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Female Genital Mutilation/Cutting and Breastfeeding Outcomes: The Modifying Effects of Healthcare Access and Women's Attitudes to FGM/C

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Abstract: The prevalence of female genital mutilation/cutting (FGM/C) in Nigeria is on the rise, although the practice has no known medical/health benefits. This study aims to assess FGM/C's effect on breastfeeding outcomes and to identify the role of women's attitudes and their access to healthcare services on these relationships. Associations between FGM/C and breastfeeding outcomes were measured using multi-logistic regression. About 32% of women underwent FGM/C, and 23% believed FGM/C should continue. Women exposed to FGM/C were less likely to initiate early breastfeeding (OR = 0.56, [95% CI = 0.47–0.66]) or to breastfeed exclusively (0.64, [0.57–0.73]). FGM/C acceptance reduced odds of early initiation of breastfeeding (0.57, [0.45–0.73]) (p for interaction < 0.001) and exclusive breastfeeding (0.65, [0.59–0.78]) (p for interaction < 0.001). Four or more antenatal care visits while pregnant modified the associations between FGM/C and early initiation (1.55, [1.26–1.90]) (p for interaction < 0.001) or exclusive breastfeeding (2.01, [1.73–2.330]) (p for interaction < 0.001), respectively. FGM/C is associated with breastfeeding outcomes, but this association may be improved with healthcare access and attitudinal changes towards FGM/C. Targeted public health education interventions raising awareness about FGM/C and breastfeeding and policy changes increasing access to prenatal healthcare services in underserved areas are recommended.

Keywords: female genital mutilation/cutting (FGM/C); early initiation of breastfeeding (EIBF); exclusive breastfeeding (EBF); breastfeeding duration (BFD); Nigeria; attitude towards continued FGM/C; access to healthcare services; demographic health survey (DHS)

1. Introduction

According to the United Nations Children's Fund (UNICEF), about 68 million girls are at risk of experiencing female genital mutilation/cutting (FGM/C) between 2015 and 2030, and Nigeria has the third highest rate of FGM/C exposure globally, with about 19.9 million survivors [1]. Between 2013 and 2018, the prevalence of FGM/C in Nigerian girls aged 0 year to 14 years old increased from 16.9% to 19.2% while the prevalence in girls/women aged 15 years to 49 years old dropped from 25% to 20% [1]. The high prevalence of FGM/C in Nigeria is compounded by the level of FGM/C awareness, as well as by the knowledge and attitudes of women of childbearing age towards the discontinuation of FGM/C practice in different Nigerian communities [2,3]. Social acceptance, culture and tradition have been found to majorly influence the attitudes and perceptions of new mothers towards FGM/C and are critical for the discontinuation of the practice of FGM/C in Nigeria [4,5]. Although FGM/C was made illegal and criminalized by the Violence Against Persons (Prohibition) Act of 2015 (VAPPA) [5], a recent UNICEFF report released in 2022 showed that FGM/C among 0–15-year-old Nigerian girls is on the rise [6]. Recent studies by Obiora, Maree, and Nkosi-Mafutha (2021), Pastor-Bravo and Martinez (2021), and Ezeoke et al. (2021)

found that young adolescent girls and women in Nigeria still accept FGM/C practices as the cultural/social norm [5,7], and that circumcised women usually intend to circumcise their daughters in the future [8]. Others found that over half of Nigerian women did not know if they had undergone FGM/C, 21% intended to circumcise their daughters [9], and women in the southern part of Nigeria were more aware of FGM/C than women in other parts of Nigeria [10]. It is likely that the practice of FGM/C in some regions in Nigeria have continued due to a poor knowledge of the health implications of the practice [3,11]. Shukralla and McGurgan (2020) and Pallitto and Ahmed (2021) found that pregnant women who had undergone FGM/C faced higher risks of experiencing adverse maternal, obstetric, and neonatal [12] outcomes when compared to women who had not undergone FGM/C [13,14]. Similarly, Issa Rashid et al. (2021) and Nonterah et al. (2020) found that FGM/C increased the odds of caesarean sections, episiotomies during delivery, post-partum hemorrhaging, and long hospital stays [14,15]. Albert, Bailey, and Duaso in their 2015 study found that FGM was associated with child morbidity [16]. It is important to note that their study sample size was small (94 women) and concentrated on women who had undergone only Type 3 FGM/C (cutting the labia minora or labia majora to make the vaginal orifice narrower and may include infibulation) [17].

