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# The Magnitude of Female Genital Mutilation/Cutting and the Associated Factors among women of reproductive age in Tanzania; Analysis of the 2015–2016 Tanzania Demographic and Health Survey Data

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**Research Article**

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# Abstract

**Background:** Female Genital Mutilation/Cutting (FGM/C) is a public health challenge. The long-term effects of FGM/C are increased risk of cesarean section, postpartum hemorrhage, recourse to episiotomy, difficult labor, obstetric tears/lacerations, instrumental delivery, prolonged labor, and extended maternal hospital stay. The study aimed at ascertaining the magnitude of FGM/C and its associated factors among women of reproductive age in Tanzania.

**Method:** The study was an analytical cross-sectional study using the 2015-2016 Tanzania Demographic and Health Survey and Malaria Indicators Survey. A total of 5,777 women of reproductive age who responded to the question on female circumcision were included in the study. Descriptive analysis was used to establish the magnitude of FGM/C among women of reproductive age in Tanzania. Both univariate and multivariate regression analyses were used to establish.

**Results:** The magnitude of FGM/C was 12.1% at 95%CI of 11.3% to 13%. After adjusted for confounders, factors associated with FGM/C were marital status [married (AOR=3.141, p<0.001), living with male partners (AOR=2.001, p=0.027), widowed (AOR=2.922, p=0.03)] never in union was a reference population; wealth index [poorest (AOR=2.329, p=0.001), middle (AOR=1.722, p=0.024), richer (AOR=1.831, p=0.005)] in reference to richest women; zones [Northern zone, (AOR=91.787, p<0.001), central zone, (AOR=215.07, p<0.001), southern highlands, (AOR=12.005, p<0.001), lake zone (AOR=13.927, p<0.001), eastern zone, (AOR=24.167, p<0.001)]; place of childbirth [outside health facility (AOR=1.616, p<0.001)] in reference to health facility childbirth; parity [para 5+ (AOR=2.204, p<0.001)] para one was the reference population; and opinion on whether FGM/C stopped or continued [continued (AOR =8.884, p<0.001)]

### Conclusion

FGM/C among women of reproductive age is a public health problem in Tanzania. Women who were subjected to FGM/C were those who were or ever lived with male partners, those of low wealth index, those with high parity, those living in Central, Northern, Eastern, Lake, and Southern highland zones and those in support of female circumcision should continue. The study recommends an intervention study to come up with a cost-effective strategy to eradicate FGM/C in Tanzania.


# Background Information

Female Genital Mutilation/Cutting (FGM/C) comprises all procedures that include the manipulation, alteration, or removing the external genital organs in young girls and women for non-medical reasons[1]. The procedure is performed using a blade or shard of glass by a religious leader, village elders, traditional female exercisers, or a medical professional with limited training[2]. FGM/C is a violation of the human right of girls and women[1]. It reflects deep-rooted inequality between the sexes and constitutes an extreme form of discrimination against girls and women[1]. The long-term effects of the practice are an

increased risk of cesarean section, postpartum hemorrhage, recourse to episiotomy, difficult labor, obstetric tears/lacerations, instrumental delivery, prolonged labor, and extended maternal hospital stay[3].

It is estimated that more than 200 million women and children have undergone female genital mutilation/cutting in 30 countries in Africa, the Middle East, and Asia[4]. It is estimated that about 3 million girls are at risk of FGM/C each year globally[4]. The magnitude varies greatly between countries, regions, and also within countries[5]. The most affected global regions are Africa and some Middle Eastern regions (including Iraq and Yemen) [5].

According to World Health Organization (WHO)[1], female genital mutilation/cutting is classified into four main types depending on the action performed. Type one is when there is a partial or total removal of the clitoral glans (the external and visible part of the clitoris, which is a sensitive part of the female genitals), and/or the prepuce/clitoral hood (the fold of skin surrounding the clitoral glans). Type two is when there is a partial or total removal of the clitoral glans and the labia minora (the inner folds of the vulva), with or without removal of the labia majora (the outer folds of skin of the vulva). Type three is also known as infibulation, it is when there is a narrowing of the vaginal opening through the creation of a covering seal. The seal is formed by cutting and repositioning the labia minora, or labia majora, sometimes through stitching, with or without removal of the clitoral prepuce/clitoral hood and glans. Type four includes all other harmful procedures to the female genitalia for non-medical purposes, e.g., pricking, piercing, incising, scraping, and cauterizing the genital area.

Tanzania legally prohibited female genital mutilation/cutting under its Sexual Offences Special Provision Act of 1998[6]. The law states that anyone having custody, charge, or care of a girl under eighteen years of age who causes her to undergo FGM/C commits the offense of cruelty to children[7]. The government has an obligation under international and regional human rights laws to ensure that the practice of FGM/C is eliminated[7]. The country has also adopted a National Plan of Action to end Violence against Women and Children and is committed to ending violence against women and children in all its forms, including female genital mutilation/cutting, by 2030[6]. Despite all these efforts, FGM/C is still practiced. There exist variations in the country where the prevalence is high in Arusha, Dodoma, Manyara, Mara, and Singida regions.

Having a law that enforces the sensation of the practice is an important step towards achieving women's sexual and reproductive health rights. In addition, community sensitization on the impact of FGM/C is highly needed because many families allow FGM/C out of ignorance[8]. Families, communities, and cultures in which FGM/C is performed, when asked why FGM is practiced they have different reasons for doing so. A major reported reason is that the practice is believed to ensure the girl conforms to key social norms, such as those related to sexual restraint, femininity, respectability, and maturity[8]. All these can be achieved without subjecting women to FGM/C.

