Prevalence of Vesicovaginal Fistula in Kebbi State

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Abstract- ***The prevalence of Vesico Vaginal Fistula (VVF) is frequently underestimated due to its shallow knowledge, yet it remains a major public health challenge, especially in developing countries. This paper investigated the prevalence of Vesicovaginal Fistula in Kebbi State. The data collected were obtained through a descriptive survey design with the aid of a simple random sampling (SRS) procedure, eleven (11) local governments were used out of twenty-one (21) local governments area of Kebbi State of Nigeria with self-administered questionnaires. Descriptive Statistics and a test of independence were used in the analysis of the data. The result showed that the prevalence of patients with VVF was 43.1% relative to non-patients, and this was substantially high. The mean age of the respondents that experienced VVF was between 20 - 24 years and most of the VVF cases were experienced at the first birth or delivery. There were more housewives than civil servants (55.6% vs 24%) in the study. The highest number of respondents were from Birrin Kebbi local government. More than half (63.6%) of the respondents do not have knowledge about VVF which could be a strong factor in the prevalence of VVF in the study area. The study revealed that prolonged obstructive labor, female genital mutilation (FGM), early marriage, and mode of deliveries were all significant to VVF (with respective p-values 0.005 < 0.004, 0.000, 0.005, 0.000). The study, therefore, recommends that mandatory, provision of accurate and appropriate information and education on VVF must be introduced for the female sex in the study area.***

Indexed Terms- ***Vesico Vaginal Fistula, Prevalence, Kebbi State, Obstructive Labor, Female Genital Mutilation***

I. INTRODUCTION

Vesico Vaginal Fistula is defined as an abnormal connection between the urinary tract and vaginal such that there is an incessant uncontrollable leakage of urine into the vaginal tract. urinary incontinence, physical, social, and psychological consequences (Onyeugo, 2019 and Muhammad *et al,* 2020). It is a preventable disease of public health that is predominant among women in the low income population especially in rural areas of the world and a surgical problem for centuries. Worldwide, there is an estimated two Million women living with Vesico Vaginal Fistula with the bulk of cases located in sub Sahara Africa and South Asia (WHO, 2018). It is also one of the most important reproductive health problems that need special attention especially in Northern Nigeria. It affects numerous girls and women every day and the condition leaves these affected women in a state of despair. They have to suffer not only the consequences of loosing their children but also are subject to social humiliation, shame and embarrassment that are devastating to the women who suffer from it Ananya, *et al,* (2010). They usually become outcasts due to pungent smell and wetness from urinary and this dehumanizing condition is really affecting them. (Waaldjik, 1995 and Daru, 2011).

Nigeria is one of the countries with the sizeable concern of obstetrics fistula. Oluwasomidoyin *et al, (*2020). The statistics in Northern Nigeria is even higher than the national average as a result restrictions leading to poor accessibility to health services. A total of 20,000 fresh cases of VVF were recorded annually in Nigeria and that 90 percent of the cases were untreated. It remains a major problem in developing countries like Nigeria. This condition is so enormous and thus devastate Nigerian women that the country's Federal Minister for Women Affairs and Youth Development, has estimated that the number of untreated VVFs in Nigeria stands between 800,000 and 1,000,000. Also, in Northwest Nigeria like (Jigawa, Kaduna, Kano, Zamfara, Sokoto, Katsina, including Kebbi State), has the worst cases scenario with estimation of 250,000 - 500,000 VVF cases,

accounting for about 70% of the diseases in the country (Daru, *et al*, 2017, Kumar, *et al* 2019, FMOH, 2019, Tarfa, 2021). Two million young women throughout the world live with untreated Fistula, and between 50,000 and 100,000 new women are affected each year. In Nigeria, it is estimated that between 800,000 women are living with obstetric with about 20,000 cases annually WHO, (2020). Therefore this study investigate the prevalence of factors associated with Vesico-vaginal Fistula (VVF)

Various researchers like Onyeugo *et al*, (2020), Muhammed *et al*, (2020), Munene M. (2017), Hassan and Nasir, (2019) studied on Vesco-Vaginal Fistula and James, *et al*., (2012) investigated the causality of Vesco-Vaginal Fistula using regression and neural networks. There results show that Statistical neural network model showed better predictions than various regression models for causes of VVF.

II. MATERIALS AND METHOD

2.1 Method of Data Collection

The design for the study was a descriptive survey design that covered eleven (11) local governments selected with the aid of simple random sampling (SRS) procedure out of twenty one (21) local governments area of Kebbi State of Nigeria.

