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Prevalence of Vesicovaginal Fistula in Ebonyi and Plateau States, Nigeria: Rethinking Women Empowerment

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Abstract

Vesicovaginal fistula (VVF), an abnormal communication between the bladder and the vagina leading to a constant leakage of urine, remains one of the leading causes of morbidity among women of reproductive age in less developed societies. Although the enormity of the dangers associated with the health condition in Nigeria is well documented, it is difficult to arrive at accurate statistics due to factors such as paucity of community-based research, underreporting due to unwillingness to disclose the disease and fear of stigmatization, among others. This study adopted the cross-sectional survey design involving a mixed-methods approach in determining the prevalence of VVF in two purposively selected Nigerian states. A sample of 695 respondents: Ebonyi (324) and Plateau (371) states was drawn using Cochran's (1977) sample size formula. While a multi-stage sampling technique was used to administer a semi-structured questionnaire to community members, hospital records (Ebonyi 136 and Plateau 381 states) were used to generate information on the prevalence of VVF. Quantitative data were analysed using descriptive and inferential statistics. There were more cases of VVF in Plateau State (23.70 per 100000 women) than in Ebonyi State (12.22 per 100000 women). At community level, it was indicated that only 3 out of every 20 women knew those who had experienced VVF in their communities. There is a need for more community-based research and sensitization on VVF in order to increase awareness about the condition and practices towards its prevention in the larger society.

Keywords: Vesicovaginal fistula patients, prevalence of VVF, community-based VVF research

Background

Vesicovaginal fistula (VVF) is an irregular communication between the bladder and the vagina causing continuous leakage of urine, which influences the social, physical and psychological life of affected women and girls (Rajaian, Pregaheeswarane and Panda, 2019). Although it remains a major cause of maternal related deaths in less developed countries, its prevalence has decreased markedly in more advanced societies due mainly to advancement in maternal healthcare provisioning generally (Bashah, Worku, and Mengistu, 2018). For example, while the estimated prevalence of VVF in the United States ranges from 0.5% - 2% (John, 2016), in sub-Saharan Africa, it is estimated at 1.3 – 5.5 per 1000 women of reproductive age (Maheu-Giroux *et al.*, 2015). In sub-Saharan Africa and Asia, reports suggest that there were over 2 million cases of untreated obstetric fistulas (World Health Organisation, 2018), with approximately 150,000 women awaiting repairs and about 33,000 new cases reported over time (Maheu-Giroux *et al.*, 2015; Ijaiya, 2004; Muncer-Deen, Abiodun, and Zainab, 2002). In West Africa specifically, the incidence of VVF ranges from 1.4 to 4 per 1000 births, with Nigeria accounting for an annual incidence rate of 2.11 per 1000 births (Umoiyoho, and Inyang-Etoh, 2012; Ijaiya, Rahman and Aboyeji, 2010). A more recent report on Nigeria indicates a VVF prevalence rate of 3.2 per 1000 women, with approximately 13000 new cases per year (Federal Ministry of Health [FMoH], 2019).

As Wall (2012) once observed, obstetric fistula is usually associated with poorer countries and its prevalence is mainly influenced by place of residence, which tilts toward rural areas, low educational level, poor income and the traditional method of delivery (Onyeugo *et al.*, 2019). To be sure, under-reporting of VVF cases, which results primarily from none use of orthodox health facilities, fear of stigma and discrimination, lack of awareness of the benefits of disclosure and treatment and cultural beliefs and practices that promote the culture of silence among others, undermine attainment of reliable statistics on VVF prevalence in Nigeria. It is therefore quite challenging to undertake mapping for intervention as well as determine whether the disease could be classified as endemic. This study therefore seeks to elicit data from hospital records and community members on VVF not only to describe its prevalence, but also suggest ways to minimize the incidence through context-specific strategies in Ebonyi and Plateau states.

Theoretical Framework

The Ecological Model of Health, adopted as the theoretical framework for this study, posits that an Individual's health behaviour is likely to improve when the environment and policies engender appropriate health-related decisions, when societal norms and support for making healthy selections are robust, and when an individual's educational status could influence the extent to which rational health-related decisions are made. The model recognises that multiple factors in an environment may not only affect health but also, how decisions

are taken and their appropriateness in preventing or mitigating the effect of a disease. Surely, when policies are implemented to bolster female empowerment that may be expressed in access to education among women and girls particularly, discourage early marriage, Female Genital Mutilation (FGM), and exclusion from inheritance of property, relative to their male counterparts among others, they would most likely engage extensively in socioeconomic activities and decisions. By extension, therefore, their livelihood and wellbeing including those that impinge on their health will improve.