Understanding the magnitude and factors associated with FGM/C is an important step toward addressing this challenge. Therefore, this study aimed at reporting the magnitude of female genital mutilation/cutting and the associated factors in Tanzania.

## Methods

# Study area and period

The study was based on secondary data (Tanzania Demographic and Health Survey and Malaria Indicators Survey 2015–2016). Tanzania is located south of the equator, bordered by eight countries. Kenya and Uganda in the North, Rwanda, Burundi, the Democratic Republic of Congo, and Zambia in the West, and Malawi and Mozambique in the South. The country is boarded by the India ocean in the East. The country occupies an area of 945,087 km².

# Study design

It was a national-based cross-sectional study designed using secondary data. The 2015-16 Tanzania Demographic and Health Survey and Malaria Indicator Survey (TDHS-MIS) data set was used to establish the magnitude and factors associated with female genital mutilation/cutting in Tanzania. The survey was led by the National Bureau of Statistics (NBS) and the Office of Chief Government Statistician (OCGS), Zanzibar, in collaboration with the Ministry of Health in Tanzania Mainland and the Ministry of Health of Zanzibar.

# Sample selection

The DHS-MIS survey sample was obtained through two stages sampling technique. In the first stage of sampling a total of 608 clusters were selected. In the second stage, 22 households were selected from each cluster using systematic sampling, resulting in a representative sample of 13,376 households.

# Data collection tool

Both the household questionnaires and individual questionnaires were used for data collection. These tools were developed based on Measure DHS standards AIDS Indicator Survey and Malaria Indicator Survey questionnaires standards. The tools were translated into Kiswahili, the National language of Tanzania. The data used for this study were those collected using the individual questionnaire.

# Study population and data extraction

The subset of the original TDHS-MIS dataset was distracted using the criteria of women of reproductive age who gave birth five years before the survey. All other variables were dropped and a total sample of 6924 women were selected. Additionally, the outcome variable was assessed and all women of reproductive age with no response to female genital mutilation/cutting were dropped. The final sample size used in this study was 5,777 women of reproductive age

# Variables

Figure 1 below shows the conceptual framework which was developed to guide the conceptualization. The framework had independent variables (sociodemographic characteristics, obstetric characteristics, maternal services, ANC utilization, place of childbirth, and opinion on whether FGM/C should be stopped

or continued). The dependent variable was female genital mutilation/cutting. The dependent variable was measured by 1 if a woman responded yes to female circumcision and 0 if the woman responded no. Literature has reported that FGM/C is responsible for increased risk of delivery by caesarian section, postpartum hemorrhage, recourse to episiotomy, difficult labor, obstetric tears/lacerations, instrumental delivery, prolonged labor, and extended hospital stay.

**INSERT** FIGURE 1 **HERE**

Figure 1: **Conceptual framework of magnitude and factors associated with FGM/C**

## Results

# Socio-Demographic Characteristics

A total of 5,777 women responded to the question of whether they were circumcised or not. The majority of them were aged between 20 to 34 years (66.6%), were living in rural Tanzania (70.4%), had a primary level of education (61.5%), were married (61.8%), had late antenatal booking (75.9%) (Table 1).

Table 1
Socio-Demographic Characteristics of Women of Reproductive Age

| Times | Frequency (n) | Percent (%) |
|---|---|---|
| **Age Groups** | | |
| Less than 20 years | 430 | 7.4 |
| 20 to 34 years | 3845 | 66.6 |
| More than 34 years | 1502 | 26 |
| **Type of place of residence** | | |
| Urban | 1709 | 29.6 |
| Rural | 4068 | 70.4 |
| **Highest educational level** | | |
| No education | 893 | 15.5 |
| Primary | 3552 | 61.5 |
| Secondary | 1273 | 22 |
| Higher | 59 | 1 |
| **Current marital status** | | |
| Never in union | 399 | 6.9 |
| Married | 3573 | 61.8 |
| Living with partner | 1099 | 19 |
| Widowed | 106 | 1.8 |
| Divorced | 315 | 5.5 |
| No longer living together/separated | 285 | 4.9 |
| **Wealth index** | | |
| Poorest | 1032 | 17.9 |
| Poorer | 1000 | 17.3 |
| Middle | 1098 | 19 |
| Richer | 1390 | 24.1 |
| Richest | 1257 | 21.8 |
| **Zones** | | |

| Times | Frequency (n) | Percent (%) |
|---|---|---|
| **Age Groups** | | |
| Western | 417 | 7.2 |
| Northern | 535 | 9.3 |
| Central | 675 | 11.7 |
| Southern Highlands | 484 | 8.4 |
| Southern | 295 | 5.1 |
| South West Highlands | 442 | 7.7 |
| Lake | 1438 | 24.9 |
| Eastern | 681 | 11.8 |
| Zanzibar | 810 | 14 |
| **Timing for ANC Booking** | | |
| Late booking | 4386 | 75.9 |
| Early booking | 1391 | 24.1 |
| **Number of ANC Visits** | | |
| Adequate | 3058 | 52.9 |
| Inadequate | 2719 | 47.1 |
| **Place of childbirth** | | |
| Health facility | 4008 | 69.4 |
| Outside health facility | 1769 | 30.6 |
| **Parity of the Respondent** | | |
| Para one | 1395 | 24.1 |
| 2 to 4 | 2691 | 46.6 |
| Para 5+ | 1691 | 29.3 |

**INSERT** Table 1 **HERE**

# The proportion of Female genital mutilation/cutting Among Women of Reproductive Age in Tanzania

A total of 700(12.1%) at 95%CI of 11.3–13% of women of reproductive age were circumcised while a total of 5077(87.9%) of interviewed women were not circumcised (Fig. 2).