A total number of three hundred (300) questionnaires were distributed to the respondents including paramedical staff, the patients, and their families, out of which two hundred and twenty five (225) questionnaires were returned for analysis. The returned data were coded and analyzed using descriptive statistics and test of independence (chi-square).

2.2 TEST OF INDEPENDENCE MODEL

The test of independence model used in this research was chi square test that was used to model the prevalence of VVF. It is based on the difference between the observed and the expected values for each category. The chi square statistic is given as

$$\chi^2 = \sum_i \frac{(O_i - E_i)^2}{E_i} \quad 2.1$$

Where, *Oi* is the observed number of cases in category *i*,

Ei is the expected number of cases in category *i*.

This chi square statistic is obtained by calculating the difference between the observed number of cases and the expected number of cases in each category.

2.3 Method of Prevalence

Prevalence is a measure of disease that allows us to determine a person's likelihood of having a disease. The number of prevalent cases is the total number of cases of disease existing in a population. A prevalence rate is the total number of cases of disease existing in a population divided by the total population (Chronic Disease, 1999 and Baridam and Irozuru 2012).

$$\text{Prevalence} = \frac{\text{Number of available cases in the population}}{\text{Total number in the Population.}} \quad 2.2$$

III. RESULTS

Table 1.1: Socio Demographic Characteristics of the Respondents

Responses	Count (%)	$\chi 2$ statistics	Df	p-value
Age				
Under 19 years	62 (27.6)			
20-24 years	54 (24.0)			
25-29 years	38 (16.9)	10.467	3	0.015
30 years and above	71 (31.6)			
Total	225 (100)			
Ethnicity				

Hausa	126 (56)			
Fulani				
Others	57(25.3)	53.520	2	0.000
Total	42(18.7)			
	225 (100)			
Religion				
Muslim	178(79.1)			
Christianity	43 (19.1)	222.320	2	0.000
Other	4 (1.8)			
Total	225 (100)			
Occupation				
house wife	125(55.6)			
petty trading	29(12.9)	124.707	3	0.000
civil servant	54(24.0)			
Others	17(7.6)			
Total	225 (100)			
Educational status				
primary	16(7.1)			
Secondary	62(27.6)	128.756	4	0.000
Tertiary	103(45.8)			
Islamic education	33(14.7)			
No formal education	11(4.9)			
Total	225 (100)			
Marital Status				
Married	194(86.2)			

Divorce	19(8.4)			
Separated	11(4.9)	452.671	3	0.000
Total	225 (100.0)			
Local Government Origin				
Yauri	20 (8.9)			
Koko	19 (8.4)			
kangiwa	14 (6.2)			
Kamba	20 (8.9)			
Bunza	28 (12.4)		1	
Arugungu	25 (11.1)	120.987		0.000
Zuru	15 (6.7)			
Bagudo	22(9.8)			
Birrin Kebbi	60 (26.7)			
Jega	1(0.4)			
Kalgo	1(0.4)			
Total	225 (100.0)			
Age at Marriage		65.407	3	0.000
10-14 years	47(20.9)			
15-19 years	38(16.9)			
20-24years	108(48.0)			
25 and above	32(14.2)			
Total	225(100)			
Did you have VVF				
Yes	97(43.1)	4.271	1	0.039
No	128 (56.9)			
Total	225(100)			

Have you suffered from VVF before				
				0.000
Yes	44(19.6)	83.418	1	
No	181(80.4)			
Total	225(100.0)			
If yes at age did you experience (VVF)				
10-14 years				
15-19 years	6(2.7)	450.089	4	
20-24years	5(2.2)			.000
25 years and above	37(16.4)			
Not applicable	7 (3.1)			
	170(75.6)			
Total				
	225(100.0			
At what birth did you experience (VVF)				
1 birth				
2 birth	51(22.7)			
3birth	33 (14.7)			
4birth	10 (4.4)			
5 birth	2 (0.9)			
Not applicable	1(0.4)			
Total	128(56.9)	313.107		
			5	0.000
	225(100)			
Did you do x-ray of pelvis				
Yes				
No	44 (19.6)		1	
Total	181 (80.4)	7.471		0.006
	225(100)			
Do dye injected through your vein				
Yes				
No	89 (39.6)	9.818		0.002
	136 (60.4)		1	
Total				
	225 (100)			
After close physical examination of your Vaginal				
Yes				
No				
	79 (35.1)		1	
Total	146 (64.9)	19.951		0.000
	22 (100.0)			
Do you attend Antenatal Care during pregnancy				

