



Socio-Demographic Factors Influencing Utilization of Obstetric Fistula Services among Women of Reproductive Age in Makueni County, Kenya

Mary Maundu Mbinya^{1*}, Keraka Nyanhoka Margaret¹, Maurice Onditi Kodhiambo², Vincent Omwenga Matoke¹ and Geoffrey Maseme Okari³

1. *Kenyatta University, Department of Population, Reproductive Health and Community Resource Management, Nairobi, Kenya.*
2. *Kenyatta University, Department of Pharmacology, Pharmaceutical Chemistry and Pharmaceutics and Industrial pharmacy, Nairobi, Kenya.*
3. *Kenyatta University, Department of Health Management and Informatics, Nairobi, Kenya*

***Corresponding Author:** Mary Maundu Mbinya, Department of Population, Reproductive Health and Community Resource Management, Kenyatta University, Nairobi, Kenya.
Email: mmbinyam@gmail.com

Summary

INTRODUCTION

Obstetric fistula refers to an abnormal hole that connects a woman's vagina and bladder or vagina and rectum through which urine and/or fecal matter leaks continuously. The underlying causes of obstetric fistula include early marriages, teenage pregnancies, Female Genital Mutilation (FGM), assault and surgical trauma. It is estimated globally that more than half a million women of reproductive age die from complications related to pregnancy and childbirth. Out of this statistic, about 99 percent occur in Sub-Saharan Africa and Asia. This was a descriptive cross-sectional study which was conducted at Makueni County in eastern part of Kenya. This study sought to investigate the socio-demographic factors influencing utilization of Obstetric Fistula services among women of reproductive age in Makueni County.

MATERIALS AND METHODS

The study used both quantitative and qualitative data collection methods. Quantitative data was collected using semi-structured questionnaires administered by trained Research Assistants. A total of 389 questionnaires were considered fit representing a 92.18% response rate. Quantitative data was cleaned and entered into a Microsoft excel database before being analyzed by SPSS version 22.0. Descriptive statistics were presented using percentages, frequency tables, graphs and pie-charts. Inferential statistics were calculated to establish the association between study variables using chi-square tests done at 95% confidence interval and p-values of less than 0.05 considered statistically significant.

RESULTS

The results revealed that only 32% (95CI, 27% - 37%) of respondents utilized obstetric fistula services in which counseling was the most sought service at 44.4% (95%CI, 36% - 53%).



Chi-square analysis showed that there was a significant statistical association between age ($p=0.001$), level of education ($p=0.002$), occupation ($p=0.001$), average monthly family income ($p=0.011$) and utilization of obstetric fistula services.

CONCLUSION

The study concludes that there were low utilization rates, low knowledge levels and negative perceptions towards obstetric fistula services. The findings of this study would help relevant stakeholders in structuring programs and strategize on interventions related to creation of community awareness and thus improve the health seeking behaviors towards utilization of obstetric fistulae screening services. These results would also be of use to the Ministry of Health for purposes of health education and for policy formulation and implementation with regards to workable short-term and long-term obstetric fistulae interventions.

Keywords: Obstetric Fistula, Knowledge Level, Obstetric Fistula Service Utilization

[Afr. J. Health Sci. 2021 34(2):149 -163]

Introduction

Obstetric fistula refers to an abnormal hole that connects a woman's vagina and bladder or vagina and rectum through which urine and/or fecal matter leaks continuously (Delamouet al, 2016). Obstetric fistula is caused by obstructed labor that could take several days before a woman receives emergency obstetric care. In developing countries, it affects mainly the poor and marginalized women who are unable to access basic healthcare due to, among other things, weak health systems and the three-delay model (Mwangi, 2017). The underlying causes of obstetric fistula include early marriages, teenage pregnancies, Female Genital Mutilation (FGM), assault and surgical trauma. Obstructed labour is the main intermediate cause of obstetric fistula. Obstetric fistulae (OF) can be treated through conservative and surgical repair treatment options.

Globally, it is estimated that more than half a million women of reproductive age die from complications related to pregnancy and childbirth (Roka et al, 2013). Ninety nine percent of these annual maternal deaths are borne by sub-Saharan Africa and Asian developing countries.

According to the WHO, nearly 300 million women currently suffer from short-or long-term complications (WHO, 2016). Approximately another 20 women suffer long-term disabling conditions such as obstetric fistula for each maternal death.

“Worldwide, obstructed labour occurs in an estimated 5% of pregnancies and accounts for 8% of all maternal deaths. Throughout the world, but mainly in parts of sub-Saharan Africa and Asia it is conservatively estimated that more than 2 million young women live with untreated obstetric fistulae” (UNFPA, 2016). It has also been estimated that between 50,000 and 100,000 new women are affected each year. These figures are purely estimates as it has been impossible to determine the true burden of suffering to date. There is lack of committed efforts to address and resolve this problem (Kayla and Sarah, 2017).

Despite the detrimental effect fistula has on its victims, the status of the uptake of fistula services is low especially among the developing countries of Asia and Sub-Saharan Africa. It has been estimated that close to 80% of patients never seek treatment despite high success rates of 87-93% (Kalembo and Zgambo, 2016). This is



attributed to lack of knowledge and low awareness levels regarding availability of treatment options as well as economic costs associated with its treatment. For instance, in Nigeria, 40% of cases remain unrepaired despite 2-5/1000 women who have ever given birth being diagnosed with this condition (Okoye and Emma-Echiegu, 2014).