**INSERT** FIGURE 2 **HERE**

Figure 2: **Proportion of women of reproductive age who were circumcised**

Among 700 women who were circumcised, 616 (88%) had flesh removed from their genital areas, while 24(3.43%) had no flesh removed from their genital areas and 60(8.57%) did not know whether flesh was removed or not (Fig. 3).

**INSERT** FIGURE 3 **HERE**

Figure 3: **Proportion of women's flesh removed from the genital area during FGM/C**

A total of 35(5%) women had their genital areas sewn closed while 595(85%) their genital areas were not sewn closed and a total of 70(10%) did not know whether the genital areas were sewn closed or not (Fig. 4).

**INSERT** FIGURE 4 **HERE**

Figure 4: **Proportion of women's genital area sewn closed during FGM/C**

A total of 172(3.0%) are in support that female circumcision has to be continued and a total of 5476 (94.8%) said female circumcision should be stopped while 48(0.8%) did not decide on whether to stop or continue and 81(1.4%) said they don’t know (Fig. 5)

**INSERT** FIGURE 5 **HERE**

Figure 5: **Proportion of women in support of FGM/C be continued**

# The Relationship Between Women’s Characteristic and female genital mutilation/cutting Status

Variables which showed significant relationship with female genital mutilation/cutting were age groups in years ($X^2 = 52.765$, $p < 0.001$), type of place of residence (82.914 < 0.001), highest education level ($X^2 = 140.561$, $p < 0.001$), marital status ($X^2 = 76.193$, $p < 0.001$), wealth index ($X^2 = 275.829$, $p < 0.001$), zones ($X^2 = 1487.434$, $p < 0.001$), parity of a woman ($X^2 = 112.957$, $p < 0.001$) and place of childbirth ($X^2 = 115.102$, $p < 0.001$) Table 2

Table 2
The Relationship Between Characteristics of Women of Reproductive Age and Female Genital Mutilation/Cutting Status

| Variable | Not Circumcised n(%) | circumcised n(%) | $\chi^2$ | p-value |
|---|---|---|---|---|
| **Age Groups** | | | 52.765 | < 0.001 |
| Less than 20 years | 387(90) | 43(10) | | |
| 20 to 34 years | 3449(89.7) | 396(10.3) | | |
| More than 34 years | 1241(82.6) | 261(17.4) | | |
| **Type of place of residence** | | | 82.914 | < 0.001 |
| Urban | 1605(93.9) | 104(6.10) | | |
| Rural | 3472(85.3) | 596(14.7) | | |
| **Highest educational level** | | | 140.561 | < 0.001 |
| No education | 719(80.5) | 174(19.5) | | |
| Primary | 3075(86.6) | 477(13.4) | | |
| Secondary | 1225(96.2) | 48(3.8) | | |
| Higher | 58(98.3) | 1(1.7) | | |
| **Current marital status** | | | 76.193 | < 0.001 |
| Never in union | 383(96) | 16(4) | | |
| Married | 3045(85.2) | 528(14.8) | | |
| Living with partner | 1002(91.2) | 97(8.8) | | |
| Widowed | 90(84.9) | 16(15.1) | | |
| Divorced | 298(94.6) | 17(5.4) | | |
| No longer living together/separated | 259(90.9) | 26(9.1) | | |
| **Wealth index** | | | 275.829 | < 0.001 |
| Poorest | 770(74.6) | 262(25.4) | | |
| Poorer | 868(86.8) | 132(13.2) | | |
| Middle | 955(87.0) | 143(13) | | |

| Variable | Not Circumcised n(%) | circumcised n(%) | $\chi^2$ | p-value |
|---|---|---|---|---|
| Richer | 1272(91.5) | 118(8.5) | | |
| Richest | 1212(96.4) | 45(3.6) | | |
| **Zones** | | | 1487.434 | < 0.001 |
| Western | 414(99.3) | 3(0.7) | | |
| Northern | 377(70,5) | 158(29.5) | | |
| Central | 323(47.9) | 352(52.1) | | |
| Southern Highlands | 461(95.2) | 23(4.8) | | |
| Southern | 291(98.6) | 4(1.4) | | |
| South West Highlands | 440(99.5) | 2(0.5) | | |
| Lake | 1327(92.3) | 111(7.7) | | |
| Eastern | 634(93.1) | 47(6.9) | | |
| Zanzibar | 810(1) | 0(0.0) | | |
| **Timing for ANC Booking** | | | 0.274 | 0.601 |
| Late booking | 3849(87.8) | 537(12.2) | | |
| Early booking | 1228(88.3) | 163(11.7) | | |
| **Number of ANC Visits** | | | 0.134 | 0.714 |
| Adequate | 2692(88) | 366()12( | | |
| Inadequate | 2385(87.7) | 334(12.3) | | |
| **Place of childbirth** | | | 115.102 | < 0.001 |
| Health facility | 3645(90.9) | 363(9.1) | | |
| Outside health facility | 1432(80.9) | 337(19.1) | | |
| **Parity of the Respondent** | | | 112.957 | < 0.001 |
| Para one | 1292(92.6) | 103(7.4) | | |
| 2 to 4 | 2415(89.7) | 276(10.3) | | |
| Para 5+ | 1370(81) | 321(19) | | |

| Variable | Not Circumcised n(%) | circumcised n(%) | $\chi^2$ | p-value |
|---|---|---|---|---|
| Female circumcision: continue or be stopped | | | 335.897 | < 0.001 |
| Stopped | 4891(89.30) | 585(10.70) | | |
| Continued | 74(43) | 98(57) | | |
| Depends | 41(85.40) | 7(14.60) | | |
| Don't know | 71(87.70) | 10(12.30) | | |