FGM/C, a serious form of both child abuse and gender-based violence [6], is a major indicator of gender inequality that has been found to negatively affect different health behaviors [17,18]. The traumatic effects of FGM/C are known to last across the victim's life course [19] and affect healthy behaviors and breastfeeding outcomes. Feeding habits in the first two years after birth lay a strong foundation for an infant's development and growth. Early initiation of breastfeeding (EIBF), exclusive breastfeeding (EBF), and continued breastfeeding for up to two years after birth are some of the indicators for assessing infant and young child feeding practices [20]. However, the breastfeeding outcomes of new mothers may be affected by the perception and breastfeeding experiences of family members—especially their mothers [21]. This means that any negative breastfeeding outcomes experienced by FGM/C-exposed women may be passed on to their future daughters knowingly or unknowingly. Holland et al. (2018) associated exposure to violence/trauma with sub-optimal breastfeeding outcomes, as have other studies [21], but their study concentrated on sexual/physical violence experienced in childhood and adulthood [22] and on intimate partner violence around the time of pregnancy [21]. While studies assessing abuse/trauma and breastfeeding behaviors abound, no study to our knowledge has specifically assessed FGM/C and breastfeeding outcomes in Nigerian women, nor has any study assessed the modifying effects of access to healthcare services and women's attitudes towards the continued practice of FGM/C on this association. This is important because common trauma resulting from FGM/C such as sever postpartum pain and cesarean sections [5] may result in delayed breastfeeding outcomes [23], and prolonged postpartum hemorrhaging—also a possible complication from exposure to FGM-C—may result in difficulties with initiating and continuing with breastfeeding [15]. Yet, women's attitudes towards FGM/C discontinuation have remained unchanged over the years (between 2009 and 2018) [24], even though FGM/C has been criminalized in Nigeria since 2015 through the VAPPA (2015) [5]. The purpose of this study is (1) to assess the prevalence of FGM/C as well as the breastfeeding outcomes in Nigerian women who have undergone FGM/C, (2) to analyze the impact of access to health care services on breastfeeding outcomes of women who underwent FGM/C factors, and (3) to analyze the impact of Nigerian women's attitudes to the continued practice of FGM/C on breastfeeding outcomes. We hypothesize that experiencing FGM/C is a risk factor for delayed initiation of breastfeeding, non-exclusive breastfeeding, and for breastfeeding for less than the recommended [25] six months after birth. We also hypothesize that positive attitudes towards the discontinuation of FGM/C by Nigerian women, as well as access to healthcare services such as antenatal care (ANC) and skilled birth in public or private facilities, will improve the breastfeeding outcomes in women who underwent FGM/C.

2. Results

2.1. Sample Characteristics of Study Participants

About 5202 (32%) experienced FGM/C while 11,025 (68%) had no experience of FGM/C, 4073 (31%) breastfed their babies within the first hour of birth, and 10,624 (65.5%) breastfed for six months or more. Over half the women (58%) in this study had at least four antenatal care (ANC) visits during their pregnancy, approximately three in five women had a home birth (60%), and nearly one in four gave birth in a public or government-run health facility. Around 10,930 women (67%) thought that FGM/C should be stopped, while only 3743 women (23%) thought it should be continued. The average age of the women in this study was 30 years old (±9.7 years). Only 1585 (10%) were minors (less than 18 years old), 6316 (39%) had a secondary school education, and 2256 (14%) had a higher education. Over 70% (11,372 women) were married and only 6% (995) were separated, divorced, or widowed. About 7792 (48%) of the women in this study were rich, 5469 (34%) were poor, 7869 (49%) lived in rural areas, and 11,298 (70%) were working at the time of the survey. About 7650 (47%) practiced Christianity, 8503 (52.4%) Islam, and 74 (0.5%) traditional religions. There were 7650 (47%) Igbo women, 2937 (23%) Yoruba women, 5630 Hausa or Fulani women, and 1447 (11%) women from different minority tribes in Nigeria. The majority of the women (8609) were from the northern part of Nigeria (54%), approximately 15% were from the south-east (2395), 12% from the south-south (1923), and nearly 20% from the south-west (3220).

2.2. Breastfeeding Outcomes and Sociodemographics of Nigerian Women by FGM/C Exposure

Table 1 summarizes the breastfeeding outcomes and the social demographic characteristics of the Nigerian women in this study based on their exposure to FGM/C. Among the Nigerian women who experienced FGM/C, only 29% of them initiated breastfeeding within the first hour of birth. Less than half the women (46%) exclusively breastfed their babies, and less than one in five women (17%) breastfed their babies for at least six months after birth. Over three in five women exposed to FGM/C made four or more ANC visits while pregnant (63%), 30% gave birth in a public hospital, and about 58% had home births. Less than half (46%) the women who were exposed to FGM/C thought that FGM/C should be stopped, while the majority of those who were not exposed to FGM/C (77%) thought that FGM/C should be discontinued.

Table 1. Characteristics of Nigerian women based on exposure to Female Genital Mutilation (FGM/C).

	Total	FGM/C [2] (Yes)	FGM/C (No)	
	n (%) [1]	n (%)	n (%)	x [3]
Total population	16,227	5202 (32.1%)	11,025 (67.9%)	
Breastfeeding Outcomes				
Early Initiation of Breastfeeding (EIBF)				0.012 *
Within 1 h	4073 (30.6%)	1250 (29.2%)	2823 (31.3%)	
Over 1 h	9232 (69.4%)	3037 (70.8%)	6195 (68.7%)	
Exclusive breastfeeding (EBF)				<0.001 ***
No	4206 (53.8%)	1491 ((58.9%)	2715 (51.4%)	
Yes	3606 (46.2%)	1042 (41.1%)	2564 (48.6%)	
Breastfeeding duration				0.966
<6 months	13,513 (83.3%)	4331 (83.3%)	9182 (83.3%)	
≥6 months	2714 (16.7%)	871 (16.7%)	1843 (16.7%)	