Thus, although VVF is a medical condition, its prevalence is largely determined by the sociocultural environment. Early/child marriage has often been implicated as one of the indirect factors of VVF in places where it is cultural permissible to engage children in marriage irrespective of the precarity associated with weak pelvic bones to support prospective mothers in child bearing. As has been noted, prolonged labour beyond 12 hours as a result of obstruction from mismatch in size between the presenting part of the body and the birth canal is the main cause of VVF (UNFPA, 2020). As a corollary, all other factors held constant, children involved in early pregnancy and child bearing are more susceptible to VVF than more mature women whose birth canals are resilient enough to cope with the stress that usually comes with labour.

Materials and Methods

A cross-sectional survey design was adopted for this study. Quantitative approach was used in eliciting both primary and secondary data. Ebonyi and Plateau states were purposively selected due the availability of major VVF referral centres that attract patients from various parts of the country. The population of the study consisted of community members selected from three Local Government Areas (LGAs) in each of the states based on their proximity to the VVF centres (ECWA Evangel VVF Centre, Jos and National Fistula Centre Abakiliki). The selected LGAs were clustered based on urban LGAs and rural LGAs, where one urban LGA (Ebonyi: Abakaliki; Plateau: Jos North) was selected from each state, and two rural LGAs (Ebonyi: Ezza and Izzi; Plateau: Barkinladi and Riyom) were chosen from each of the states. This was done by classifying settlements in each of the LGAs based on the 2017 official definition of any locality with more than a minimum of 20,000 people as urban and those with less than 20,000 people as rural (NPC, and ICF International, 2019).

The secondary data were elicited from hospital records (Ebonyi (136) and Plateau (381) states). The instruments for data collection were translated into Igbo and Hausa languages in Ebonyi and Plateau respectively for better understanding by the respondents who were duly briefed about the purpose of the study. Consent was sought and obtained before the commencement of their actual engagement as respondents. Quantitative data were analysed using descriptive statistics, and inferential statistics.

Results

Table 1 is the summary of the socio-demographic characteristics of respondents. While the overall age of the respondents was 34.22 ± 10.27 years, the mean age of those in Ebonyi (36.60 ± 10.80 years) was found to be higher than their counterparts in Plateau State (32.15 ± 9.33 years). Based on the marital status of the respondents, the majority at all levels were married compared to those who were single-mothers (12.9%), separated (1.6%), divorced (0.4%) and widow (6.5%). The Table further revealed that the majority were monogamous family type when compared to those who were in polygamous family type (27.2%) in the overall and at the state level – Ebonyi (31.0%) and Plateau (23.7%).

In the highest level of education of the respondents, it was revealed that two-fifth of the respondents (40.7%) had attained secondary school education in the overall (being the highest), while the least proportion of the respondents had no formal education (9.1%). Comparatively, there were more respondents in Plateau State who had attained secondary school education (49.2%) than their counterparts in Ebonyi State (31.1%).