**INSERT** Table 2 **HERE**

# Factors Associated with Female Circumcision Among Women of Reproductive Age in Tanzania

After adjusted for confounders, factors associated with uptake of female genital mutilation/cutting among women of reproductive age in Tanzania were marital status [married (AOR = 3.141 at 95%CI = 1.757–5.616,p < 0.001), living with male partners (AOR = 2.001at 95%CI = 1.082–3.699, p = 0.027), widowed (AOR = 2.922at 95%CI = 1.201–7.111, p = 0.03)] never in union was a reference population; wealth index [poorest (AOR = 2.329 at 95% CI = 1.442–3.763, p = 0.001), middle (AOR = 1.722 at 95% CI = 1.075–2.758, p = 0.024), richer (AOR = 1.831 at 95%CI = 1.205–2.781, p = 0.005)] in reference to richest women; zones [Northern zone, (AOR = 91.787 at 95%CI = 28.41-296.546, p < 0.001), central zone, (AOR = 215.07 at 95%CI = 67.093-689.423,p < 0.001), southern highlands, (AOR = 12.005 at 95% CI = 3.49-41.298, p < 0.001), lake zone (AOR = 13.927 at 95%CI = 4.338–44.714,p < 0.001), eastern zone, (AOR = 24.167 at 95% CI = 7.299–80.017, p < 0.001)]; place of childbirth [outside health facility (AOR = 1.616 at 95%CI = 1.287–2.03, p < 0.001)] in reference to health facility childbirth; parity [para 5+ (AOR = 2.204 at 95% CI = 1.477–3.288,p < 0.001)] para one was the reference population; and opinion on whether FGM/C stopped or continued [ continued (AOR = 8.884 at 95% CI = 5.636–14.003, p < 0.001)] (Table 3).

Table 3
Factors associated with female genital mutilation/cutting among women of reproductive age in Tanzania

| Variables | COR | 95%CI | | p-value | AOR | 95%CI | | P-value |
|---|---|---|---|---|---|---|---|---|
| | | Lower | Upper | | | Lower | Upper | |
| **Age Groups** | | | | | | | | |
| Less than 20 years | 1 | | | | 1 | | | |
| 20 to 34 years | 1.033 | 0.742 | 1.44 | 0.85 | 0.731 | 0.459 | 1.165 | 0.188 |
| More than 34 years | 1.893 | 1.344 | 2.67 | < 0.001 | 0.845 | 0.493 | 1.449 | 0.54 |
| **Type of place of residence** | | | | | | | | |
| Urban | 1 | | | | 1 | | | |
| Rural | 2.649 | 2.133 | 3.29 | < 0.001 | 1.102 | 0.804 | 1.512 | 0.546 |
| **Highest educational level** | | | | | | | | |
| No education | 14.036 | 1.931 | 102 | 0.01 | 2.105 | 0.264 | 16.782 | 0.482 |
| Primary | 8.997 | 1.243 | 65.1 | 0.03 | 1.872 | 0.238 | 14.717 | 0.551 |
| Secondary | 2.273 | 0.308 | 16.8 | 0.42 | 1.4 | 0.176 | 11.13 | 0.75 |
| Higher | 1 | | | | 1 | | | |
| **Current marital status** | | | | | | | | |
| Never in union | 1 | | | | 1 | | | |
| Married | 4.151 | 2.496 | 6.9 | < 0.001 | 3.141 | 1.757 | 5.616 | < 0.001 |
| Living with partner | 2.317 | 1.348 | 3.98 | < 0.001 | 2.001 | 1.082 | 3.699 | 0.027 |
| Widowed | 4.256 | 2.051 | 8.83 | < 0.001 | 2.922 | 1.201 | 7.111 | 0.018 |
| Divorced | 1.366 | 0.679 | 2.75 | 0.38 | 1.202 | 0.537 | 2.687 | 0.655 |
| No longer living together/separated | 2.403 | 1.264 | 4.57 | 0.01 | 1.91 | 0.916 | 3.97 | 0.09 |
| **Wealth index** | | | | | | | | |
| Poorest | 9.164 | 6.596 | 12.7 | < 0.001 | 2.329 | 1.442 | 3.763 | 0.001 |

| Variables | COR | 95%CI | | p-value | AOR | 95%CI | | P-value |
|---|---|---|---|---|---|---|---|---|
| | | Lower | Upper | | | Lower | Upper | |
| Poorer | 4.096 | 2.888 | 5.81 | < 0.001 | 1.613 | 0.988 | 2.632 | 0.056 |
| Middle | 4.033 | 2.855 | 5.7 | < 0.001 | 1.722 | 1.075 | 2.758 | 0.024 |
| Richer | 2.499 | 1.757 | 3.55 | < 0.001 | 1.831 | 1.205 | 2.781 | 0.005 |
| Richest | 1 | | | | 1 | | | |
| **Zones** | | | | | | | | |
| Western | 1 | | | | 1 | | | |
| Northern | 57.836 | 18.3 | 183 | < 0.001 | 91.787 | 28.41 | 296.546 | < 0.001 |
| Central | 150.39 | 47.83 | 473 | < 0.001 | 215.07 | 67.093 | 689.423 | < 0.001 |
| Southern Highlands | 6.885 | 2.052 | 23.1 | < 0.001 | 12.005 | 3.49 | 41.298 | < 0.001 |
| Southern | 1.897 | 0.421 | 8.54 | 0.4 | 3.28 | 0.716 | 15.027 | 0.126 |
| South West Highlands | 0.627 | 0.104 | 3.77 | 0.61 | 0.92 | 0.151 | 5.605 | 0.928 |
| Lake | 11.543 | 3.647 | 36.5 | < 0.001 | 13.927 | 4.338 | 44.714 | < 0.001 |
| Eastern | 10.23 | 3.163 | 33.1 | < 0.001 | 24.167 | 7.299 | 80.017 | < 0.001 |
| Zanzibar | 0 | 0 | . | 0.99 | 0 | 0 | . | 0.991 |
| **Place of childbirth** | | | | | | | | |
| Health facility | 1 | | | | 1 | | | |
| Outside health facility | 2.363 | 2.013 | 2.77 | < 0.001 | 1.616 | 1.287 | 2.03 | < 0.001 |
| **Parity of the Respondent** | | | | | | | | |
| Para one | 1 | | | | 1 | | | |
| 2 to 4 | 1.434 | 1.132 | 1.82 | < 0.001 | 1.154 | 0.83 | 1.606 | 0.395 |
| Para 5+ | 2.939 | 2.324 | 3.72 | < 0.001 | 2.204 | 1.477 | 3.288 | < 0.001 |

