

Prevalence of Female Genital Mutilation and its Association with Birth Complications among Women Attending Delivery Service in Nigist Eleni Mohammed General Hospital, Hossana, Southern Nations, Nationalities and Peoples' Region, Ethiopia

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Abstract

Objectives: Females' genital mutilation still remains to be a serious problem for large proportion of women in most sub-Saharan Africa countries including Ethiopia. Therefore, the aim of this study is to determine the prevalence of female genital mutilations and its associations with the birth complications among women attending delivery service in Nigist Eleni Mohammed General Hospital, Hossana, Ethiopia from 02 May 2015 to 29 June 2015.

Methods: Hospital-based cross-sectional study design was used to collect data from a sample of 395 women on prevalence of female genital mutilation and its association with birth complications. Data was coded, cleaned and entered into a computer data base by using EPI Info version 3.5.3, and then analysed by using SPSS version 20.0. Descriptive summary values such as frequency and percentage was used to describe the study variables. A bivariate and multivariate logistic regression analysis with a confidence level of 95% was performed. Variables with p-value <0.05 in the bivariate analysis were transferred into multivariate logistic regression analysis to control the effect of confounders.

Results: Out of 395 women, 364 (92.2%) of them practiced female genital mutilation and most of the operation was done by a non-medical practitioner, 265 (67.1%). The prevalence of birth complications among the study participants was 245 (62.0%). The likely hood of the occurrence of birth complications was 2.45 and 2.99 times more likely common among Kembeta [AOR=2.45 (95% CI;1.30, 4.61)] and Silite [AOR=2.99 (95% CI, 1.16, 7.67)], respectively when compared to women from Hadiya ethnic group.

Conclusion: In general, female genital mutilation is highly prevalent among the study participants and most of the operation was done by a non-medical practitioner. The prevalence of birth complications is also high among the study participants. Therefore, a multi-sectoral approaches should be considered to reduce the problem and to promote safe delivery.

Keywords: Birth complication; Female genital mutilation; Sexual; Population; Quality control; Education

Abbreviations: C/S: Cesarean Section; LBW: Low Birth Weight; PPH: Post-Partum Hemorrhage

Introduction

Female genital mutilation is any surgical modification of the female genitalia, comprising all procedures involving partial or total removal of the external female genitalia or other injury to the female genital organs for cultural or non-therapeutic reasons [1]. The practice of female genital mutilation has been identified as being performed in many regions of the world. It is primarily practiced among various ethnic groups in more than 28 countries in Africa [2]. The practice is deep rooted and heavily prevalent mostly in the countries that have a strong connection to the Islamic religion [3]. It is an old-age practice believed to be existed in the central Africa, Egypt and the Middle East.

Between 100 and 140 million girls and women worldwide are estimated to have undergone the practice of female genital mutilation [4].

Female genital mutilation is performed for the following reasons; sexual, sociological, hygienic and aesthetic reasons, health and for religious reasons [5,6]. Female genital mutilation is practiced in all regions in Ethiopia, but the magnitude varies considerably from region to region ranging from less than 30% in Gambella and Tigray to over 90% in Afar, Dire Dawa and Somali [7,8]. A Study conducted in Bale zone, Ethiopia; reported a prolonged labor (37.1%), pain during sexual intercourse (35.8%) and excessive bleeding during birth (27.1%) among women who had undergone female genital mutilation [9].

In Africa, about 101 million girls' age 10 years and above are estimated to have undergone female genital mutilation in the northeast Africa, where the practice ranges from 80 to 97%, while in East Africa it is markedly lower and ranges from 18 to 32% [10,11]. Yet, little is known about the prevalence of female genital mutilation and its

association with birth complications among women of reproductive age groups in this study area. As a result, this study tried to assess the prevalence of female genital mutilation and its association with birth complications among women attending delivery service in Nigist Eleni Mohammed general Hospital, Hossana, southern nations, nationalities and peoples' region, Ethiopia.

Method and Materials

Study design

Hospital-based cross-sectional quantitative study was employed to determine prevalence of female genital mutilation and its association with birth complication among women attending delivery service in Nigist Eleni Mohammed General Hospital, Hadiya zone from 02 May 2015 to 29 June 2015.