Yes				
No				
	114(50.7)		1	
Total	111(49.3)	0,040		0.841
	225 (100)			
If no why				
I am not aware				
inaccessibility to health facility				
financial constraints	44 (19.6)			
disagreements from husband	25 (11.1)			
other specific	23(10.2)		5	
not applicable	15 (6.7)	147.667		0.000
	16 (7.1)			
Total	102(45.3)			
	225 (100)			
Did you know the causes of VVF				
Yes				
No	82 (36.4)			
	143(63.6)	16.538	1	0.000
Total				
	225 (100)			
Can VVF be caused by Prolong Obstructive				
No	91 (40.4)			
Yes	134(59.6)			
		8.218	1	0.004
Total	225 (100)			
Do you know if Operational Rapture with Tear can cause VVF?				
No	119(52.9)			
Yes	106(47.1)	0.751	1	0.205
Total				
	225 (100)			
Can Vaginal Surgeries causes VVF				
No				
Yes	122(54.2)		1	
Total	103(45.8)	1.604		0.205
	225 (100)			
Can Gishiri cut lead to VVF				
No				
Yes	133(59.1)		1	
Total	92 (40.9)	7.471		0.006
	225 (100)			
Can Genital Tract Infection lead to the cause of (VVF)				
Yes				
No	104(46.2)			

Total	121(53.8)		1	
	225 (100)	1.284		0.257
can Female Genital Mutilation (FGM) cause (VVF)				
Yes				
No				
Total	144(64.0)		1	
	81 (36.0)	17.640		0.000
	225 (100)			
Can early Marriage cause VVF diseases				
Yes				
No	173(76.9)	65.071		
Total	52 (23.1)			
			1	
	225 (100)			0.000
Do you believe that attending Antenatal clinic can curtail (VVF)				
Yes				
No			1	
Total	125(55.6)	2.778		0.090
	100(44.4)			
	225 (100)			
Deliveries in Hospital and not at Home or Birth Attendant Centers				
Yes	122(54.2)			
No	103(45.8)	1.604		
Total			1	0.205
	225(100)			
What is the Mode of your Delivery				
Vaginal Breech				
forceps	96 (42.7)			
caesarean section	27 (12.0)			
embroyotomy	46 (20.4)			
other deliveries specify	17 (7.6)			
	39 (17.3)	83.224	4	0.000
Total				
	225 (100)			
The following are Consequences of VVF Patients.				
Infertility				
Yes	158(70.2)			
No	67 (29.8)	36.840	1	0.000
Total				
	225 (100)			
Vaginal stenos is and bands Amenorrhoea				
Yes				
No	160(71.1)		1	
Total	65(28.9)	40.111		0.000

	225(100)			
Recurrent Urinary Tract Infection (UTI)				
Yes				
No			1	
Total	174(77.3)	67.24		0.000
	51(22.7)			
	225(100)			
Dysmenorrheal				
Yes				
No	165(73.3)		1	
Total	60 (26.7)	49.00		0.000
	225 (100)			
Stigmatization				
Yes				
No	175(77.8)			
	50 (22.2)	69.444	1	0.000
Total				
	225(100)			
Promulgation of law to discourage early Mariage				
Yes				
No	178(79.1)			
Total	42(20.9)	76.271	1	0.000
	225(100)			
Provision of Health care Facilities for Patients				
Yes				
No	155(68.9)			
Total	70(31.1)	32.111	1	0.000
	225 (100)			
Compulsory Education especially for Female Children				
Yes				
No	107(47.6)		1	
Total	118(52.4)	0.538		0.463
	225(100)			
Vocational studies for VVF Patients				
Yes			1	
No	146(64.9)	19.951		0.000
	79(35.1)			
Total				
	225(100)			

3.1. Discussions

A total of three hundred (300) questionnaires were distributed to the respondents out which 225 questionnaires were returned for analysis. Completed data were coded, descriptive statistics, cross tabulation and chi-square were used for the table above.

The respondents' ages were ranged between less 19 years and 30 years and above. A majority of the

respondents 71(31.6%) were 30 years and above. The study observed that 55.6% of the respondents were house wives and 54 (24%) were civil servants. Also 11(4.9%) had no formal education and even among the formally educated (45.8%) had no post secondary education. This also the same with the findings of Justin *et al, (*2018) which reveled that lack of girl education which is one of the reasons for increasing VVF was rightly and wholly accepted by the respondents as a sure cause of VVF. This shows that the women attain high level of education was seen indeed as a great factor in curbing VVF menace.