| Variables | COR | 95%CI | | p-value | AOR | 95%CI | | P-value |
|---|---|---|---|---|---|---|---|---|
| | | Lower | Upper | | | Lower | Upper | |
| Female circumcision: continue or be stopped | | | | | | | | |
| Stopped | 1 | | | | | | | |
| Continued | 11.072 | 8.09 | 15.153 | < 0.001 | 8.884 | 5.636 | 14.003 | < 0.001 |
| Depends | 1.427 | 0.637 | 3.196 | 0.387 | 1.497 | 0.552 | 4.06 | 0.428 |
| Don't know | 1.178 | 0.604 | 2.296 | 0.631 | 0.941 | 0.407 | 2.178 | 0.888 |

**INSERT** Table 3 **HERE**

# Discussion

The finding from this study showed that FGM/C is still a public health concern in Tanzania. The magnitude of FGM/C in the country is still high despite the governmental effort to criminalize the practice. The study showed that 12.1% of women of reproductive age had FGM/C. A previous study done to estimate the magnitude of FGM/C in Africa and some countries in the Middle East reported a remarkable decline in FGM/C in Africa. The decline was the highest in East Africa with a decrease from 71.4% in 1995 to 8% in 2016[5]. Tanzania is among the East African country with the highest proportion of FGM/C

It was also revealed that 88% of women reported flesh was removed during the practice and 5% of the genitals were sewn closed. There is a shared belief that the presence of the clitoris made women have a greater desire for sex, predisposing them to promiscuity and marital infidelity[9]. Such a belief facilitates the persistence of the practice despite the criminalization. Parents with such a belief will look for the service and practice it under strict secrecy[8]. It is reported that the majority of FGM/C is carried in girls aged between infancy and age 15[10]. These are minors who depend entirely on their parents for protection. Studies have shown that community sensitization and education do better in eradicating FGM/C[8]. Communities and tribal leaders need to understand the consequences of FGM/C and make informed choices.

It is evidenced that there is no relationship between FGM/C and promiscuity and marital infidelity[11]. But rather the FGM/C is reported to reduce the quality of sexual acts such as sexual pain, orgasm and sexual desire problems at sexual arousal, and difficulties in lubrication[12, 13]. It is also responsible for mental illnesses such as depression, somatization and anxiety, Post Traumatic Stress Disorder (PTSD), and sleep disorder[13].

The study also found that factors associated with FGM/C were marital status, wealth index status, zones of residence, place of childbirth, parity, and women's opinion on whether the practice should be continued or stopped.

Additionally, the study found that the magnitude of FGM/C practice differed within zones of the country. More than half of the women interviewed in the central zone had female genital mutilation/cutting. When zones were compared with the western zone, they showed increased odds, 215 odds in the central zone, 92 odds in the northern zone, 24 odds in the eastern zone, 14 odds in the lake zone, and 12 odds in the southern highland zone. These are the zones where FGM/C persists. The practice is transferred from one generation to the other. FGM/C is more than a traditional practice. It is connected with dignity, status, and an economic activity imposed by individuals that have influence in households and the community[6].

It was also revealed that marital status was a significant factor associated with FGM/C. Married women were three times, those living with partners were twice, and widowed almost three times more likely to have female circumcision when compared with women who had never been in the union. The possible reason for this could be the myth that women who are circumcised have a low desire for sex. This myth could have increased the desire for women to undertake FGM/C. A community sensitization on correcting this myth is needed and creating awareness on the effects of FGM/C is also obligatory. A similar finding was reported by similar studies done on factors associated with female genital mutilation[14, 15]. The different finding was reported by a similar study done in Chad[16]. The reason for the difference could be the way this variable was handled in these two studies. In the previous study, marital status had only two categories, either married or cohabiting while in this study marital status has six categories. Never in Union was used as a reference category.

Furthermore, the wealth index of a woman predicted the FGM/C status. Those with the poorest wealth index were twice, those with the middle wealth index were almost twice and those who were richer were 1.2 times more likely to undergo FGM/C than women who had the richest wealth index. Similar studies have reported similar findings[15–17]. A contradicting finding was reported by a study done in Ghana where the wealth index was not a significant predictor of FGM/C[18]. The possible reasons could be due to differences in customs and traditions in these two countries.

Moreover, the study found the place of childbirth as a factor associated with FGM/C. Women who had their child born outside health facilities were 1.6 times more likely to be circumcised. The possible explanation for this could be women who are circumcised may fear stigma among health workers and opt for home childbirth. Previous studies have reported that women who are circumcised have fewer odds of using skilled birth attendants when compared with uncircumcised women[17, 18]. The consequence of this is increasing more risk of birth complications by allowing birth under the assistance of unskilled birth attendants.