Source population

All women coming to Nigist Eleni Mohammed general Hospital for the delivery service.

Study population

The study population was a sample of women among those coming for the delivery service to Nigist Eleni Mohammed general Hospital.

Sample size determination

The sample size was determined using a single population proportion formula and a final sample size is 395.

Study variables

Dependent variables: Birth complications and history of genital mutilation.

Independent variables: Age, religion, ethnicity, marital status, educational status, occupation, income, family size, place of residence, obstetric condition (gravidity, parity) and history of genital mutilation.

Sampling procedures

The Study subjects were selected by using systematic random sampling techniques until the required sample size is fulfilled from the prepared sampling frame. The sampling frame was delivery register of the Hospital.

We observed the daily client flow of service. Accordingly, a maximum of 18 mothers and minimum of 6 mothers visited the hospital for the delivery on the daily basis. Based on this information, an average of 12 mothers visited per day and a 10 weeks' (study period) sampling frame was prepared and the expected client follow was 840 within ten weeks. From the sampling frame K was determined by dividing 840 for 395 which is about 2.12. The starting point was determined by lottery method from 1-Kth and 2 were selected randomly as starting point. Starting from 2 every other client was selected.

Data collection procedures

Quantitative data was collected using pre-tested and standardized questionnaire. The questionnaire was developed after revision of

relevant literatures, previous studies and from 2011 Ethiopian demographic and health survey (EDHS). The questionnaire was pre-tested in a 5% of similar study population in Butajira General Hospital, Gurage zone one week before the actual data collection and the appropriate amendments were done before it is finalized. A quantitative data was collected from the respondents by using structured questionnaire and direct observation of birth complications was also done by the data collectors. Twelve data collectors who are experienced and familiar with the subject matter were recruited from Nigist Eleni Mohammed general hospital. On the other hand, other individuals with masters of public health and Bachelor of Science were recruited to supervise the overall data collection processes.

Data quality control

The questionnaire was initially prepared in English, and then translated to Amharic for the field work purpose. Then the Amharic version was translated back to English to check for any inconsistencies or distortion in the meaning of words or concepts. Two days training was given to all data collectors and supervisors to have a common understanding on data collection process. At the field level, questionnaires were reviewed and checked by the supervisors and principal investigator for the completeness meanwhile necessary feedback was given to data collectors every morning.

Data processing and analysis

Data was coded, cleaned and entered into a computer data base by using EPI Info version 3.5.3, and then analyzed by using SPSS version 20.0. Descriptive summary values such as frequency and percentage was used to describe the study variables. A bivariate and multivariate logistic regression analysis with a confidence level of 95% was performed in order to determine the final predictors of the outcome variable. Variables with p-value<0.05 in the bivariate analysis were transferred into multivariate logistic regression analysis to control the effect of confounders.

Ethical considerations

Ethical clearance was obtained from the ethical and research approval committee of Hossana college of Health Sciences. Informed consent was obtained from the study participants. Official permission was secured from the authority of the hospital.

Result

Sociodemographic characteristics

A total of 395 women were included in this study, and a response rate of the study is 100%. The minimum and the maximum ages of the respondents were 18 years and 40 years, respectively. The mean age of the study subjects was 27.42 years (SD \pm 4.87). More than half, 233 (59%) of the respondents were protestants followed by orthodox 72 (18.2%), and 246 (62.3%) were from Hadiya ethnic group.

History of female genital mutilations

Almost all, 364 (92.2%) CI 89.67%, 94.93%) of the respondents were circumcised and most of the operation was done by a non-medical practitioner, 265 (67.1%). In this study, it was found that 238 (65.4%) participants were circumcised at the age of less than 10 years shown in Table 1.