Table 1. *Cont.*

	Total	FGM/C [2] (Yes)	FGM/C (No)	
	n (%) [1]	n (%)	n (%)	x [3]
Other factors				
Number of ANC visits during pregnancy				<0.001 ***
<4 ANC visits	3361 (41.7%)	980 (37.2%)	2381 (43.8%)	
≥4 ANC visits	4703 (58.3%)	1652 (62.8%)	3051 (56.2%)	
Place of birth				<0.001 ***
Public/Government facilities	1930 (23.9%)	578 (29.9%)	1352 (24.9%)	
Private facilities	1317 (16.3%)	536 (20.4%)	781 (14.4%)	
Home births	4817 (59.7%)	1518 (57.7%)	3299 (60.7%)	
Attitude towards FGM/C				0.000
Stop	10,930 (67.4%)	2405 (46.2%)	8525 (77.3%)	
Continue	3743 (23.1%)	2170 (41.7%)	1573 (14.3%)	
Undecided (depends on situation)	1554 (9.6%)	627 (12.1%)	927 (8.4%)	
Socio-demographic characteristics				
Age				<0.001 ***
Minor (<18 years)	1585 (9.8%)	448 (8.6%)	1137 (10.3%)	
Adult (≥18 years)	14,642 (90.2%)	4754 (91.4%)	9888 (89.7%)	
Education				<0.001 ***
No education	5310 (32.7%)	1643 (31.6%)	3667 (33.3%)	
Primary education	2345 (14.5%)	962 (18.5%)	1383 (12.5%)	
Secondary education	6316 (38.9%)	2010 (38.6%)	4306 (39.1%)	
Higher education	2256 (13.9%)	587 (11.3%)	1669 (15.1%)	
Marital Status				<0.001 ***
Never married	3860 (23.8%)	981 (18.9%)	2879 (26.1%)	
Married	11,372 (70.1%)	3835 (73.7%)	7537 (68.4%)	
Divorced/Separated/widowed	995 (6.1%)	386 (7.4%)	609 (5.5%)	
Wealth				0.003 **
Poor	5469 (33.7%)	1712 (32.9%)	3757 (34.1%)	
Middle class	2965 (18.3%)	1028 (19.8%)	1937 (17.6%)	
Rich	7792 (48.0%)	2462 (47.3%)	5330 (48.3%)	
Residence				<0.001 ***
Urban	8358 (51.5%)	2932 (56.4%)	5426 (49.2%)	
Rural	7869 (48.5%)	2270 (43.6%)	5599 (50.8%)	
Currently working				<0.001 ***
No	4929 (30.4%)	1239 (23.8%)	3690 (33.5%)	
Yes	11,298 (69.6%)	3963 (76.2%)	7335 (66.5%)	
Religion				0.013 *
Christian	7650 (47.1%)	2467 (47.4%)	5183 (47.0%)	
Islam	8503 (52.4%)	2723 (52.3%)	5780 (52.4%)	
Traditionalist	74 (0.5%)	12 (0.2%)	62 (0.6%)	

Table 1. *Cont.*

		Total	FGM/C [2] (Yes)	FGM/C (No)	
		n (%) [1]	n (%)	n (%)	x [3]
Ethnicity					<0.001 ***
	Igbo	3060 (23.4%)	1242 (27.1%)	1818 (21.4%)	
	Yoruba	2937 (22.5%)	1361 (29.7%)	1576 (18.6%)	
	Hausa/Fulani	5630 (43.1%)	1842 (40.2%)	3788 (44.6%)	
	Minorities	1447 (11.1%)	136 (3.0%)	1311 (15.4%)	
Region					<0.001 ***
	South-East	2395 (14.8%)	1083 (20.8%)	1312 (11.9%)	
	South-South	1923 (11.8%)	522 (10.0%)	1401 (12.7%)	
	South-West	3220 (19.8%)	1318 (25.3%)	1902 (17.3%)	
	North	8690 (53.5%)	2280 (43.8%)	6410 (58.1%)	

[1] n: Total Sample size (unweighted), %: weighted percentages. [2] FGM/C: Female Genital Mutilation/cutting. [3] X: *p* value for Chi- square. * $p < 0.05$, ** $p < 0.01$ and *** $p < 0.001$.

Less than one in five women who experienced FGM/C were minors at the time of the survey (9%), had a higher education (11%), or had never been married (19%). Majority of the women were 18 years old or more (92%), 39% had a secondary education, and 32% had no education at all. Of the FGM/C-exposed women, 74% were married, 7% separated, divorced, or widowed, 33% poor, and 44% rich. More than 56% lived in urban areas and nearly 70% were gainfully employed at the time of the survey. More than half the population practiced Islam (52%) and less than half (47%) practiced Christianity. We found that a little over one in four women were Igbo (27%) or Yoruba (30%) while two in five women (40%) were either Hausa or Fulani. Similarly, about one in five women were from the south-eastern (21%) or the south-western (25%) parts of Nigeria, respectively, and one in two women were from the Northern part of Nigeria (44%).

