

Demographic attributes linked to various forms of female genital mutilation in Sudan

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Received: 28 Dec 2024; Accepted: 23 Jan 2025; Published: 01 Feb 2025

Citation: Haitham Abdalla Ali Ismail, Khalid Mohammed Eisa Eltalib, Heba Ahmed Masaad Mohamed, et al. Demographic attributes linked to various forms of female genital mutilation in Sudan. *Gynecol Reprod Health*. 2025; 9(2): 1-6.

ABSTRACT

Background: Female Genital Mutilation (FGM), which involves the partial or total removal of external female genitalia, is common in Sudan. The current study intends to examine the demographic characteristics associated with various types of female genital mutilation in Sudan.

Methodology: This study was carried out between November 2024 and January 2025 at El-Obeid Maternity Teaching Hospital and the Sudan Family Planning Association facility in El-Obeid, North Kordofan State, Sudan. The study included 450 women of

reproductive age with a history of FGM who agreed to participate while receiving antenatal care (ANC), vaccination, post-abortion care (PAC), and family planning services during the study period.

Results: Type III was the most common among rural populations, comprising 79/150 (52.6%), followed by Type I at 43/150 (28.6%), Type II at 20/150 (13.3%), and the undefined Type at 8/150 (5.3%), respectively, per capita. Approximately 192 out of 450 individuals (42.6%) suffered psychological or emotional harm. Out of 192 incidents, 88 (45.8%) were classified as Type I, 71 (37%) as Type II, and 27 (14%) as Type III. Among 190 Type I cases, 44 (23.2%) experienced urinary tract infections, 50 (26%) reported dysmenorrhea, and 23 (12%) suffered dyspareunia.

Conclusion: FGM is common in Sudan despite the change from severe to less dangerous forms. Younger women have milder FGM than older women. Trauma affecting mental health UTI, dysmenorrhea, and dyspareunia are frequent in Sudan. Additional community-level activities are needed to eliminate this practice in Sudan.

Patients and Method: This is a descriptive and analytical survey with retrospective collection, over a period of 6 years from January 1, 2018 to December 31, 2023 at the maternity ward of the Owendo University Hospital. It concerned all patients admitted for serious obstetric pathology in peripartum requiring admission to intensive care. Epidemiological, clinical and prognostic variables were studied.

Results: During the study period, 1889 patients were admitted to intensive care. We have retained 179 (9.5%). The average age was 28.3 ± 7.3 years with, 133 (74.3%) were unemployed, among them, 59 (44.36%) were learners. When the pregnancy had benefited from prenatal care (70.4%), the midwife was the provider for 68% of cases. At the time of admission to intensive care, 139 patients (77.6%) were from the operating room. Eclampsia was the reason for admission for 65 cases (36.3%), severe preeclampsia 50 cases (27.9%) and postpartum haemorrhage 27 cases (15.1%). The average length of hospitalization was 3.2 ± 1.5 days and 10 deaths (5.6%) were recorded.

Conclusion: Maternal morbidity and mortality remain high, and intensive care stays must be systematic for high-risk pregnancies (HRP).

Keywords

Female Genital Mutilation, Sudan, Women, Dysmenorrhea, Dyspareunia.

Introduction

Female genital mutilation (FGM) represents a significant issue in the realm of global public health [1]. Female genital mutilation/cutting affects more than 200 million women worldwide and is associated with obstetric complications, along with enduring urogynecological and psychosexual problems that are often neglected and insufficiently addressed [2].

FGM is a prevalent cultural practice that entails the partial or total excision of the external female genitalia. FGM encompasses all procedures that involve the partial or complete excision of the external female genitalia or other harm to the female genital organs for non-medical purposes [3]. In 1997, the World Health Organization categorized female genital mutilation into four distinct kinds. Subsequent experience with this classification has indicated the necessity to further subdivide these categories to more accurately represent the variations of FGM. The severity, according to the extent of tissue damage, and health risk are directly associated with the type of FGM conducted and the quantity of tissue excised. Type I involves the partial or complete excision of the clitoral glans and/or the prepuce or clitoral hood. Type II. Partial or complete excision of the clitoral glans and the labia minora. Type III, also known as infibulation. Constriction of the vaginal orifice accompanied by the formation of a protective seal.