Variable		Frequency	Percent
Age(in years)	18-23	80	20.3
	24-29	172	43.5
	30-34	89	22.5
	35-40	54	13.7
Mean age and SD		SD 27.42+4.87	
Religion	Orthodox	72	18.2
	Catholic	34	8.7
	Protestant	233	59
	Muslim	55	14.2
Ethnicity	Hadiya	246	62.3
	Kembeta	76	19.2
	Gurage	29	7.3
	Silite	31	7.8
	Wolita	12	3
	Other	1	0.3
Marital status	Married	388	98.2
	single	7	1.8
School attendance	No	93	23.5
	Yes	302	76.5
Highest level of education	Read and write	66	16.7
	Primary education	122	30.9
	Secondary education	114	28.9
Place of birth	Urban	135	34.2
	rural	260	65.8
Mother occupation	House wife	206	52.2
	Civil servant	86	21.8
	Merchant	63	15.9
	Student	28	7.1
	Daily labor/maid/other	12	3
Monthly income of the mother	Less than 1710	184	46.6
	1710-6725	202	51.1
	6725 and above	9	2.3
Family size	Less than 4	240	60.8
	4 and above	155	39.2
Age of 1st marriage	14-19	91	23
	20-24	218	55.2

	25 and above	85	21.8
Mean		SD 21.75+3.13	
History of circumcision	No	31	7.8
	Yes	364	92.2
Who did the operation	TBA	38	9.6
	Health-professional	61	15.4
	Non-medical practitioner	265	67.1
Age of circumcision	Less than 10	238	65.4
	10-15	104	28.6
	15 and above	22	6
Gravidity	Only one	155	39.2
	2-4 times	182	46.1
	5 and above	58	14.7
Parity	Less than 2	256	64.8
	2-4	85	21.5
	5 and above	54	13.7
Number of alive children	Less than 4	354	89.6
	4-7	37	9.4
	7 and above	4	1

Table 1: Sociodemographic and reproductive health characteristics of women attending delivery service at Nigist Eleni Mohammed general Hospital, Southern Nations, Nationalities and Peoples Region, Ethiopia 2015.

Newborn related birth complications

In this study, a total of 99 (25.1%) babies developed newborn related birth complications, and the most observed birth complications includes: asphyxia 77 (67.6%) followed by low birth weight 15 (13.2%). The most important actions taken for the newborn complications includes: resuscitation 76 (76.8%) followed by Kangaroo mother care 11 (11.1%).

Maternal related birth complications

In this study, the prevalence of birth complications among the study participants was 245 (62%) (CI 59.56%, 64.44%), and the most common maternal related birth complications include: episiotomy 142 (45.5%) followed by the prolonged labour 83 (26.6) and instrumental delivery 43 (13.8%), respectively shown in Table 2.

Variable	Frequency	Percent
Maternal related birth complications		
Yes	245	62

No	150	38
Total	395	100
Type of maternal birth complications		
Episiotomy	142	45.5
Prolonged labour	83	26.6
Instrumental delivery	43	13.8
CS	30	9.6
Bleeding	6	1.9
Retained placenta	4	1.3
PPH	4	1.3
Total	312	100
Action taken to maternal related birth complications		
Episiotomy repair	142	45.5
Assisted by instrument	59	18.9
Referral	39	12.5
CS	38	12.2
Augmentation	30	9.6
PPH management	4	1.3
Total	312	100
Sex of the newborn		
Male	218	55.2
Female	177	44.8
Total	395	100
Weight of the new born		
Less than 2.5 kg	41	10.4
2-4 kg	346	87.6
Greater than 4 kg	8	2
Total	395	100
Newborn complications		

Yes	99	25.1
No	296	74.9
Total	395	100
Types of Newborn complications		
Asphyxia	77	67.6
Low birth weight	15	13.2
Preterm	11	9.6
Death	11	9.6
Total	114	100
Action taken to the complications		
Resuscitation	76	76.8
Kangaroo mother care	11	11.1
Referral	9	9.1
Other	3	3
Total	99	100

Table 2: Maternal and Newborn related birth complications among women attending delivery service at Nigist Eleni Mohammed general Hospital, Southern Nations, Nationalities and Peoples Region, Ethiopia 2015.