2.3. Association between FGM/C and Breastfeeding Outcomes in Nigerian Women

Table 2 below assessed the relationship between FGM/C and the breastfeeding outcomes—EIBF, EBF, and BFD—after accounting for confounders and sociodemographic factors. This study found that Nigerian women who experienced female genital mutilation had 44% lower odds of initiating breastfeeding within one hour of birth [Odds ratio (OR) = 0.56, 95% Confidence Interval (CI) = 0.47–0.66] when compared to women who did not undergo female genital mutilation. The odds of exclusive breastfeeding (EBF) were 36% lower among Nigerian women who underwent FGM/C (OR = 0.64, 95% CI = 0.57–0.73) compared to women who did not undergo FGM/C. However, women who underwent FGM/C were as likely to breastfeed their babies for six months or more as women who did not undergo FGM/C.

Women who made four or more ANC visits while pregnant had 25% higher odds of EIBF (OR = 1.25, 95% CI = 1.04–1.50) and 24% higher odds of EBF (OR = 1.24, 95% CI = 1.08–1.41) when compared to women who made less than four ANC visits while pregnant. Women who gave birth in private facilities (OR = 0.75, 95% CI = 0.63–0.90) or those who gave birth at home (OR = 0.80, 95% CI = 0.68–0.95) had 25% and 20% lower odds of exclusively breastfeeding their babies. On the other hand, the odds of breastfeeding their babies for at least six months were 23% higher in women who gave birth in private hospitals (OR = 1.23, 95% CI = 1.02–1.48) compared to public hospitals, and 19% higher in women who had home births (OR = 1.19, 95% CI = 1.00–1.40) when compared to women who gave birth in public or government facilities. Compared to women who thought that FGM/C should be discontinued/stopped, those who were undecided about discontinuing/stopping the FGM/C practice had higher odds of breastfeeding for six months or more (OR = 1.25, 95% CI = 1.05–1.50).

Table 2. Association between FGM/C [1] and breastfeeding outcomes in Nigerian women.

	Early Initiation of Breastfeeding/EIBF ($\leq$1 h)	Exclusive Breastfeeding/EBF (Yes)	Breastfeeding Duration/BFD ($\geq$6 Months)
	OR [2] (95% CI [3])	OR (95% CI)	OR (95% CI)
Female Genital Mutilation			
No	1 (Reference)	1 (Reference)	1 (Reference)
Yes	**0.56 (0.47–0.66) *****	**0.64 (0.57–0.73) *****	1.05 (0.93–1.18)
Other factors			
ANC visits during pregnancy			
<4 ANC [4] visits	1 (Reference)	1 (Reference)	1 (Reference)
$\geq$4 ANC visits	**1.25 (1.04–1.50) ***	**1.24 (1.08–1.41) ****	1.05 (0.93–1.19)
Place of birth			
Public/Government facilities	1 (Reference)	1 (Reference)	1 (Reference)
Private facilities	0.79 (0.59–1.06)	**0.75 (0.63–0.90) ****	**1.23 (1.02–1.48) ***
Home births	0.94 (0.73–1.21)	**0.80 (0.68–0.95) ****	**1.19 (1.00–1.40) ***
Attitude towards FGM/C			
Stop	1 (Reference)	1 (Reference)	1 (Reference)
Continue	0.95 (0.79–1.16)	1.06 (0.92–1.23)	0.96 (0.84–1.10)
Undecided	1.13 (0.86–1.50)	1.08 (0.89–1.32)	**1.25 (1.05–1.50) ***
Sociodemographic characteristics			
Age			
Minor (<18 years)	1 (Reference)	1 (Reference)	1 (Reference)
Adult ($\geq$18 years)	**2.24 (1.33–3.78) ****	1.26 (0.81–1.98)	**0.59 (0.41–0.85) ****
Education			
Higher education	1 (Reference)	1 (Reference)	1 (Reference)
No education	0.66 (0.44–1.00)	0.87 (0.67–1.12)	1.21 (0.93–1.57)
Primary education	0.90 (0.59–1.35)	1.27 (0.99–1.62)	1.14 (0.88–1.47)
Secondary education	0.83 (0.59–1.19)	1.22 (0.99–1.50)	1.17 (0.94–1.45)
Marital Status			
Never married	1 (Reference)	1 (Reference)	1 (Reference)
Married	1.55 (0.85–2.84)	**1.61 (1.07–2.42) ***	1.41 (0.88–2.26)
Divorced/Separated/widowed	1.30 (0.63–2.68)	1.37 (0.83–2.26)	1.10 (0.63–1.92)
Wealth			
Poor	1 (Reference)	1 (Reference)	1 (Reference)
Middle class	**1.30 (1.05–1.61) ***	0.95 (0.81–1.12)	0.93 (0.80–1.08)
Rich	**1.51 (1.16–1.97) ****	1.05 (0.87–1.26)	0.88 (0.74–1.06)
Residence			
Urban	1 (Reference)	1 (Reference)	1 (Reference)
Rural	0.96 (0.79–1.17)	1.07 (0.93–1.24)	1.11 (0.96–1.27)
Currently working			
Not working	1 (Reference)	1 (Reference)	1 (Reference)
Working	0.94 (0.79–1.11)	0.89 (0.78–1.01)	0.95 (0.85–1.07)