The seal is created by incising and rearranging the labia minora or labia majora. The vaginal aperture is covered with or without excision of the clitoral prepuce and glans (Type I FGM). Type IV encompasses all detrimental practices inflicted on the female genitalia for non-medical reasons, such as pricking, piercing, incising, scraping, and cauterization [4].

Female genital mutilation (FGM) affects around 87% of females aged 15 to 49 years in Sudan, with midwives performing the majority of the procedures (64%). In 2016, the Federal Ministry of Health in Sudan approved the World Health Organization's global policy to prevent FGM from being performed by healthcare providers. Although Sudan has undertaken a commendable health sector response to FGM, there is a need to assess the quality and efficacy of previous and current treatments [5]. The current study aims to analyze the demographic factors related to different kinds of female genital mutilation in Sudan.

Materials and Methods

A questionnaire-based study with a descriptive prospective design was conducted between November 2024 and January 2025 at El-Obeid Maternity Teaching Hospital and the Sudan Family Planning Association center, El-Obeid branch, North Kordofan State, Sudan. The study comprises 450 women of reproductive age with a history of female genital mutilation (FGM) who consented to participate when seeking prenatal care (ANC), immunization, post-abortion care (PAC), and family planning services during the study period. A structured questionnaire with inquiries about

demographics such as age, educational attainment, domicile, and occupation. Women who are uncircumcised were excluded. Data is inputted into an Excel spreadsheet and subsequently exported to SPSS. Descriptive statistics in the form of frequency, accompanied by percentages and graphs, were obtained.

Informed Consent

Informed consent is obtained in writing from each participant, who is briefed on the study's purpose and objectives. The personal information of participants is safeguarded, ensuring data confidentiality. Cultural confidentiality has been addressed.

Ethical Consent

Consent that adheres to ethical standards was secured from the Sudan Family Planning Association (SFPA).

Ethical Approval

The proposal has been submitted to the ethics review committee at the University of Kordofan.

Results

This study included 450 women with a history of FGM, aged 14 to 80 years, with a mean age of 33.65 and Std. Deviation: 12.155. The majority of participants were between the ages of 21 and 25, followed by those between the ages of 31 and 35 and 26 and 30, who accounted for 86/450 (19.1%), 80/450 (17.7%), and 69/450 (15.3%). The most common category of FGM was kind I, followed by Type III, Type II, and Type IV (non-defined type), which accounted for 190/450 (42.2%), 177/450 (39.3%), 68/450 (15.1%), and 15/450 (3.3%), respectively. Approximately 282/450 (62.6%) of the participants lived in cities, 150/450 (33.3%) in rural areas, and the remainder 18/450 (4%) were nomads. Out of the 282 urban houses, 141/282 (50%) reported Type I FGM, 42/282 (14.8%) Type II, 92/282 (32.6%) Type III, and 7/282 (2.4%) reported undefined Type of FGM. The most prevalent type among rural populations was Type III, followed by Type I, Type II, and the undefined Type, with 79/150 (52.6%), 43/150 (28.6%), 20/150 (13.3%), and 8/150 (5.3%), respectively, per capita. The majority of participants in this study were married, 399/450 (88.7%), as shown in Table 1, Figure 1.