The study also revealed that women with high parity were twice more likely to have FGM/C than those with low parity. Even though rural dwellings and low education attainment were not significant factors for FGM/C in this study, they showed increased odds for the practice. High parity was a significant factor for

FGM/C but this could be explained by the fact that women with high parity were also those with low education, and living in rural settings. Previous studies have reported the level of education and place of residence as factors associated with FGM/C[19]

Women who were in support of FGM/C should continue were almost nine times more likely to be mutilated. A similar finding was reported by a previous study done in Nigeria[20]. It is evidenced that women who are circumcised are more likely to facilitate their baby girls to be circumcised[20]. This explains that changing women's attitudes towards FGM/C is a cornerstone strategy for the eradication of FGM/C.

The study was without limitations, being a quantitative study limited the chances of obtaining a narrative explanation of the findings. Furthermore, it was a cross-sectional study which could have imperfect the causal-effect relationship of the reported factors

# Conclusion

FGM/C among women of reproductive age is a public health problem in Tanzania. Women who were subjected to FGM/C were those who were or ever lived with male partners, those of low wealth index, those with high parity, those living in Central, Northern, Eastern, Lake, and Southern highland zones and those in support of female circumcision should continue. The study recommends an intervention study to come up with a cost-effective strategy to eradicate FGM/C in Tanzania.

# Abbreviations

ANC
Antenatal Care
FGM/C
Female Genital Mutilation/Cutting
ICF
International's Institutional Review Board
NBS
National Bureau of Statistics
NIMR
Tanzania's National Institute for Medical Research
TDHS-MIS
Tanzania Demographic and Health Survey and Malaria Indicator Survey
USA
United States of America
WHO
World Health Organization
ZAMREC

Zanzibar Medical Ethics and Research Committee

# Declarations

### *Ethics approval and consent to participate*

This study analyzed secondary data (TDHS-MIS). No official ethical approval was needed. The permission to use the data for this particular research and publish it in peer-reviewed journals was obtained from DHS measures. The procedures for collecting DHS-MIS data, however, were approved by the following organizations: Tanzania's National Institute for Medical Research (NIMR), the Zanzibar Medical Ethics and Research Committee (ZAMREC), (ICF) International's Institutional Review Board, and the Centre for Disease Control and Prevention in Atlanta, USA. The participants' legal guardian/next of kin supplied written informed consent to participate in this study.

### *Consent for publication*

Not applicable (NA)

### *Availability of data and materials*

The datasets used during the current study are accessible through DHS-Measure permission

### *Competing interests*

The author declares no conflicts of interest.


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This study did not receive any funding.


### *Authors Contributions*

The conceptualization, analysis of data, and writing the manuscript were done by FM, the author