Table 2. *Cont.*

		Early Initiation of Breastfeeding/EIBF (≤1 h)	Exclusive Breastfeeding/EBF (Yes)	Breastfeeding Duration/BFD (≥6 Months)
		OR [2] (95% CI [3])	OR (95% CI)	OR (95% CI)
Religion				
	Christian	1 (Reference)	1 (Reference)	1 (Reference)
	Islam	0.90 (0.63–1.29)	0.95 (0.76–1.19)	**1.54 (1.24–1.92) ***
	Traditionalist	4.31 (0.58–32)	0.72 (0.25–2.11)	1.77 (0.58–5.42)
Ethnicity				
	Igbo	1 (Reference)	1 (Reference)	1 (Reference)
	Yoruba	**3.74 (2.14–6.52) ***	**2.01 (1.42–2.83) ***	0.72 (0.50–1.02)
	Hausa/Fulani	1.29 (0.72–2.31)	**0.32 (0.22–0.46) ***	**0.64 (0.44–0.93) ***
	Minorities	**3.61 (2.09–6.23) ***	1.19 (0.86–1.65)	**0.62 (0.44–0.88) ****
Region				
	South-East	1 (Reference)	1 (Reference)	1 (Reference)
	South-West	0.79 (0.46–1.36)	**1.74 (1.23–2.45) ****	1.14 (0.79–1.64)
	North	**0.55 (0.32–0.94) ****	1.41 (0.99–2.00)	**1.65 (1.15–2.39) ***
	South-South	0.82 (0.50–1.37)	1.04 (0.75–1.46)	1.16 (0.81–1.66)

Please note that each column (early initiation of breastfeeding, exclusive breastfeeding, and breastfeeding duration) depicts a separate model. [1] FGM/C: Female genital mutilation/cutting. [2] OR: Adjusted odds ratio. [3] CI: 95% confidence interval. [4] ANC: Antenatal care. * $p = 0.05$, ** $p = 0.01$, *** $p = < 0.001$.

The odds of EIBF were higher in women who were 18 years or more (OR = 2.24, 95% CI = 1.33–3.78) compared to minors, in women who were middle class (OR = 1.30, 1.05–1.61) or rich (OR = 1.51, 1.61–1.97) compared to poor, and in women who were Yoruba (OR = 3.74, 95% CI = 2.14–6.52) or were minorities (OR = 3.61, 95% CI = 2.09–6.23) when compared to the Igbo women. The odds of EBF were higher in married women (OR = 1.61, 95% CI = 1.07–2.42) compared to those who had never been married, in Yoruba women (OR = 2.01, 95% CI = 1.42–2.83) compared to Igbo women, and in women from the south-western part of the country (OR = 1.74, 95% CI = 1.23–2.45) when compared to women from the south-eastern part of the country. However, the odds of EBF reduced by 68% in Hausa or Fulani women (OR = 0.32, 95% CI = 0.22–0.46) when compared to the Igbo women. Moslem women had 56% higher odds of breastfeeding for at least six months (OR = 1.54, 95% CI = 1.24–1.92).

2.4. Healthcare Services Accessed during Pregnancy and the Attitude of Nigerian Women towards FGM/C and Breastfeeding Outcomes

Table 3 assesses how healthcare access during pregnancy affects the association between FGM/C and breastfeeding outcomes of interest, as well as how the attitudes of Nigerian women to the continued use of FGM/C affects the associations between FGM/C exposure and the breastfeeding outcomes of interest (EIBF, EBF, and BFD). FGM/C-exposed women who made four or more ANC visits while pregnant had higher odds of initiating early breastfeeding after birth (OR = 1.55, 95% CI = 1.26–1.90) (*p* for interaction < 0.001), and exclusively breastfeeding their baby (OR = 2.01, 95% CI = 1.73–2.33) (*p* for interaction < 0.001) but had lower odds of breastfeeding their baby for six months or more (OR = 0.70, 95% CI = 0.60–0.81) (*p* for interaction < 0.001). Giving birth in a private hospital (versus giving birth in a public hospital) did not significantly affect the association between FGM/C and any of the breastfeeding outcomes of interest. FGM/C-exposed women who had home births had reduced the odds of initiating breastfeeding within one hour of birth (OR = 0.42, 95% CI = 0.33–0.53) (*p* for interaction < 0.001), lower odds of exclusively breastfeeding

their baby (OR = 0.33, 95% CI = 0.28–0.39) (*p* for interaction < 0.001) and higher odds of breastfeeding for at least six months compared to those who gave birth in public hospitals. FGM/C-exposed women who thought that the practice should continue were less likely to initiate early breastfeeding (OR = 0.57, 95% CI = 0.45–0.73) (*p* for interaction < 0.001) or to exclusively breastfeed their baby (OR = 0.65, 95% CI = 0.54–0.78) (*p* for interaction < 0.001) when compared to the FGM/C-exposed women who thought that the practice of FGM/C should be discontinued. Women who were undecided about the future of FGM/C practice in Nigeria had higher odds of breastfeeding for six months or more (OR = 1.43, 95% CI = 1.09–1.86) (*p* for interaction = 0.009) compared to those who believed the practice should be stopped.

Table 3. The modifying effects of access to healthcare services on FGM/C [1] and breastfeeding outcomes.