Table 1: Distribution by the socio-demographic profiles of respondents

Variables	Response categories	Ebonyi (n=324)	Plateau (n=371)	Total (n=695)
Age	15 – 19	5 (1.6)	26 (7.0)	31 (4.5)
	20 – 24	13 (4.0)	51 (13.8)	64 (9.3)
	25 – 29	67 (20.8)	89 (24.1)	156 (22.6)
	30 – 34	75 (23.3)	60 (24.1)	135 (19.5)
	35 – 39	61 (18.9)	60 (16.3)	121 (17.5)
	40 – 44	49 (15.2)	38 (10.3)	87 (12.6)
	45+	52 (16.1)	45 (12.2)	97 (14.0)
	<i>Mean Age</i>	<i>36.60±10.80</i>	<i>32.15±9.33</i>	<i>34.22±10.27</i>
Marital Status	Single	30 (9.3)	59 (16.1)	89 (12.9)
	Married	254 (78.4)	288 (78.7)	542 (78.6)
	Separated	10 (3.1)	1 (0.3)	11 (1.6)
	Divorced	2 (0.6)	1 (0.3)	3 (0.4)
	Widow	28 (8.6)	17 (4.6)	45 (6.5)
Family Type	Monogamous	223 (69.0)	264 (76.3)	487 (72.8)
	Polygynous	100 (31.0)	82 (23.7)	182 (27.2)
Highest Level of Education	No formal education	55 (17.3)	7 (1.9)	62 (9.1)
	Primary	107 (33.6)	52 (14.4)	159 (23.4)
	Secondary	99 (31.1)	178 (49.2)	277 (40.7)
	Tertiary	56 (17.6)	125 (34.5)	181 (26.6)
	Others	1 (0.3)	-	1 (0.1)
Religion	Christianity	301 (93.2)	217 (58.6)	518 (74.7)
	Islam	10 (3.1)	153 (41.4)	163 (23.5)
	Free thinker	2 (0.6)	-	2 (0.3)
	Traditionalist	10 (3.1)	-	10 (1.4)
Occupation	Housewife	35 (10.8)	39 (10.6)	74 (10.7)
	Trading	157 (48.5)	127 (34.5)	284 (41.0)
	Civil servant	71 (21.9)	55 (14.9)	126 (18.2)
	Artisan	3 (0.9)	51 (13.9)	54 (7.8)
	Farmer	42 (13.0)	10 (2.7)	52 (7.5)
	Student	16 (4.9)	66 (17.9)	82 (11.8)
	Others	-	20 (5.4)	20 (2.9)
	Monthly income	Less than N18000	175 (70.6)	160 (54.6)
N18000 – N49999		65 (26.2)	46 (15.7)	111 (20.5)
N50000 – N99999		8 (3.2)	38 (13.0)	46 (8.5)

	N100000 and above	-	5 (1.7)	5 (0.9)
	Others	-	44 (15.0)	44 (8.1)
Age at marriage	Less than 15	16 (5.4)	23 (7.3)	39 (6.4)
	15 – 19	50 (17.0)	88 (28.1)	138 (22.7)
	20 – 24	145 (49.3)	118 (37.7)	263 (43.3)
	25 – 29	78 (26.5)	56 (17.9)	134 (22.1)
	30 – 34	3 (1.0)	25 (8.0)	28 (4.6)
	35+	2 (0.2)	3 (1.0)	5 (0.8)
	<i>Mean age at marriage</i>	<i>21.62±3.64</i>	<i>21.76±4.92</i>	<i>21.69±4.35</i>

NB: Figures in parentheses are in %

Distribution by the socio-demographic profiles of respondents (contd)

Variables	Response categories	Ebonyi (n=324)	Plateau (n=371)	Total (n=695)
Number of children ever-born	1	12 (4.1)	30 (9.9)	42 (7.0)
	2	38 (13.0)	66 (21.7)	104 (17.4)
	3	52 (17.8)	76 (25.0)	128 (21.5)
	4	68 (23.3)	56 (18.4)	124 (20.8)
	5	42 (14.4)	32 (10.2)	74 (12.4)
	6+	80 (27.4)	44 (14.5)	124 (20.8)
Age at first birth	Less than 15	5 (1.7)	5 (1.7)	10 (1.7)
	15 – 19	48 (16.5)	70 (24.2)	118 (20.3)
	20 – 24	138 (47.4)	112 (38.8)	250 (43.1)
	25 – 29	90 (30.9)	58 (20.1)	148 (25.5)
	30 – 34	10 (3.4)	34 (11.8)	44 (7.6)
35+	-	10 (3.5)	10 (1.7)	
Last place of delivery	Home	53 (18.5)	41 (13.9)	94 (16.2)
	Primary Health Centre (PHC)	163 (57.0)	83 (28.0)	246 (42.3)
	Traditional Birth Attendant	8 (2.8)	7 (2.4)	15 (2.6)
	Private Clinic	37 (12.9)	82 (27.7)	119 (20.4)
	General Hospital	25 (8.7)	47 (15.9)	72 (12.4)
	Others	-	36 (12.2)	36 (6.2)
Men's age	15 – 19	-	-	-
	20 – 24	1 (0.4)	6 (2.1)	7 (1.3)
	25 – 29	1 (0.4)	22 (7.6)	23 (4.3)
	30 – 34	6 (2.4)	32 (11.0)	38 (7.1)
	35 – 39	27 (11.0)	43 (14.8)	70 (13.0)
	40 – 44	42 (17.2)	72 (24.7)	114 (21.2)
	45+	169 (68.7)	116 (39.9)	285 (53.1)
Men's educational level	No formal education	37 (13.8)	3 (1.1)	40 (7.3)
	Primary	56 (20.8)	20 (7.1)	76 (13.8)
	Secondary	131 (48.7)	98 (34.8)	229 (41.6)
	Tertiary	45 (16.7)	159 (56.4)	204 (37.0)
	Others	-	2 (0.7)	2 (0.4)
Men's monthly income	Less than N18000	78 (33.9)	60 (21.3)	138 (27.0)
	N18000 – N49999	106 (46.1)	48 (17.0)	154 (30.1)
	N50000 – N99999	41 (17.8)	56 (19.9)	97 (18.9)
	NN100000 and above	5 (2.2)	67 (23.8)	72 (14.1)
	Others	-	51 (18.1)	51 (10.0)