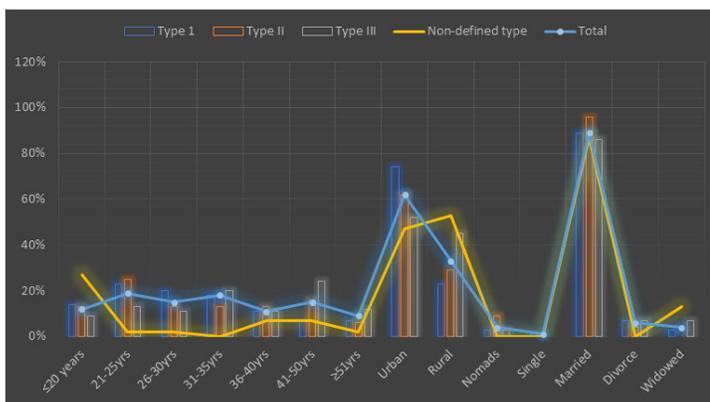


Figure 1: Describes the study population by FGM type, age, residence, and marital status.

Table 1: Shows the distribution of study subjects by FGM type, age, residence, and marital status.

Variable	Type I	Type II	Type III	Type IV	Total
Age					
≤20 years	27	9	16	4	56
21-25	43	17	23	3	86
26-30	38	9	19	3	69
31-35	35	9	36	0	80
36-40	21	9	19	1	50
41-50	13	11	42	1	67
≥51+	13	4	22	3	42
Total	190	68	177	15	450
Residence					
Urban	141	42	92	7	282
Rural	43	20	79	8	150
Nomads	6	6	6	0	18
Total	190	68	177	15	450
Marital Status					
Single	2	0	0	0	2
Married	169	65	152	13	399
Divorce	14	3	12	0	29
Widowed	5	0	13	2	20
Total	190	68	177	15	450

Most individuals with Type I FGM had a primary level of education (53/190, 28%), and the majority were housewives (97/190, 51%). Of the 68 Type II FGM cases, the majority (20/60) had secondary education, and 44/68 (64.7%) were housewives. Of the 177 individuals with Type III, the majority had primary education (59/177, 33.3%), and 112/177, 63.3%, were housewives, as shown in Table 2 and Figure 2.

Table 2: Shows the distribution of the study subjects by FGM type, education, and occupation.

Variable	Type I	Type II	Type III	Type IV	Total
Education					
Illiterate	28	9	48	6	91
Primary	53	18	59	3	133
Secondary	44	20	48	4	116
Graduate	37	17	18	1	73
Postgraduate	28	4	4	1	37
Total	190	68	177	15	450
Occupation					
Housewife	97	44	112	8	261
Employee	9	2	7	2	20
Teacher	13	2	4	0	19
Farmer	10	1	15	3	29
Others	61	19	39	2	121
Total	190	68	177	15	450

Table 3 and Figure 3 summarize the prevalence of FGM types based on psychological or emotional damage and urinary or gynecological disorders. Approximately 192/450 (42.6%) experienced psychological or emotional damage. Of the 192 instances, 88 (45.8%) were Type I, 71 (37%) were Type II, and 27

(14%) were Type II. Out of 190 Type I cases, 44 (23.2%) reported UTI, 50 (26%) reported Dysmenorrhea, and 23 (12%) reported Dyspareunia. However, proportions within entire groups produce a changeable appearance (see Figure 3).

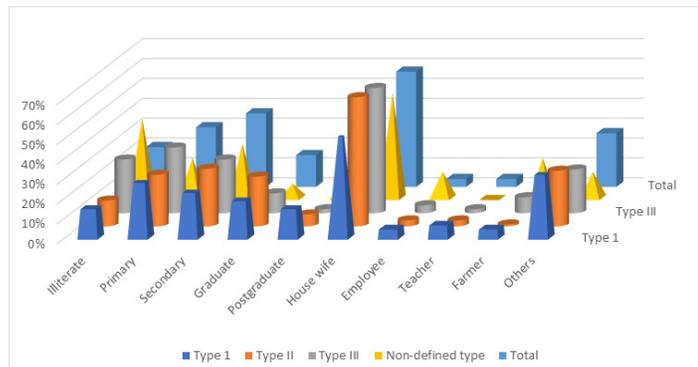


Figure 2: Describes the study population by FGM type, education, and occupation.