	Early Breastfeeding Initiation	Exclusive Breastfeeding	Breastfeeding Duration
	OR [2] (95% CI [3]) (*p* for Interaction)	OR (95% CI) (*p* for Interaction)	OR (95% CI) (*p* for Interaction)
Access to health services			
Number of ANC [4] visits			
<4 ANC visits	1 (reference)	1 (reference)	1 (reference)
≥4 ANC visits	**1.55 (1.26–1.90) (*p* < 0.001) **	**2.01 (1.73–2.33) (*p* < 0.001) **	**0.70 (0.60–0.81) (*p* < 0.001) **
Place of birth			
Public/Government	1 (reference)	1 (reference)	1 (reference)
Private facilites	0.79 (0.56–1.11) (*p* = 0.178)	0.97 (0.77–1.22) (*p* = 0.775)	1.10 (0.87–1.38) (0.440)
Home birth	**0.42 (0.33–0.53) (*p* < 0.001) **	**0.33 (0.28–0.39) (*p* < 0.001) **	**(1.31) (1.11–1.55) (*p* = 0.002) * **
Attitudes towards FGM/C			
Stop practice	1 (reference)	1 (reference)	1 (reference)
Continue practice	**0.57 (0.45–0.73) (*p* < 0.001) **	**0.65 (0.54–0.78) (*p* < 0.001) **	1.11 (0.93–1.33) (*p* = 0.230)
Undecided	1.31 (0.88–1.96) (*p* = 0.188)	1.10 (0.83–1.46) (*p* = 0.500)	**1.43 (1.09–1.86) (*p* = 0.009) * **

[1] FGM/C: female genital mutilation/cutting. [2] OR: odds ratio for modifying effect of healthcare access and FGM/C attitudes on the relationship between FGM/C and each breastfeeding outcome. [3] CI: 95% confidence interval. [4] ANC: Antenatal care. * *p* < 0.01 and ** *p* < 0.001. Statistically significant results are presented in bold numbers.

3. Discussion

Using the 2018 DHS survey of Nigerian women, this study measured the prevalence of FGM/C in Nigerian women aged between 15 and 49 years old and assessed the relationship between FGM/C and individual breastfeeding outcomes (early initiation of breastfeeding, exclusive breastfeeding, and breastfeeding duration). We evaluated the modifying effect of access to health care services such as ANC services and skilled delivery facilities on the breastfeeding outcomes of Nigerian women who underwent FGM/C. We also looked at how the attitudes of Nigerian women towards the continued use of FGM/C affected the associations between FGM/C and breastfeeding outcomes in Nigerian women.

3.1. Main Findings

Results from our study showed that FGM/C prevalence in Nigeria is higher than ideal, and that less than half the population of women have healthy breastfeeding outcomes. We found that women who were exposed to FGM/C were less likely to breastfeed their babies within one hour of birth (EIBF) and were also less likely to exclusively breastfeed their babies with breastmilk (EBF). We found that women who underwent FGM/C were just as likely as those who did not undergo FGM/C to breastfeed their children for six months or more after birth. Making at least the WHO-recommended four ANC visits while pregnant [26,27] modified the association between FGM/C and the three breastfeeding outcomes of interest. Women who had four or more ANC visits had higher odds of initiating breastfeeding early [28] and of exclusively breastfeeding their babies. Giving birth in private facilities compared to public/government run facilities did not modify the associations between FGM/C and any of the three breastfeeding outcomes (early initiation of breastfeeding, exclusive breastfeeding, and breastfeeding for six months or more). However, FGM/C-exposed women who had home births were less likely to initiate early breastfeeding or to exclusively breastfeed their baby. We found that a positive attitude towards the continuation of FGM/C practices reduced the odds of initiating early breastfeeding and reduced the odds of exclusively breastfeeding in women who had experienced FGM/C. Surprisingly, those who were on the fence about the continued practice of FGM/C were more likely to breastfeed for at least six months when compared to those who believed that FGM/C practices should be stopped.

3.2. Interpretation of Findings

Our findings showed reduced odds of initiating breastfeeding within an hour of birth in women who had experienced FGM/C. Previous studies have shown that exposure to FGM/C increased the risk of complications during and after birth for both mother and child. FGM/C may therefore affect the ability of the new mother to initiate breastfeeding within the first hour of birth because of a need to address resultant complications like cesarean sections, post-partum hemorrhages, or birthing infants with low Apgar scores [12–15]. This may also explain the reduced odds of initiating breastfeeding within an hour with exposure to FGM/C found in our study. According to Nontehra et al. (2021), likely complications from FGM/C such as cesarean sections may result in maternal/infant separation and milk supply deficiency, making exclusive breastfeeding for the first six weeks after birth difficult [14,29]. This may explain the reduced odds of exclusive breastfeeding among FGM/C survivors in our study when compared to those women who had not experienced FGM/C. The improved breastfeeding outcomes (EIBF and EBF) in FGM/C survivors who made more than four ANC visits during their pregnancy in our study highlights the role of health facilities in the fight to reduce/eliminate harmful practices like FGM/C while promoting healthy breastfeeding outcomes. The reduced odds of healthy breastfeeding behaviors (EIBF and EBF) in FGM/C survivors who had home births compared to those who had babies in public hospitals was expected and was supported by other studies where women who made four or more ANC visits while pregnant had higher odds of initiating breastfeeding in the first hour of birth (EIBF) [26,28] and of exclusively breastfeeding their baby (EBF) [26] compared to those who made fewer than four visits. Health facilities are more likely to understand the health impacts of FGM/C as well as the benefits of healthy breastfeeding when compared to traditional birth attendants. According to recent studies, traditional birth attendants have their knowledge passed down from older/wiser birth attendants with restricted formal education to support their practices [26]; however, health providers in hospitals or health facilities are more likely to receive formal education about healthy breastfeeding behaviors and the health implications of FGM/C in pregnant women. This may therefore explain why the use of public/government hospitals positively modified the breastfeeding outcomes in FGM/C survivors. Health care providers can therefore play a very critical role both in the fight against FGM/C practice and in the promotion of healthy breastfeeding behaviors among Nigerian women. Access to healthcare facilities—especially

within communities/regions where harmful practices like FGM/C are still carried out—is necessary to effect attitudinal changes about the continuation of FGM/C practice, while working towards its eradication.