NB: Figures in parentheses are in %

In their religious affiliations, the majority were Christians (74.7%) in the overall as well as in the two states. Nearly all the respondents in Ebonyi State were adherents of Christianity (93.2%) as compared to those in Plateau State (58.6%), but there were more Muslims in Plateau State (41.1%) than those in Ebonyi State (3.1%). On the occupational distribution of the respondents, the category of respondents with the highest proportion was trading (41.0%) in the overall while the least was those in the category of others which include unemployed, cleaners, etc. Similar trends were observed in the two states but those who indicated trading as occupation in Ebonyi State (48.5%) were higher than their counterparts in Plateau State whose proportion of trading was 34.5%.

In the analysis of their monthly income, it was indicated that the majority earned less than N18000 as monthly income with those who earned N100000 and above being the least. In the age at marriage, the mean age at marriage across the two states were similar with 22 years. On the number of children ever-born by the respondents, the highest proportion of children ever-born in the overall was 21.5% for those with 3 children. However, there were differences in the highest proportions of the number of children ever-born by states. While the highest proportion was found with those who had 6+ children in Ebonyi State (27.4%), the highest proportion was found with those with 3 children in Plateau State (25.0%).

In the age at first birth of the respondents, more than two-fifth of the respondents (43.1%) had their first birth between the ages of 20 – 24 both in the overall and in the selected states with Ebonyi having 47.4% and Plateau 38.8%. Ascertaining the last place of delivery of the respondents, it was revealed that more than two-fifth of the respondents delivered their babies at the Primary Health Care (PHC) centres in the overall. In spite of this results, there seems to be variations in the last place of delivery with those in Ebonyi having 57.0% PHC (being the highest) and those in Plateau State having 27.7% Private Clinics (being the highest).

Information about the husbands of the respondents showed that the majority of their spouses (53.1%) were 45+ years old and 41.6% (being the highest) had attained secondary school education in the overall, while the highest according to states were 48.7% secondary school in Ebonyi State and 56.4% tertiary in Plateau State. In the analysis of their monthly income, 30.1% of their spouses (being the highest) earned between N18000 – N49999.

Prevalence of Vesicovaginal Fistula (VVF)

In order to determine the prevalence of VVF in Ebonyi and Plateau States, the cases of VVF reported in 2021 medical records and female population recorded according to the Population Census report of 2006 were used. Thus, the prevalence of VVF in both states were calculated using the formula below as indicated in “(4.1)”:

$$PVVF = \frac{FR}{P} \times K \quad (4.1)$$

Where PVVF = Prevalence Rate of Vesicovaginal Fistula;

- PR = Population at risk or reported cases of VVF at the hospital in the year 2020;
- P = Total population of women based on 2006 Nigeria Population Census;
- K = Constant (100,000).

To calculate the PVVF for Ebonyi State using the formula stated above,

- The PVVF =?
- PR = 136 (National Fistula Centre Abakaliki, Ebonyi State, 2020)
- P = 1,112,791 (2006 Population Census)
- K = 100,000

$$\text{PVVF for Ebonyi State} = \frac{136}{1112791} \times 100000$$

$$\text{PVVF for Ebonyi State} = \frac{13600000}{1112791}$$

$$\text{PVVF for Ebonyi State} = 12.22 \text{ per } 100000$$

To calculate the PVVF for Plateau State using the formula stated above,

- The PVVF =?
- PR = 381 (Bigham Teaching Hospital Jos, 2020)
- P = 1,607,533 (2006 Population Census)
- K = 100,000

$$\text{PVVF for Plateau State} = \frac{381}{1607533} \times 100000$$

$$\text{PVVF for Plateau State} = \frac{38100000}{1607533}$$

$$\text{PVVF for Plateau State} = 23.70 \text{ per } 100000$$

Based on the calculated prevalence rates of VVF in the two states, there were more VVF conditions in Plateau State (23.70 per 100000 women) than those in Ebonyi State (12.22 per 100000 women).