Table 3: Shows the distribution of FGM types by psychological or emotional trauma and urinary or gynecological disorders.

Variable	Type 1	Type II	Type III	Non-defined type	Total
Psychological or emotional trauma					
NO	102	41	106	9	258
Yes	88	27	71	6	192
Total	190	68	177	15	450
Urinary or gynecological issues					
UTI	44	17	35	1	97
Dysmenorrhea	50	17	42	4	113
Dyspareunia	23	6	32	1	62
None	73	28	68	9	178
Total	190	68	177	15	450

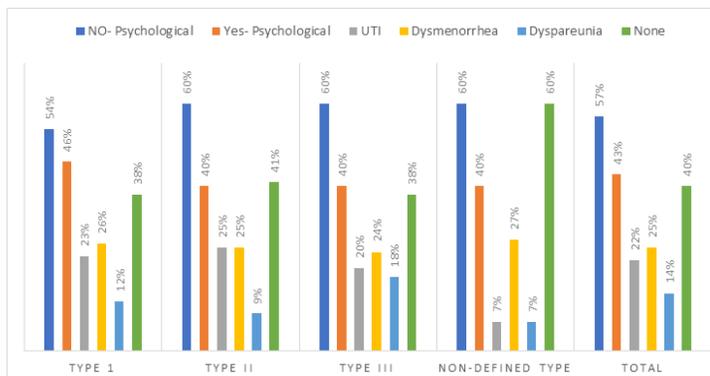


Figure 3: Describes the study patients based on psychological or emotional trauma and urinary or gynecological disorders.

Discussion

Despite several efforts made at different levels in Sudan to prevent or lessen the severity of FGM, the practice is still practiced by Sudanese people from all socioeconomic backgrounds. However, Type I FGM, the less severe kind, was present in the majority of

patients in this study, followed by Type III and Type I. According to a prior study from Sudan, Type 3 FGM (50.4%) was the most common, followed by Type 2 (35%) and Type 1 (8.5%). The prevalence of FGM in Sudan was 87.2%. In terms of long-term issues that can arise as well as several short-term complications brought on by the physiological or mechanical degeneration of the female genital anatomy, type 2 and 3 FGM/C remain a significant health issue [6].

The results of this research suggest that Types I and II are more frequently observed in younger women under the age of 25, whereas Type III tends to be more prevalent in older individuals over 25 years of age. This could suggest the influence of ongoing efforts to mitigate or eliminate this practice in Sudan. The findings of the current study indicated that Type I FGM was more prevalent within urban populations, whereas Type III was observed to be more frequent among rural inhabitants. This phenomenon may be linked to the limited awareness surrounding FGM in rural areas. This hypothesis has been previously documented [7]. The enforcement of the law appears to be more pronounced in urban areas. Previous reports have also indicated such suggestions. Education affects attitudes toward FGM; however, women's experiences with cutting can perpetuate the practice. Advancing female education necessitates robust political commitment to enforce legislation against the practice of FGM [8]. Education and job do not impact the extent of FGM because it is typically perpetrated at a young age. However, parental attempts to avoid FGM in their own children may be influenced by their level of education and the jobs they get afterward.

A significant proportion of the participants in this study (42.6%) indicated experiencing psychological or emotional distress because of FGM. Individuals who have undergone FGM/C often face significant physical and psychological repercussions that can negatively impact their overall wellbeing, including dimensions of their sexual functioning. FGM is linked to considerable physiological, psychological, social, and sexual harms experienced by women and girls [9,10]. The negative repercussions on physical, mental, and sexual health can manifest in both immediate and prolonged forms, with certain effects frequently persisting across an individual's lifetime [11]. The current body of published research has meticulously explored the implications of female genital mutilation on diverse dimensions of wellbeing, encompassing physical, sexual, emotional, and mental health. This comprehensive investigation has, in turn, informed the development of protocols and suggestions for the treatment of women impacted by this practice. The experiences of women who have undergone female genital mutilation during the intricate phase of menopause have been markedly overlooked in discussions and analyses. An examination of the existing literature revealed an absence of published studies on this topic, and currently, there are no clinical guidelines pertaining to the management of menopause in women who have undergone FGM. Research aims to underscore the importance of this gap by investigating the clinical implications that the lack of natural hormones has on vulvovaginal tissues, as

well as its influence on urogenital and sexual function. This analysis delves into the psychological aspects of women's experiences with FGM during menopause, while also addressing the significant barriers they face in accessing adequate healthcare [12].