Factors associated with the female genital mutilations

In this study, residence, school attendance and highest level of school attendance were found significantly associated with a practice of female genital mutilations. That is, respondents coming from the rural were more likely to practice female genital mutilation than the respondents from the urban [AOR=1.03 (95% CI: 0.211, 3.091)]. Similarly, those respondents who didn't attend any formal education were more likely to practice female genital mutilation than their counter parts [AOR= 1.31 (95% CI: 0.99, 6.71)]. In line with this, the practice of female genital mutilation was higher among those respondents who are unable to read and write [OR=1.59 (95% CI: 0.621, 9.72)] when compared to those who attended their primary and secondary education shown in Table 3.

Variable		History of circumcision				COR of 95% CI	AOR of 95% CI	PV
		Yes		No				
		number	percent	number	percent			
Ethnicity	Hadiya	17	6.9	229	93.1	1		
	Kembata	8	10.5	68	89.5	0.173 (0.633,12.67)	0.182 (0.933, 11.44)	0.71
	Gurage	2	6.9	27	93.1	0.129 (0.646,31.36)	0.144 (0.766, 33.96)	0.33

	Silte	0	0	31	100	0.998 (0.229,21.34)	0.711 (0.153, 17.21)	0.81
	Woliyta	9	75	3	25	0.342 (0.11, 15.99)	0.291 (0.101, 13.71)	0.23
	Others	0	0	1	100	0.922 (0.43, 19.23)	1.053 (0.73, 21.41)	0.55
Religion	Protestant	217	93.1	16	6.9	1	1	
	Orthodox	64	88.9	8	11.1	0.791 (0.68, 1.55)	0.581 (0.431, 0.93)	0.15
	Muslim	53	94.6	3	5.4	0.673 (0.43, 1.11)	0.771 (0.61, 2.71)	0.67
	Catholic	29	87.9	4	12.1	0.544 (0.32, 1.01)	0.661 (0.32, 2.05)	0.93
	Others	1	100	0	0	0.333 (0.29, 1.21)	0.291 (0.18, 3.21)	0.27
Have you ever attended school?	Yes	275	91.1	27	8.9	1	1	
	No	89	95.7	4	4.3	1.11 (0.34, 5.57)	1.31 (0.99, 6.71)	0.01*
Highest level of mother's education	Secondary education & above	21	80.8	5	19.2	1	1	
	Primary education	29	87.9	4	12.1	0.273 (0.53, 9.10)	0.197 (0.110, 7.40)	0.19
	Can read and write	37	90.2	4	9.8	1.00 (0.34, 6.19)	1.09 (0.71, 10.10)	0.003*
	Unable to read and write	72	94.7	4	5.3	1.23 (0.97, 7.91)	1.59 (0.621,9.72)	0.001*
Where were you born?	Urban	118	87.4	17	12.6	1	1	
	Rural	246	94.6	14	5.4	1.010 (0.199,2.62)	1.03 (0.211, 3.091)	0.034*

Table 3: Factors associated with female genital mutilation among women attending delivery service at Nigist Eleni Mohammed general Hospital, Southern Nations, Nationalities and Peoples Region, Ethiopia 2015.

Factors associated with birth complication

In this study, variables such as ethnicity, age of first marriage and history of circumcision were significantly associated with the birth complications. The likely hood of the occurrence of birth complications was 2.45 and 2.99 times more likely common among Kembeta [AOR=2.45 (95% CI: 1.30, 4.61)] and Silite [AOR=2.99 (95% CI: 1.16, 7.67)], respectively when compared to women from Hadiya

ethnic group. On the other hand, women who had a history of female genital mutilations were 26.8 times more likely to develop birth complication than their counterparts [AOR=26.8 (95% CI; 6.95, 103.29)]. Similarly, women who had married at the age of 18-20 years were 54% less likely to face birth complication than those married at the age of 25 and above [AOR= 0.46 (95% CI; 0.26, 0.83)] as shown in Table 4.