Having explored the prevalence of VVF by states of residence using hospital records, Table 2 further shows the prevalence rates of VVF by socio-demographic characteristics of patients in the two states. As Table 2 reveals, there were statistically significant relationship between age of the patients and their states of residence ($\chi^2 = 27.28$, $p < 0.05$). This means the age of respondents has significant impact on VVF according to the state of residence of the affected persons. More so, it was revealed that although there was no statistically significant relationship between marital status of VVF patients and the state of residence, yet there were more married patients who were affected with VVF in both states with Ebonyi State having 79.4% of married patients and Plateau State having 66.9%. This implies that the majority of those who were affected with VVF in the selected states were married compared to other categories of marital status. It further suggests that the marital status of the affected person do not have impact on its occurrence.

Table 2: Prevalence rate by the socio-demographic profiles of VVF patients

Variables	Response categories	State of VVF Patients		Chi Square (x^2) P-Value
		Ebonyi (n=136)	Plateau (n=381)	
Age**	15 – 19	5 (3.7%)	30 (8.2%)	$x^2 = 27.281$ P = 0.000
	20 – 24	18 (13.3%)	70 (19.0%)	
	25 – 29	21 (15.6%)	81 (22.0%)	
	30 – 34	33 (24.4%)	58 (15.8%)	
	35 – 39	28 (20.7%)	42 (11.4%)	
	40 – 44	19 (14.1%)	26 (7.1%)	
	45+	11 (8.1%)	61 (16.6%)	
	Mean Age=32.59±19.49	33.30±9.52	32.34±22.00	
Marital Status	Single	11 (8.1%)	33 (8.7%)	$x^2 = 15.303$ P = 0.009
	Married	108 (79.4%)	255 (66.9%)	
	Separated	11 (8.1%)	29 (7.6%)	
	Divorced	1 (0.7%)	34 (8.9%)	
	Widow	5 (3.7%)	26 (6.8%)	
Family Type**	Monogamous	107 (78.7%)	0.0%	$x^2 = 456.989$ P = 0.000
	Polygamous	17 (12.5%)	0.0%	
Highest Level of Education**	No formal education	12 (8.8%)	197 (51.8%)	$x^2 = 102.347$ P = 0.000
	Primary	28 (20.6%)	88 (23.2%)	
	Secondary	76 (55.9%)	74 (19.5%)	
	Tertiary	20 (14.7%)	21 (5.5%)	
Religion**	Christianity	131 (96.3%)	204 (54.1%)	$x^2 = 80.909$ P = 0.000
	Islam	4 (2.9%)	172 (45.6%)	
	Traditionalist	1 (0.7%)	1 (0.3%)	
Occupation **	Artisan	23 (16.9%)	20 (5.2%)	$x^2 = 80.342$ P = 0.000
	Civil servant	3 (2.2%)	12 (3.1%)	
	Farming	32 (23.5%)	148 (38.8%)	
	Housewife	2 (1.5%)	39 (10.2%)	
	Public servant	15 (11.0%)	6 (1.6%)	
	Student	5 (3.7%)	8 (2.1%)	
	Trader	50 (36.8%)	78 (20.5%)	
	Unemployed	6 (4.4%)	67 (17.6%)	
Parity **	0	4 (3.3%)	7 (1.9%)	$x^2 = 27.019$ P = 0.000
	1	36 (29.5%)	111 (30.2%)	
	2	19 (15.6%)	49 (13.2%)	
	3	25 (20.5%)	42 (11.4%)	
	4	19 (15.6%)	25 (6.8%)	
	5	5 (4.1%)	31 (8.4%)	
	6+	14 (11.5%)	102 (27.8%)	
Age at delivery**	Less than 15	0.0%	24 (7.5%)	$x^2 = 20.185$ P = 0.000
	15 – 19	15 (12.1%)	57 (17.7%)	
	20 – 24	25 (20.2%)	88 (27.3%)	
	25 – 29	32 (25.8%)	65 (20.2%)	
	30+	52 (41.9%)	88 (27.3%)	
Number of times married**	0	11 (14.1%)	2 (0.2%)	$x^2 = 41.564$ P = 0.000
	1	55 (70.5%)	297 (86.3%)	
	2	9 (11.5%)	40 (11.6%)	
	3	3 (3.8%)	5 (1.5%)	