194(86.2%) of sampled respondents were married (8.4%) and (4.9%) were divorced and separated respectively. The study also showed that respondents with age ranged between 20-24 years are 48% followed by age ranged between 10-14 years with (20.9%) were age at marriage.

The prevalence of patients with Vesico Vaginal Fistula (VVF) are 97 (43.1%) and those without VVF are 128(56.9%) with P value 0.039 < 0.05 and this significant. Those respondents that have suffered from VVF before the study are 44(19.6%) and those that have not are 181(80.4%).

The highest age of the respondents that experiences VVF was between 20-24 years 37 (16.4%) and that most of the cases of VVF occurred at the first delivery with 51(22.7%). The total number of respondents that attended Ante natal clinic (ANC) during pregnancy was 114(50.7%) and 111(49.3%) failed to observed ANC.

The study also observed that 44(19.6%) were not aware of ante natal care during pregnancy and 25(11.1%) and 23(10.2%) failed to attend as a result of inaccessibility to health facility and financial constraints respectively. As regards the knowledge acquired of VVF, 143(63.6%) respondents do not know the causes of VVF while 82(36.4%) does. This the same with result of Justin *et al,*(2018) in his research knowledge of risk factors and perceived effects of VVF in North of Ebonyi State Nigeria

Also, 134(54.6%) of the respondents were of the opinion that prolonged obstructive labor can result into VVF and 91(40.4%) with P value = 0.004 < 0.05 indicating there are significant relationships between the mode of deliveries and VVF. Furthermore, 119(52.9%) respondents do not belief that operational rapture with tears can lead to VVF and 106(47.1%) supported with P value 0.205 > 0.05 showing no significant relationships.

In Vaginal surgery as a cause of VVF, shows that103(45.8%) respondents believed that it can result into vaginal fistula, while 122(54.2%) do not support this.

Yanka Gishiri cut as a cause of VVF reveled that 104 (46.2%) believed that it can result to VVF, while 121(53.8%) respondents do not believe it can cause VVF. The study also showed that genital tract infection with 121 (53.8%) respondents.

In addition, female genital mutilation (FGM) showed that 144(64%) of the total sampled population.

Early marriage also showed 173 (76.9%). Attending antenatal care during pregnancy has 125(55.6). Also respondents in the case study area believed in deliveries in the hospital and not at home or birth attendant centers with 122(54.2%). This contradict with the findings of Muhammed *et al*, 2020 where it was observed and reported that85.7% of the respondents had their deliveries in homes of traditional birth attendants.

The mode of deliveries (i.e Vaginal breech and caesarean section) were 96(42.7%) and 46(20.4%) respectively.

Infertility 158(70.2%), Vaginal stenosis and brand amenorrhea 160(71.1%) recurrent urinary tract infection (UTI), 174(77.3%) dysmenorrheal 165(73.3%) and stigmatization 175(79.1%) are all consequences of VVF respectively.

To curtail the menace of VVF in the case study area, promulgation of law to discourage early marriage 178 (79.4%), provision of health care facilities for patients 155(68.9%) and vocational studies for VVF patients 146(64.9%) will go a long way to curtail the cankerworm.

Compulsory education especially for female children 107(47.6%) may be to delay early marriage.

3.2 Determination of the Prevalence of Vesico Vaginal Fistula (VVF) with Respect to the patients Ages.

Table 2: Omnibus tests of Model Coefficients on Prevalence of VVF with Respect to the Patients ages.

		Chi-square	Df	Sig.
Step 1	Step	43.430	3	.000
	Block	43.430	3	.000
	Model	43.430	3	.000

Table 2 above showed there is significant relationship between age of respondents and VVF with chi-square($\chi 2$) 43.43 with P value = 0.000 < 0.05.

Table 3 Model summary of prevalence of (VVF) with respect to Respondent's ages.

Step	-2 Log likelihood	Cox & Snell R Square	Nagelkerke R Square
1	264.202[a]	.176	.236

Table 3: showed the summary of the impact of the significant variables on the occurrence of VVF. The result of Nagelkerke R. square 0.176 =17.6% implies that 17.6% of the respondents who experience VVF are due to age significance variable.

CONCLUSION

This paper investigate the prevalence of Vesicovaginal Fistula in Kebbi State. The study revealed that prolonged obstructive labor, female genital mutilation (FGM), early marriage, and mode of deliveries were all significant to VVF. The study, therefore, recommends that mandatory, provision of accurate and appropriate information and education on VVF must be introduced for the female sex in the study area.

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