Variable		Birth complications				COR of 95% CI	AOR of 95% CI	PV
		No		Yes				
		number	percent	number	percent			
Ethnicity	Hadiya	104	42.3	142	57.7	1.00(0.093)	1	
	Kembeta	22	28.9	54	71.1	1.79(1.03,3.14)	2.45(1.30,4.61)	0.023*
	Gurage	13	44.8	16	55.2	0.90(0.42,1.96)	0.95(0.42,2.14)	0.006*
	Silite	6	19.4	25	80.6	3.05(1.21,7.71)	2.99(1.16,7.67)	0.023*
	Woliyta	4	33.4	8	66.6	2.21(0.97, 6.91)	1.77(0.19, 4.57)	0.051
	Others	1	100	0	0	1.87(0.59, 3.22)	0.21(0.045, 3.44)	0.061
Age of first mirage	25-and above	26	30.2	60	69.8	0.99 (0.03, 6.32)	1	
	21-24	95	43.6	123	56.4	0.56(0.33,0.95)	0.64(0.32,1.30)	0.029*

	18-20	29	31.9	62	68.1	0.93(0.49,1.75)	0.46(0.26,0.83)	0.009*
Birth weight	Less than 2.5 kg	10	24.4	31	75.6	1(0.06)	1	
	2.5-4 kg	139	40.2	207	59.8	0.48(0.23,1.01)	0.47(0.21,1.06)	0.056
	Greater than 4 kg	1	12.5	7	87.5	2.26(0.25,20.65)	3.27(0.27,39.67)	0.063
History of circumcision	No	28	90.3	3	9.7	1(00)	1	
	Yes	122	33.5	242	66.5	18.51(5.52,62.11)	26.8(6.95,103.29)	0.001*
Age of first pregnancy	15-19	19	32.8	39	67.2	1(0.10)	1	
	20-24	97	42.9	129	57.1	0.65(0.35,1.19)	0.48(0.04,6.07)	0.064
	25-29	33	31.7	71	68.3	1.05(0.53,10.08)	0.37(0.035,13.98)	0.066
	30-34	1	14.3	6	85.7	2.92(0.33,26.04)	0.53(0.055,15.08)	0.082
Family size	4 and above	64	41.3	91	58.7	0.89 (0.43,22.09)	1	
	Less than 4	86	35.8	154	64.2	1.25(0.83,11.91)	1.37 (0.85,13.21)	0.19

Table 4: Factors associated with birth complication among women attending delivery service at Nigist Eleni Mohammed general Hospital, Southern Nations, Nationalities and Peoples Region, Ethiopia 2015.

Discussion

Various studies from different countries of Africa reported different level of female genital mutilations, which was more or less in line with this study findings. The study findings in Kersa district (Ethiopia) (92.3%), Djibouti (93%), and Somalia (98%) was greater than the findings of this study. On the other hand, the study findings in Nigeria (34%), Gambia (75.6%), Mauritania (77%), Sierra Leone (81.2%), and Eritrea (89%) was slightly less than the findings of this study [8,12-16]. These differences might be due to religious, ethnicity and cultural differences across the countries.

In this study, female genital mutilation was done mainly by a non-medical practitioner, 265 (67.1) followed by a health professionals, 62 (15.4%) and by traditional birth attendants 38 (9.6%). Almost two third, 238 (65.4%) of the study participants were circumcised at the age of less than 10 years, and 104 (28.6) at age of 10-15 years. This finding was similar with the study finding conducted in Somalia and Kenya where a non-medical practitioner, health professions and traditional birth attendants were operating female genital mutilation. This finding was supported by another qualitative study that traditional practitioners in Kenya and Somalia were mostly responsible for performing female genital mutilation in the community followed by nurse/midwives, traditional birth attendants and elderly women [17,18].

According to this study, the prevalence of birth complications among the study participants was 245 (62%) (CI 59.56%, 64.44%). This finding was inconsistent with a study finding conducted in Burkina Faso which reported a 30% of prevalence of birth complications among women of reproductive age group who had performed genital mutilation and who had difficulty during the delivery [19]. This inconsistency might be due to a grade of genital mutilation and other socio-cultural differences among these countries.

In this study, episiotomy 142 (57.96%), prolonged labour 83 (33.88%) and instrumental delivery 43 (17.55%) were the most common maternal-related birth complications, and some women

developed more than one birth complications simultaneously. This study was also inconsistent with the study conducted in Bale Zone, Ethiopia that reported 37.1% prolonged labor, 35.8% instrumental delivery and 27.1% excessive bleeding during the birth [9]. This difference might be due to the diversity in culture, religion and quality of obstetric care during antenatal care and delivery services in the regions.