NB: Figures in parentheses are in %

Source: National Fistula Centre Abakaliki and Bigham Teaching Hospital Jos

On the prevalence of VVF by family type and state of residence, Table 2 shows that there was a statistically significant relationship between family type and the state of residence of the VVF patients ($x^2 = 456.989$, $p < 0.05$). Similarly, finding indicated that there was statistically significant relationship between

the highest level of education and state of residence of people affected with VVF ($\chi^2 = 102.347$, $p < 0.05$). This means that the level of education of the affected persons with VVF could impact on its etiology among the patients as well as varied significantly by the state of residence of the patients. For example, while the majority of the affected persons in Ebony State with VVF had attained only secondary school education, those who were mostly affected in Plateau State had no formal education. This could mean that educational attainment could be fundamentally important at influencing the best practices that promote healthy life styles towards VVF prevention in an epidemiologic population.

In the analysis of the relationship between religion and the state of residence of VVF patients, there was statistically significant relationship between religion and state of residence ($\chi^2 = 80.909$, $p < 0.05$). This also means that the being a Christian or Muslim could impact on the condition of VVF among the affected persons. The occupations of the affected persons with VVF were also found to be statistically significantly related to the state of residence ($\chi^2 = 80.342$, $p < 0.05$). While those who were traders were mostly affected in Ebonyi State, those who engaged in farming were mostly affected in Plateau State.

The relationship between parity and state of residence was also explored. There was statistically significant relationship between parity and state of residence of the affected persons with VVF ($\chi^2 = 27.019$, $p < 0.05$). Those who had one parity in both states were mostly affected with the condition compared to other categories of parity, followed by those with three parities in Ebonyi State (20.5%) and six or more parities in Plateau State (27.8%). Finding further revealed that the age at delivery of the affected person with VVF was significantly related to the state of residence of the patients ($\chi^2 = 20.185$, $p < 0.05$). While it was more prevalent among those who had their delivery at age 30 or more in Ebonyi State (41.1%), the proportions were higher among those with ages 20 – 24 years and 30 or more years in Plateau State. The number of times married was equally significantly related with the state of residence as well as the occurrence of VVF ($\chi^2 = 41.564$, $p < 0.05$). The majority of the affected persons with VVF were married at one time in both states.

Against the backdrop of the prevalence of VVF in the two states, community members were asked whether they had known any woman who have been affected with VVF in their environment, Figure 1 presents the result. It was indicated that only 3 out of every 20 women knew those who have been affected with VVF in their communities. Similar trends were observed in the selected states but the proportion of those who had known women who were affected with the condition in Ebonyi State was higher than that of Plateau State. This is indicative that despite the prevalence of VVF in the two states, the proportions of community members who knows the affected persons with the conditions were still few. This may have implications on the knowledge and practices towards its prevention in the larger society.