Currently, approximately 21.5% have reported experiencing frequent urinary tract infections (UTI), with the majority having Type I FGM. The impact on quality of life due to lower urinary tract symptoms (LUTS) in women who have undergone female genital mutilation (FGM) is prevalent. Lower urinary tract symptoms are prevalent and can be quite distressing for women with FGM. Healthcare providers attending to patients with FGM should assess for LUTS [13].

The study indicated that 25% of individuals experienced dysmenorrhea. A study assessed menstruation symptoms and dysmenorrhea among university students in Mogadishu, Somalia, who experienced FGM/C, compared to those in Ankara, Türkiye, who did not undergo the procedure. Among individuals with FGM/C, 66% experienced a menstrual duration of 3-5 days, whereas 52.0% of those without FGM/C had a duration of 6-8 days ($p<0.05$). In a study of females without FGM/C, 85.1% exhibited a menstrual cycle lasting 21-35 days, whereas 35% of those with FGM/C experienced a cycle shorter than 20 days ($p<0.05$). A study indicated that 95% of female circumcisers and 90.2% of non-circumcisers report experiencing dysmenorrhea ($p<0.05$). Painkillers were utilized by 28% of women with FGM/C and 26.3% of those without, with a statistically significant difference ($p<0.05$). Individuals without FGM/C exhibited a total MSS score of 3.34 ± 0.72 , whereas those with FGM/C recorded a score of 2.91 ± 0.74 ($p<0.05$). The non-FGM/C group exhibited a higher score in negative impacts (3.20 ± 0.75), whereas the FGM/C group demonstrated a greater score in coping mechanisms (2.91 ± 1.13) ($p<0.05$) [14].

Additionally, dyspareunia was reported in 13.8% of participants in this study. A significant percentage of individuals with FGM Patients pursued reconstruction to address dyspareunia, inability to achieve orgasm, chronic infections, normalization of appearance, and/or to achieve a sense of normalcy. Most patients seek treatment for issues related to orgasm and dyspareunia, with median scores recorded at 4.6 and 5.2, respectively. Patients rated their desire for sexual activity at 3.9, the lowest score, while 50% voiced concerns about the appearance of their genitalia, affecting self-confidence in 85.7% of cases [15]. There is limited research on the sexual function of women who have experienced female genital mutilation (FGM) and the effects of clitoral reconstruction following FGM. Surgery is indicated for chronic clitoral pain, clitoral dyspareunia, or for issues pertaining to female identity. Surgical resection of fibrous tissue surrounding the clitoris, in conjunction with the excision of painful post-traumatic neuromas, may improve pain relief and sexual function. In asymptomatic women, multidisciplinary non-surgical management may offer similar or enhanced benefits with reduced risks compared to surgical intervention [16].

Conclusion

Despite the shift from severe forms of FGM to those considered less harmful, the practice remains widespread in Sudan. Women under the age of 25 experience a milder form of FGM compared to those who are older than 25. Trauma that affects psychological or emotional well-being in Sudan, common complications include UTI, Dysmenorrhea, and Dyspareunia. Additional initiatives at the community levels are considered crucial to reduce and eradicate this practice in Sudan.

Acknowledgement

The authors express their gratitude to the individuals at the Sudan Family Planning Association in El-Obeid for their assistance in data collection. The authors would like to express their gratitude to Miss Najla Adam Alsherif for her assistance with the data analysis.

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