Concerning newborn-related birth complication, 99 (25.1%) developed some complications during and immediately after the birth. The most common complications were birth asphyxia 77 (67.54%) and death 11 (9.60%). This finding is supported with the study conducted by World Health Organization at different countries, which revealed that death rates among the newborn babies was higher among mothers who had undergone female genital mutilation [20,21]. In this study, it was found that the likely hood of occurrence of birth complications was 2.45 and 2.99 times more likely common among Kembeta (AOR=2.45:95% CI; 1.30, 4.61) and Silite (AOR=2.99:95% CI, 1.16, 7.67), respectively when compare to Hadiya ethnic group. This difference might be due to the degree or depth of circumcision across the regions and zones. Concerning history of female genital mutilation, women who had history of circumcision were 26.8 times more likely to develop birth complications than their counterparts (AOR=26.8: 95% CI; 6.95, 103.29). This finding was in line with the Study conducted by World Health Organization in six African countries. In this study, 6% of women with genital mutilation delivered by caesarean section and 7% deliveries were complicated by postpartum hemorrhage [20,21].

In this study, it was found that women married at the age of 18- 20 years were 54% less likely to face birth complication than those married at the age of 25 years and above (AOR= 0.46: 95% CI; 0.26, 0.83). This finding was supported by the study conducted in America, in which a direct relationship between the age and birth complications was observed, i.e., as the age of woman increases, birth complication also increases [22]. Moreover, the study showed that the miscarriage rate during the 20 years was about 9.5 percent, and the baby was much

less likely to be born with a birth defect such as down syndrome and chromosomal abnormalities when compare to age 25 and above [22].

Conclusion and Recommendation

In general female genital mutilation was highly prevalent among the study participants and most of the operation was done by a non-medical practitioner. The prevalence of birth complications was also high among the study participants. In this study, history of female genital mutilation, ethnicity and age of 1st marriage were associated and statistically significantly to birth complications. Finally female genital mutilation is a complex and wide spread of problem with significant physical, obstetrical and psychological effect on women and neonate during child birth and hidden obstacle to economic growth. Better strategies should be assumed to address physical, psychosocial, cultural and economic effect of female genital mutilations among women.

Limitations

The study was done using a cross-sectional study design in which a cause-effect relationship is therefore difficult to establish among the variables. Moreover, this study is not designed to determine a type of female genital mutilation. This was mainly because it needs the employment of experienced and trained professionals on female genital mutilation. This study didn't compare the circumcised and uncircumcised groups of women. The main aim of this study was to determine the prevalence of female genital mutilation and its association with birth complications among the circumcised women populations.

Ethics Approval and Consent to Participate

I confirm that we have been formally granted ethics approval for the study described in the manuscript. Even though the study didn't include certain human samples such as blood sample, urine, tissue and the like, informed consent to participate in the study was obtained from participants, the consent for participation was designed by the investigators and approved by the ethical committee of the college.

Name of the Ethics Committee

Desalegn Girma, Samuel Yohannes, Yitagesu Habtu, and Dinku Daniel. But, the ethics committee does not have the reference number

Consent to Publish

Not applicable to this submission

Availability of Data and Materials

The data set analyzed during the current study is not publicly available due to the confidentiality of the study subjects. This is because one of the subject matter of the study is female genital mutilation. It is a sensitive issue and is considered as a harmful traditional practice which is strongly forbidden by the law of the country. Therefore, publicly exposing this information might not be comfortable for the study subjects. But the dataset is available from the corresponding author on reasonable request. Therefore, please contact the corresponding author for the data requests in SPSS form

Competing Interests

The authors declare that they have no competing interests.

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Hossana college of Health Sciences funded the study in that the college established a research committee to approve a research topic, participate in research design of the study and data collection. The college also funded for data collection tools and presented lap top for data entry, analysis and presentations of the study findings.

Authors' Contributions

DT wrote a proposal and participated in data collection and analysis. SK and TL participated in data collection, analysed the data and drafted the paper. DH participated in data collection, analysed the data and revised a subsequent draft of the paper and prepared the paper for publication.

All authors read and approved the final manuscript.

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