reveal an episiotomy magnitude higher than research reported from 52.0% in Turkey [41] and Arbaminch General Hospital, Southern Ethiopia was 68.0% [21]. The disparities in study findings may indicate access to having a referral site in the vicinity and shortening the 2nd stage of labor so as to prevent fetal distress and early neonatal death. Some of the normal deliveries were collected at the referral hospital. The case load may be led to an immature decision to perform episiotomy in the facilities.

In this research, more than 40% of study participants were from rural areas because of pure referral linkage between health facilities. This increased the work load for HCWs and allowed for a higher magnitude of episiotomy in the hospital. The study done in China speculated that episiotomy was performed more frequently in secondary hospitals than in tertiary hospitals[21]. The spontaneous onset of labor is 2.85 times more likely to be associated with episiotomy practice when compared with induced labor [AOR = 2.85 (1.55, 5.23)]. which is similar to a study done in Iran[19]. This may be due to the obstetric management called the induction process, which helps to begin labor and raise the maternal pushing effort to fasten the 2nd stage of labor, i.e., mothers in spontaneous labor may delay the delivery process, especially at the 2nd stage of labor. Thus, HCWs in charge may be claimed to perform episiotomy to accelerate the passage of the baby through the birth canal, which may in turn reduce the consequences that come due to delayed labor progress. So, episiotomy is practiced among mothers giving birth by spontaneous labor as compared to induced labor.

Regarding the duration of stay of labor in the second stage of labor, our study findings show us that prolonged 2nd stage of labor (duration of 2nd stage of labor greater than 30 minutes) is 2.3 times and 2.71 times more likely associated with episiotomy practice when compared with duration of 2nd stage of labor 30 minutes [AOR=2.71 (1.73, 4.25)]. Likewise, one study was conducted in Iran[19], Uganda[12] and Addis Ababa, Ethiopia [22]. This may indicate that the indication of episiotomy in relation to shortening the 2nd stage of labor is by far the most commonly agreed upon across the country. This shows us episiotomy performed with the intention of shortening the 2nd stage of labor because reports from every angle of the world without geographic disparity concise each other. Moreover, regarding the fetal presentation during labor, mothers with non-vertex presentation were 77% less likely to be exposed to episiotomy compared to those mothers who encountered vertex presentation [AOR = 0.23 (0.07, 0.73)]. In contrast, studies in the Tigray Region found that face presentations were more than 4.76 times more likely to be associated with episiotomy practice than vertex presentations [17] as well as in Addis Abeba[22]. In

this study, it was shown that non-vertex presentation had an association with episiotomy practice. It may also be explained that all normal deliveries were being managed in the labor and delivery room with all possibilities of interventions, including episiotomy whereas others may go through other delivery management modalities like caesarean-section.

The use of oxytocin is about twice as likely as not using it to be associated with episiotomy practice [AOR = 1.86 (1.15,3.00)]. This is congruent with findings from Shire town [17] and Metema district [20]. And also in line with the findings from Addis Ababa [22]. Another study done in northwest Ethiopia showed the use of oxytocin is 2 times more likely to be associated with episiotomy practice[20]. Thus, oxytocin benefits mothers in labor to shorten the time. In turn, it may prevent complications that can happen to the fetus due to the prolonged laboring time. Our findings also revealed an association between episiotomy practice and healthcare workers who performed deliveries; deliveries attended by gynecologists and obstetricians were 3.09 times more likely to be associated with episiotomy practice than deliveries attended by midwives [AOR=3.09(1.33,7.18)]. Studies conducted in Bukavu, DRC, found that the fact that the childbirth was directed by a doctor made them 3.2 times more likely to undergo episiotomy as compared with nurses and midwives[14]. Furthermore, according to the findings of the study on perception and knowledge about episiotomy: a cross-sectional survey involving healthcare workers in a low- and middle-income country [23], the majority of HCWs did not have access to an episiotomy protocol or policy in their units[23]. This may be due to the higher level of expertise in the skill of doctors to execute episiotomy and their ability to time and make the right decision better in obstetricians when compared with midwives.

Strengths and limitations of this study

This study was conducted in the public hospital serving almost 50% of the population of the zone, the only referral site for all other hospitals in the zone and other adjacent zones. The study used a cross-sectional study design and primary data sources. Data quality control measures were followed strictly. The cause-and-effect relationships in this study could not be

determined due to the use of the cross-sectional study design for this study. The views and perceptions of respondents and care givers towards episiotomy practice were not addressed by this study. Thus, we strongly recommend further study by using other study designs to ascertain cause-and-effect relationships.

Conclusions

The magnitude of episiotomy practiced in this study was higher than the recommended value by the WHO (5–10%). The spontaneous onset of labor, prolonged second stage of labor, use of oxytocin, fetal presentation, and the delivery service attended by obstetricians and gynecologists were shown to be statistically significantly associated with episiotomy practice in Wolaita Sodo University comprehensive specialized hospital during the study period. Prolonged second stage of labor in normally delivering mothers, especially when managed by specialist physicians is relatively easy to take action within the right time. This may be due to the expertise level of skill balancing cost-benefit to mothers in preventing problems encountered during child birth by SVD like perineal tears, fetal distress, or still birth and maternal ineffective pushing power during the second stage of labor.

Recommendations

Based on the findings of the study, the following recommendations were forwarded to all stockholders in stepwise.

Reduce the unnecessary rate of episiotomy. Knowing the right time to perform is highly important.

Health care workers who manage delivery services should get adequate training on the protocol and be guided by it to reduce the rate and prevent other complications that overburdened mothers face in the postpartum period, like wound infection.

The hospital governing board would be curious to monitor the practice of episiotomy in the organization to familiarize it with national and international consensus.

Researchers at the university should consider the quality of and outcomes of the episiotomy practice

using different study designs in order to support its share of solving the problem.

Regional governments should take their share in improving episiotomy practice in health facilities by training and ensuring the availability of guidelines in working areas for frequent reference through regular inspection and monitoring.

Because the study found it to be higher than the WHO recommendation, eminent follow-up of practices at the facility level should be supervised by zonal health authorities.

Acknowledgments

First of all, I would like to give thanks and glory to the almighty God who gave me courage and power to finish this proposal. I would also like to thank my friends for their unreserved expert comments, suggestions, encouragement, and friendly advice that they provided me throughout the development of this proposal. I would also like to express my gratitude to the study participants and data collectors for their contribution to what is expected from them in the research.

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Cite this article: Fantaye T, Dana T, Yohannes D, Admasu A. (2023). Magnitude of Episiotomy Practice and Associated Factors Among Mothers Who Give Birth in Hospital, *Clinical Research and Reports*, BioRes Scientia publishers. 1(1):1-11. DOI: 10.59657/2995-6064.brs.23.001

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Article History: Received: July 27, 2023 | Accepted: August 28, 2023 | Published: August 31, 2023