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# Figures

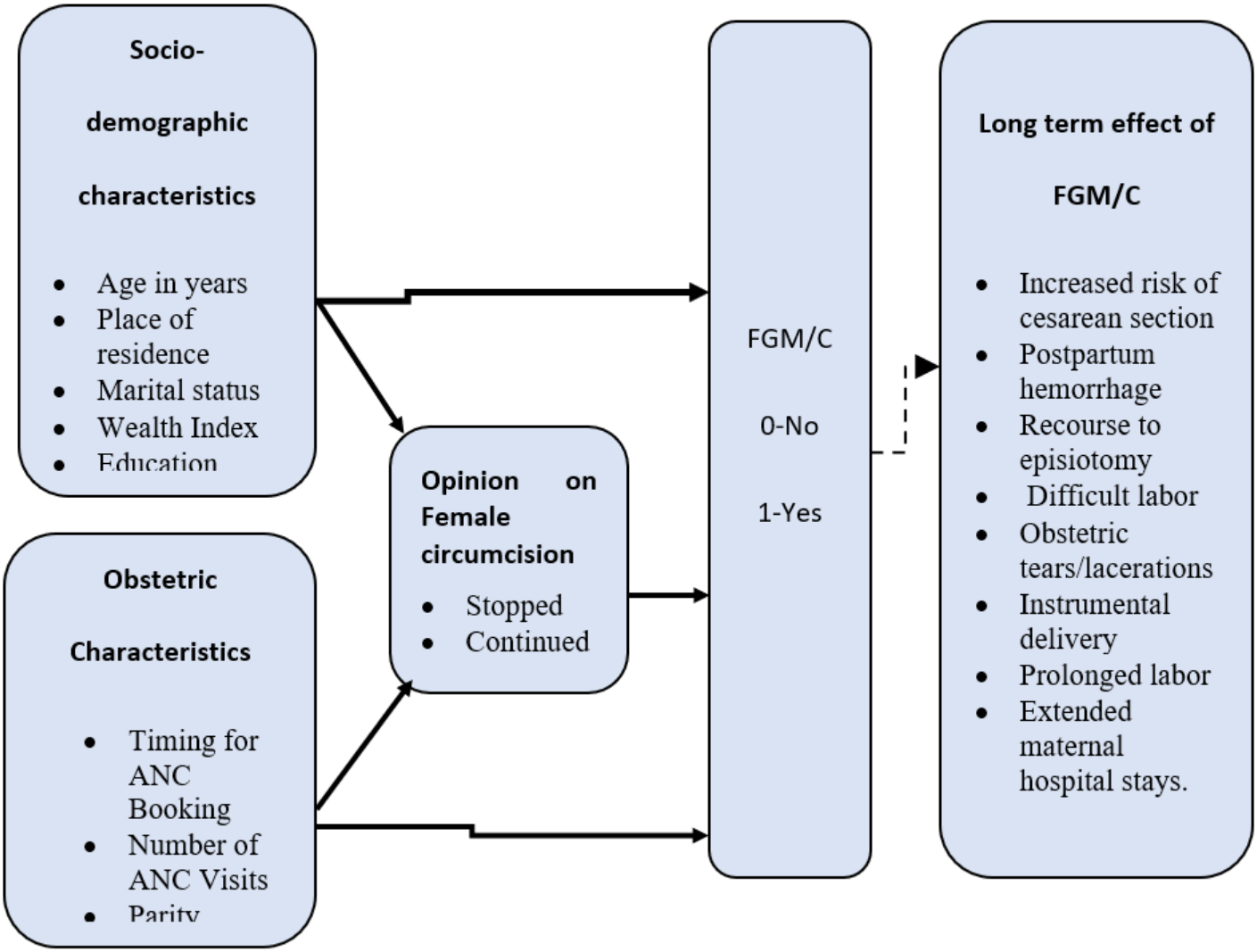


Figure 1

Conceptual framework of magnitude and factors associated with FGM/C

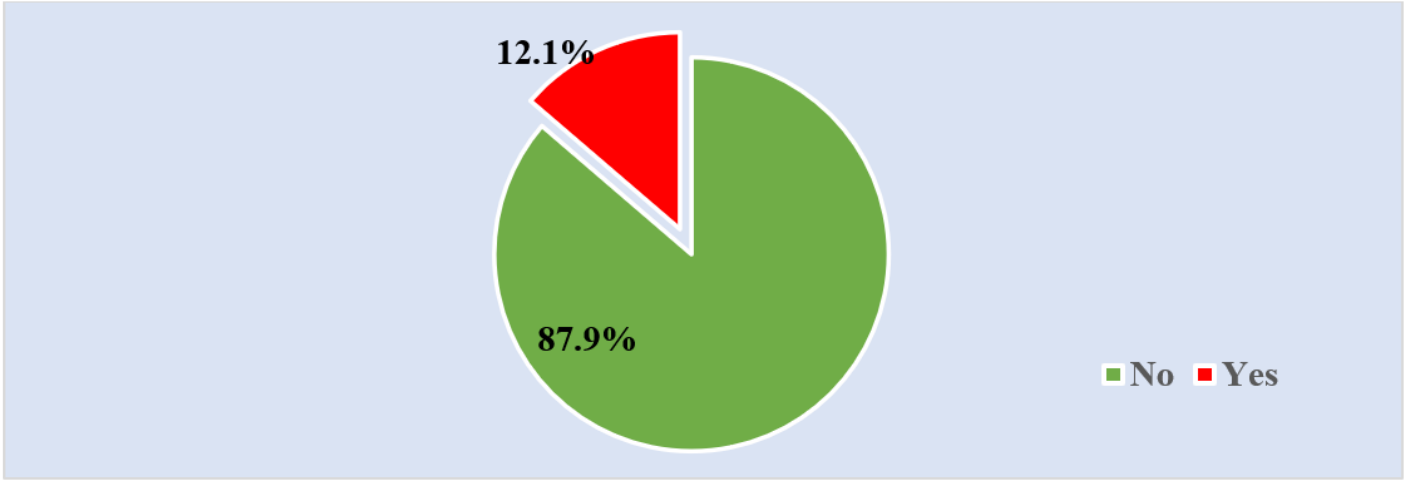

Figure 2

Proportion of women of reproductive age who were circumcised

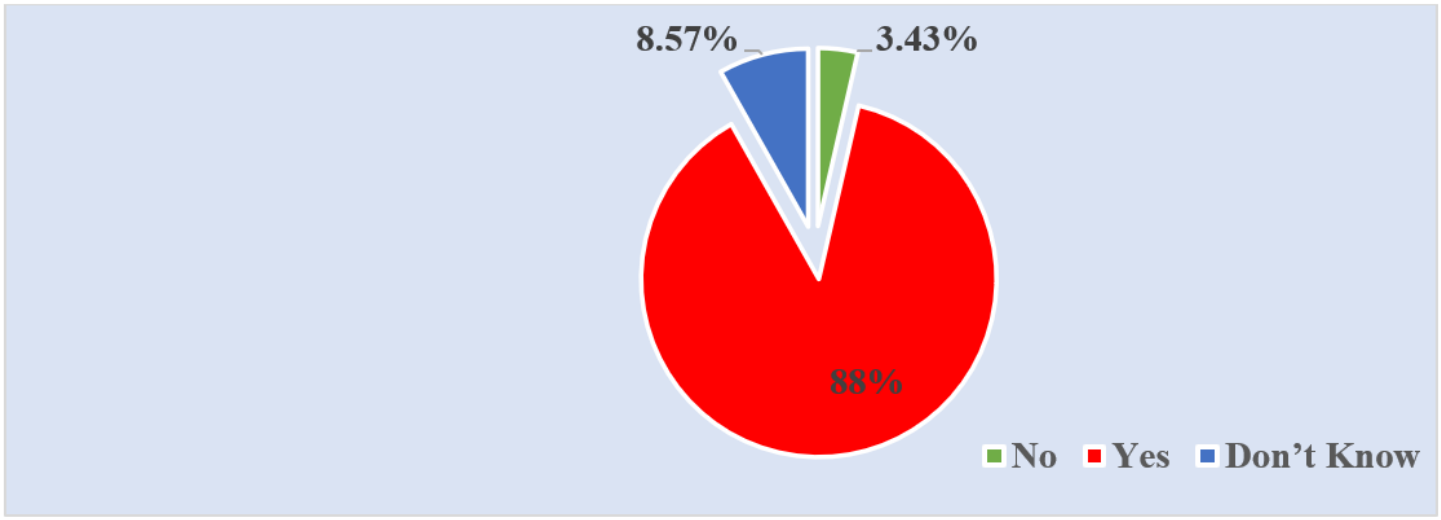


Figure 3

*Proportion of women's flesh removed from the genital area during female genital*