Similar to studies by Berde and Yalcin (2016) and Obioha et al. (2021), we found that older mothers (adults) had higher odds of initiating breastfeeding in the first one hour after birth [26,30,31]. Adult women—who are more likely to have been exposed to more formal education than teenage girls/minors—are more likely to have a better understanding of breastfeeding and its impact(s) on both mother and child. They are more likely to be financially independent and to have a job [26] and are also more inclined to make informed and independent decisions about their intention to breastfeed, if introduced to the concept of healthy breastfeeding behaviors before or during their pregnancy [32]. The reduced odds of breastfeeding for six months or more in adult mothers compared to teenage mothers in our study was akin to a previous study by Sipsma et al. (2013) where adolescent mothers had higher odds of breastfeeding for one to two years after birth [28]. Middle class and rich women are more likely to have more access to breastfeeding information and awareness [26], and this may explain the increased odds of initiating breastfeeding in the first one hour of birth with increased wealth in our study, like in other studies [26,30]. According to Bayyenat et al. (2014), the Islamic religion encourages women to breastfeed their newborn for the first two years after birth [33,34]. This might explain the higher odds of breastfeeding for six months or more in Moslem women when compared to Christian women in our study [26,34]. The reduced EIBF in Northern women when compared to south-eastern women in our study corroborates Berd and Yalcin's 2016 findings. This result may be explained by cultural and traditional norms/differences in the approach to breastfeeding. For instance, the Northern woman believes that colostrum is impure and unsuitable for consumption by the newborn [30] and are less likely initiate early breastfeeding due to this. Northern women in our study were more likely to breastfeed for six months or more when compared to South-eastern women, and this may be because of the cultural differences in the approach to breastfeeding in these regions [26].

3.3. Strengths and Limitations

This study used data, which was nationally representative of the general study population. Despite this strength, our study was not without some limitations. First, the cross-sectional nature of the data used for this study meant that our results did not infer causality since the temporal relationship between FGM/C and breastfeeding outcomes cannot be determined with this type of data. The link between FGM-C and breastfeeding outcomes in this study is therefore by association only. Although the duration of breastfeeding spanned the first three years after birth, we did not identify the duration of exclusive breastfeeding in each individual; thus, this may have ranged from a few weeks to several months for the women who exclusively breastfed their baby. It is important to take this into consideration as it may have impacted the results of our study. The breastfeeding outcomes reported in this study were self-recalled; thus, recall bias is a limitation of this study. Our results may also have been affected by social desirability bias since there is a chance of the women reporting breastfeeding outcomes that they perceived to be socially accepted as healthy behaviors instead of their actual breastfeeding experiences. It is important to note that our study did not identify when the women started their ANC visits but concentrated on the number of ANC visits made by the women while pregnant. This is a limitation of this study because other studies have shown that the timing of the first ANC visit by a pregnant woman may affect breastfeeding behaviors (those who start ANC after their fourth month of pregnancy had higher odds of EIBF than those who started ANC before their fourth month of pregnancy) [31].

4. Materials and Methods

4.1. Study Design

The cross-sectional de-identified data used for this study were obtained with permission from the Demographic and Health Survey (DHS) administered to Nigerians in 2018 [35]. The DHS survey used a stratified two-stage cluster design, details of which can be found in the Nigeria DHS final report [36] and provided sample weights for the dataset, which increased generalizability. About 13,546 Nigerian households were selected to be interviewed by DHS, with a response rate of about 99.7% [36]. The unit of analysis for this study was women between the ages of 15 years and 49 years of age. Our sample inclusion criteria for this study included women who had a live birth, responded to the question on FGM/C exposure, and responded to the breastfeeding outcomes questions of interest. Of the original 41,821 Nigerian women who responded to this 2018 DHS survey, 25,594 of them did not respond to the question about FGM/C and were excluded from this study. The remaining 16,227 women that responded to the FGM/C exposure question also responded to the question about breastfeeding duration among Nigerian women and were therefore used for analyses. Although 13,305 women responded to the question about EIBF, and 7812 women responded to the question about EBF, the final sample size for this study was kept at 16,227 to capture the complete responses for BFD in Nigerian women in our study. Adelphi University's Institutional Review Board approved this study, which did not require formal consent. The DHS ethics statement and IRB approvals for this study are available at: https://dhsprogram.com/Methodology/Protecting-the-Privacy-of-DHS-Survey-Respondents.cfm (accessed on 12 August 2021). [35]

4.2. Measures

- Female genital mutilation:

Similar to other studies, exposure to FGM in our study included removing any part of the female genitalia and was categorized into a Yes or No response [14]. A composite variable for FGM/C exposure was created by combining the variables G102 ("Is respondent circumcised?"), G103 ("Was flesh removed from respondent's genital area?"), G104 ("Was respondent's genital area just nicked without removing any flesh?"), and G105 ("Was respondent's genital area sewn closed?").