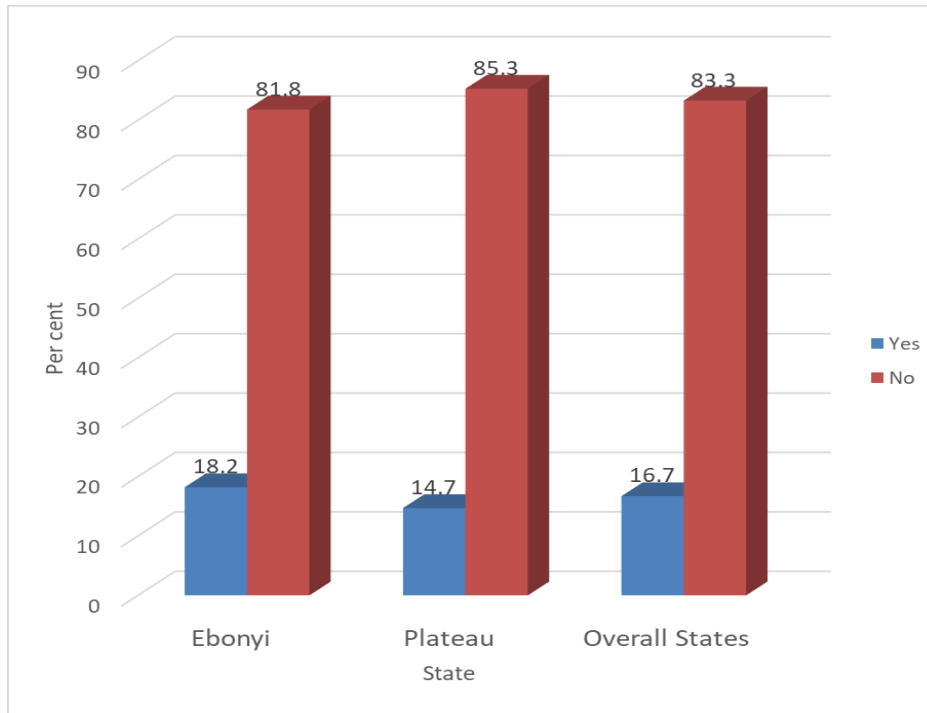


Figure 1: Distribution of respondents by whether they know any woman with VVF

It was further ascertained from the community members whether they have developed VVF at any point. Figure 2 shows that 1 out of 10 have developed VVF at some point in their lives. Despite the fact that only 1 out of 10 developed the condition in both states, the proportion of those who indicated that they have developed the condition in Ebonyi State at any point is one time more likely to be higher than those in Plateau State.

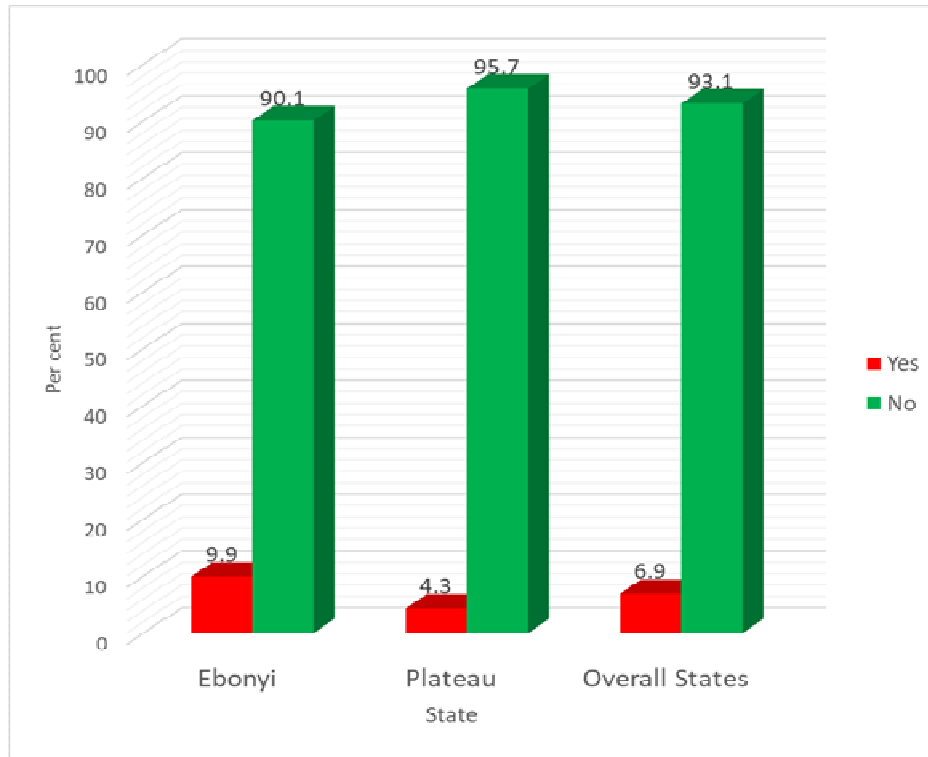


Figure 2: Distribution of respondents by whether they have ever developed VVF

Figure 3 shows the distribution of VVF patients by their state of origins. As shown in Figure 3, Gombe (14.7%) and Ebonyi (14.7%) State had the highest percentage of VVF patients, followed by those from Plateau (11.8%) and Cross River (11.8%) and those from Enugu (8.8%) and Delta (8.8%) State. This implies that women who were affected with the condition of VVF were more in Gombe and Ebonyi State when compared to states like Plateau and Cross River among other states.