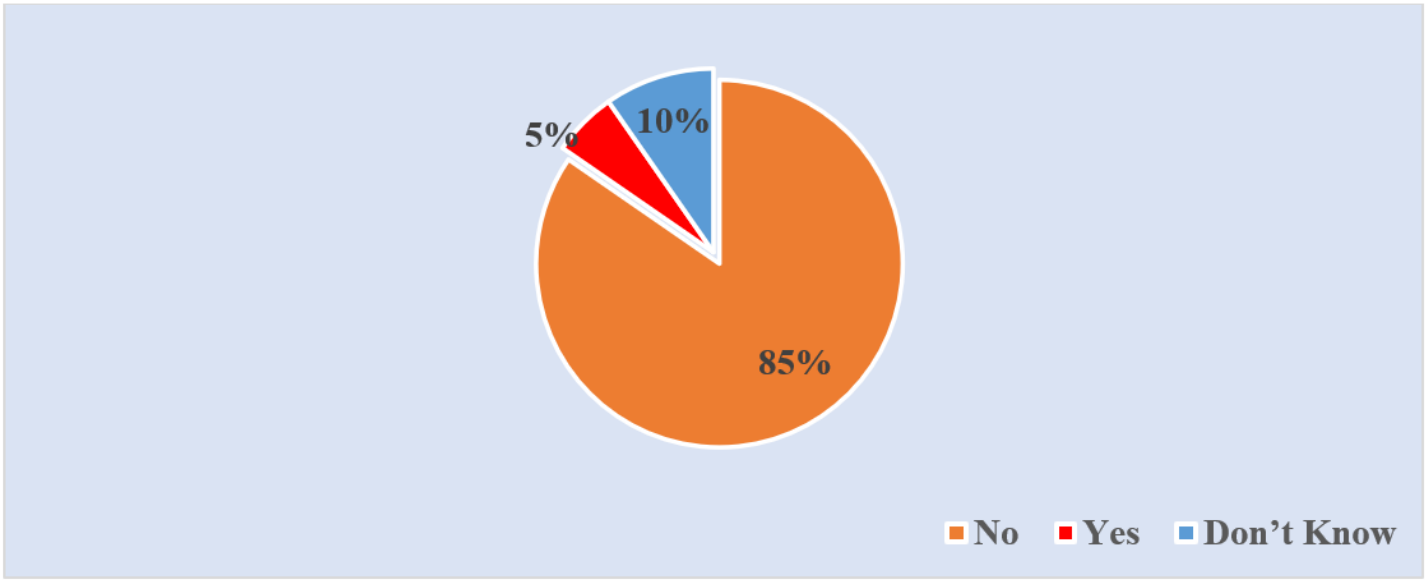


Figure 4

Proportion of women's genital area sewn closed during FGM/C

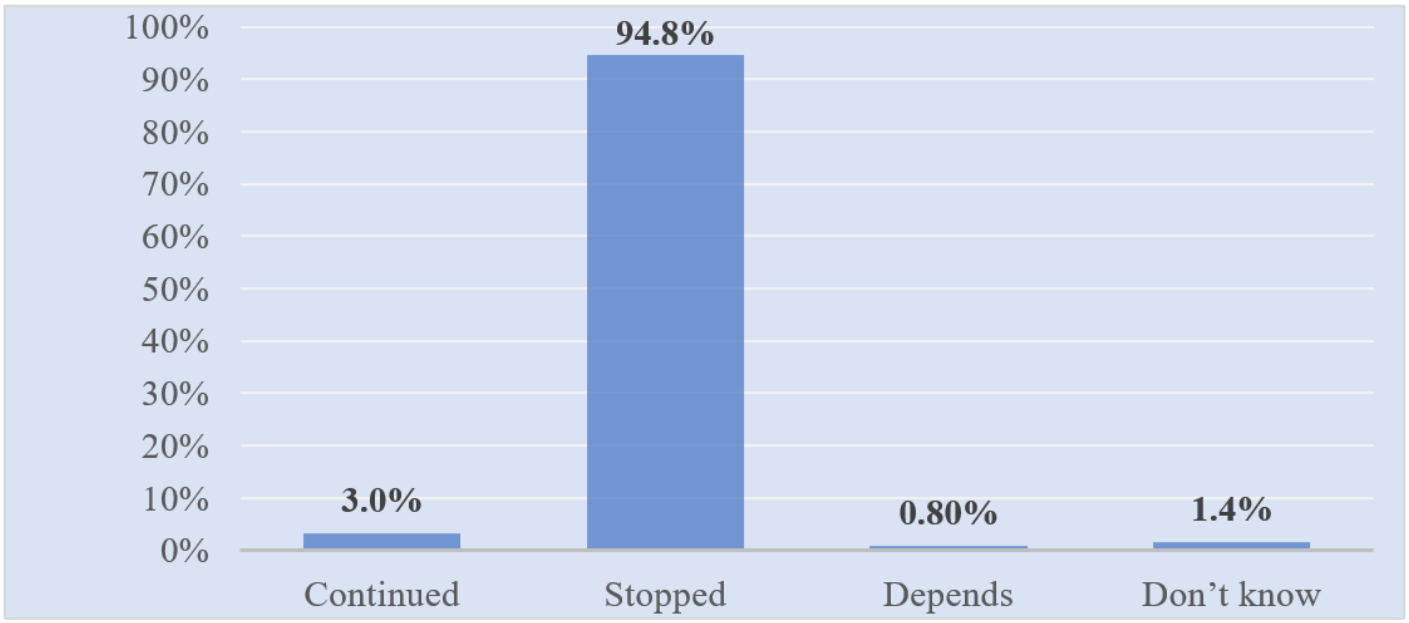


**Figure 5**

**Proportion of women in support of FGM/C be continued**