- Breastfeeding outcomes:

As in other studies [26], early initiation of breastfeeding (EIBF) described women who breastfed their babies within the first hour of birth, and was categorized into '$\leq$1 h', and '>1 h'. A composite variable for EIBF was created by combining variables M34\$1–M34\$6 and V426. Exclusive breastfeeding was measured by the dichotomous response ('Yes' or 'No') to the question "Has respondent given child anything other than breast milk?". Breastfeeding duration measured the number of months the women continued to give their baby breastmilk in the first three years after birth. The responses were recoded into '<6 months', '$\geq$6 months' as in other studies [26].

- Other variables:

The number of antenatal care visits during pregnancy was measured by combining the variables M57A, M57B, M57E, M57F, M57G, M57H, M57M, and M57N to create a composite variable, and the responses were recoded into '<4 visits' and '$\geq$4 visits' [37]. A composite variable was also created from variables M15\$1 to M15\$ 6 for Place of birth, which was then recoded into 'Public or government facilities', 'Private facilities', and 'Home births.'

- Sociodemographic variables:

The women's ages were recoded into minor (<18 years old) and adult ($\geq$18 years old) as per Nigeria's Federal Ministry of Health's definition of the terms [38]. The Wealth index, which was originally classified into five categories by the DHS, was recoded into three categories in our study. Poorest and poorer were recoded into 'Poor', richer and richest were recoded into 'Rich', and middle class remained as 'Middle class', as in other

studies [26,39,40]. Residence was classified as 'Rural' and 'Urban'; work status as 'Not working' and 'Currently working'; Religion as 'No religion', 'Christian', 'Islam', and 'Traditionalist'. The women's ethnicity was categorized into 'Igbo', 'Yoruba', 'Hausa or Fulani', and 'Minorities'; region of the country where the women were from was categorized into 'South-east', 'South-west', 'North', and 'South-south'.

4.3. Data Analysis

Using multiple logistic regression models, odds ratios (OR) for the associations between FGM/C and breastfeeding outcomes (EIBF, breastfeeding duration, and exclusive breastfeeding) of Nigerian women were individually estimated at 95% confidence intervals (CI) after adjusting for main sociodemographic characteristics and for a priori confounders. Statistical significance was set at 2-tailed $p < 0.05$ for all analyses, and analyses were performed using IBM SPSS v.26 [41].

5. Conclusions

This study is the first—to our knowledge—to assess the association(s) between FGM/C and breastfeeding outcomes in Nigerian women as well as the modifying effects of (1) access to healthcare services and (2) attitudes of women to FGM/C continuation, on the association(s) between FGM/C and breastfeeding outcomes. Although FGM/C was negatively associated with healthy breastfeeding outcomes, better access to healthcare services improved these outcomes in our study. On the other hand, positive attitudes towards the continuation of FGM/C practice negatively affected healthy breastfeeding outcomes in our study. The continued practice of FGM/C implies that complications during and after childbirth and the ensuing trauma will continue to be an issue. Women who experience complications during childbirth and/or poor breastfeeding experiences are less likely to provide positive support and encouragement to their daughters and other female family members in the future. Health providers in healthcare hospitals/facilities should be trained to identify FGM/C survivors during ANC visits, and to provide them and their families with enough information about the health impacts of FGM/C so they can make informed decisions about their breastfeeding behaviors. Public health interventions that promote the use of public or government hospitals and health facilities during and after pregnancy by Nigerian women should be promoted. However, with over half the population still favoring homebirths, interventions that target traditional birth attendants are strongly encouraged. These targeted interventions should address the lifelong effects of FGM/C on breastfeeding outcomes and maternal/child health over the woman/female child's life course. It is important that these interventions account for the cultural and ethnic differences in the country, as well as the different ethnicities in Nigeria. We recommend further studies to identify the attitudes of different ethnicities and regions in Nigeria to healthy breastfeeding behaviors among FGM/C survivors so that more targeted interventions can be planned and applied. Further studies to understand the level of support that is presently available to FGM/C survivors in health facilities/hospitals (private and public/government hospitals) in the country is also recommended and may inform policy changes at state and government level that result in the reduction and ultimate eradication of the practice of FGM/C in Nigeria. While our study establishes a relationship between FGM/C and breastfeeding outcomes, our data source (cross-sectional data) makes it impossible for us to establish causation. Further research is required to clearly assess and establish if FGM/C directly causes negative breastfeeding outcomes.

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Institutional Review Board Statement: Ethical review and approval were waived for this study by the Adelphi University's institutional review board due to the use of secondary data from the Demographic Health Survey. The participants in this cross-sectional study were de-identified by the DHS.

Informed Consent Statement: Not applicable.

Data Availability Statement: Restrictions apply to the availability of these data. Data were obtained from the U.S. Agency for International Development and are available from the Demographic and Health Surveys (DHS) Program/at https://dhsprogram.com/data/available-datasets.cfm (accessed on 29 October 2021) with the permission of the Demographic and Health Surveys (DHS) Program.

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