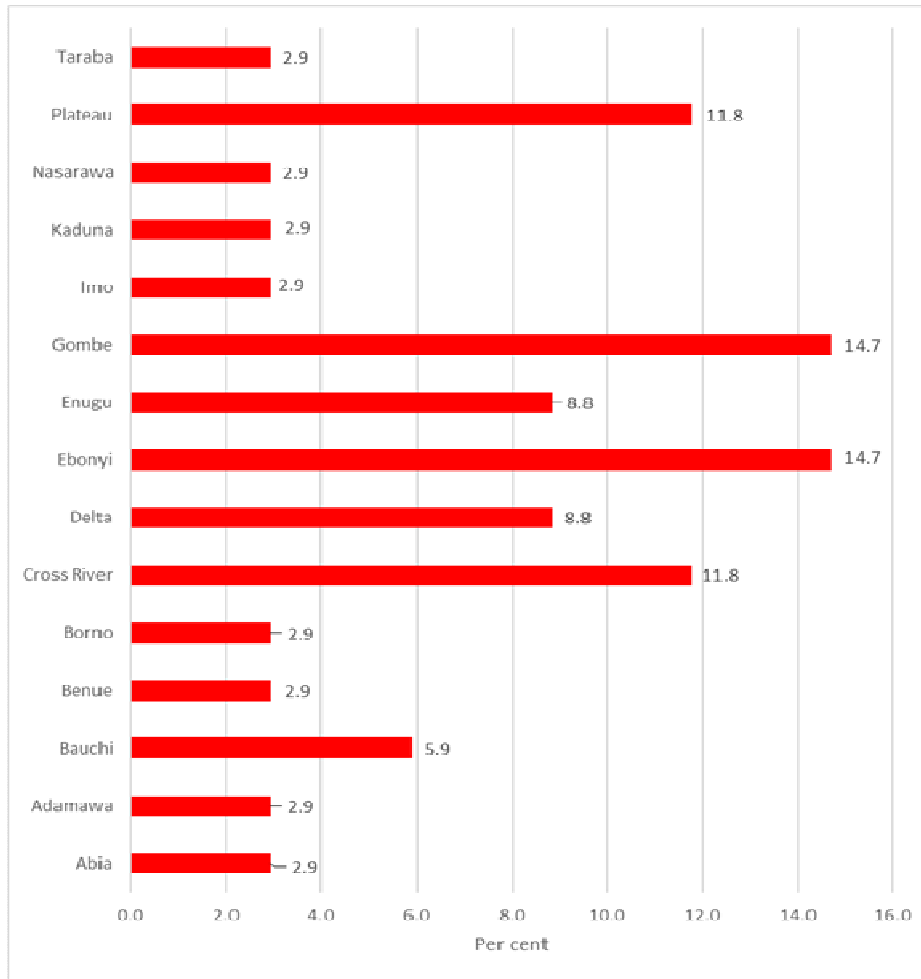


Figure 3: Distribution of VVF patients by their state of origins
Source: National Fistula Centre Abakaliki, and Bigham Teaching Hospital Jos

Discussion of Findings

On the prevalence of VVF among the study population, findings showed that there were differences in the prevalence of VVF between the two states of the study. While the prevalence rate was 23.7 per 100,000 women in Plateau State, it was found that it was 12.2 per 100,000 women in Ebonyi State. This finding suggests that there were more women who suffered from the disease in Plateau State than in Ebonyi State. This finding further confirms the report of the Federal Ministry of Health (2016) and Muhammed (2018) that VVF in Northern Nigeria has accounted for an estimate of between 60 and 70 per cent of the total percentage of women who suffered from the disease in Nigeria as compared to their counterparts in the Southern part of Nigeria who shared between 40 and 30 per cent prevalence rates.

In addition to this, it was implicated that there were significant relationships between age of the patients, family type, level of education, religion, occupations, parity, the age at delivery and the prevalence rate of VVF. These findings to a large extent relate to the earlier study conducted by Ugochi, Iwuala, Nwufo, Ibe, Udujih and Udujih (2019) who found that there were statistically significant relationships between women's level of education, occupation, area of residence in a state, number of deliveries, place of deliveries, who attended to the delivery among others and the predisposing factors of women to VVF in an epidemiological population. This also means that the significant association between the socio-demographic characteristics of the respondents can be linked to Onyeugo *et al.* (2019) and USAID (2015) reports that suggested factors like level of education, age at marriage, economic status of women, access to proper health care and proper decision-making influence the prevalence and incidences of VVF positively.

Conclusion and Recommendations

The study revealed peculiarities of social issues relating to prevalence of VVF based on cultural differences. For instance, parity, family type, level of education and age at delivery impacted on the prevalence rate of VVF in the study locations. The low knowledge of community members about VVF patients has implications on the knowledge and practices towards its prevention in the larger society. There is need for more community research and sensitization on VVF in order to increase the knowledge and practices towards its prevention.

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