Obstetric fistula is stigmatized in many populations across the world making it difficult to articulate its true prevalence (Oladapoet al., 2015). This means many women who are victims of obstetric fistula are at higher risks of experiencing maternal and neonatal deaths. This is due to complications associated with delayed access to emergency obstetric care whenever obstructed labour occurs among pregnant women (Umeora and Emma-Echiegu, 2015). Therefore, a considerable number of mothers would continue suffering in silence if the issues associated with poor health seeking behavior towards obstetric fistulae are not addressed in time.

Obstetric fistula is a devastating disease affecting about a quarter a million Kenyan women and a treatable illness. Although an estimated 1,200 women undergo successful treatment annually, this is still inadequate given the large number of women living with the condition in the country. The OF patients spend a lot of time before they access surgery (Keya et al., 2018). However, there exists little information on how they navigate the treatment choices at their disposal and the therapy type accessed by the patients remains unexplored (Mauletet al., 2015). Obstetric fistula remains a largely neglected area in the developing world and remains a thorny issue in public health since it affects a vast majority of marginalized members of the population.

There is scanty information regarding fistula in Makueni County with most documented

studies having been conducted in other Counties, even when records have shown cases being on a rise in Makueni compared to other counties. Most fistula cases end up in the care of traditional healers than in hospitals thus affecting the prognosis of this condition. This study is a very crucial ingredient for other scholars intending to undertake studies related to fistula especially in rural areas characterized by low social economic status. It sought to investigate the socio-demographic factors influencing utilization of Obstetric Fistula services among women of reproductive age in Makueni County.

Materials and Methods

Design

A descriptive cross-sectional study design was adopted in data collection from the sampled research participants from Makueni County. This was done at the community level. This design ensured complete description of the situation of utilizing obstetric fistula screening services thus minimal bias in collecting data and providing an operational framework for placing facts, analyzing, and interpreting them (Otieno, 2014).

Location

The study location was Makueni County, Kenya. The county has a population of 884,527 covering 8008.9 Sq. KM (KNBS, 2009). The county has six sub-counties namely, Makueni, Kilome, Kaiti, Kibwezi West, Kibwezi East and Mbooni. The study was carried out in the sub-county of Makueni. Makueni sub-county has seven wards which includes Wote ward (56,419), Kikumini ward (24,477), Mavindini ward (23,274), Kitise ward (22,054), Kathonzweni ward (31,277), Nzaui ward (36951) and Mbitini ward (24,858), Makueni sub-county has 50,203 households (KNBS, 2017).



Population

It constituted women of reproductive age with varied socio- economic backgrounds and diverse cultural affiliations residing in Makueni Sub-County. According to the 2009 Census, women aged between 15 and 45 from Makueni Sub- County were 108,655 (KNBS, 2010).

Sampling

Makueni County was purposively chosen as it is situated in a rural area where access to health services is a challenge. In the county, poverty is most prevalent and is manifested in other socio-economic indicators including poor health outcomes, nutrition, and low educational levels as well as a lack of access to basic services. Simple random sampling (folded pieces of paper) was used to randomly pick Makueni Sub-County. Out of 7 wards Wote and Kitise were purposively selected. Wote ward most populous and urban ward while Kitise ward was also selected because it is the smallest and most remote. Wote ward had three sub-locations in which Kamunyolo sub-location was randomly selected. Kitise ward had five sub-locations in which Kitise, Mwanja and Kimonde sub-locations were randomly selected.

Respondents for interview were drawn from households selected by systematic random sampling at a 6 predetermined interval. Selection of the first household was by simple random sampling using Yes/No riffles. Every 6th household with a woman of reproductive age was selected for interview until the sample size was achieved. The respondents selected for the study were proportional to the number of households in each sub-location. To obtain complementary information, there were 4 Focused Group Discussions (FGD) with reproductive age women. Due to challenges in time and finances, every selected sub-location had one FGD comprising of 8 participants selected purposively

based on their capability of giving the required information. Additionally, 20 Key Informant Interviewees (KII) were purposively selected to air their thoughts on the study area. The examiner involved health care providers from healthcare facilities in Makueni County. Key informants comprised of experienced, knowledgeable and Informed Persons.

Sample Size Determination

The sample size was determined using Fishers' formula for populations larger than 10,000. Fishers et al (1998), sample size:

$$n = \frac{z^2 pq}{d^2}$$

Where:

n = Desired sample size (population > 10,000).

z = Standard normal deviation at the required confidence level (set at 1.96).

p = since there is no previous data showing the rate of obstetric fistula service utilization, the researcher assumed a prevalence of 50% of the target population having similar characteristics.

$$q = 1 - p (1-0.5)$$

d = level of statistical significance (usually 0.05)

$$n = \frac{1.96^2 \times 0.5 \times 0.5}{0.05^2} = 384$$

To cater for non-responses the researcher included an additional 10% of the sample size. Thus, sample size was 422 since the study population was more than 10,000.



Data Collection Techniques

Semi-structured research questionnaires were employed in collecting quantitative data. The questionnaires were administered in English/Kiswahili or other local languages to make sure the participants understood them. Questionnaires were administered to the respondents by trained research. The researcher supervised, guided, and monitored the process.

To avoid data loss and ensure confidentiality throughout the study period, the filled questionnaires were kept in locked cabinets and accessed by the researcher only. Qualitative data were obtained from focused group discussions held with primary respondents in four FGD sessions. The FGD sessions were carried out in a room within the Ward Headquarter offices of each selected ward. The sessions were moderated by the researcher with the research assistants recording their audio views and by taking notes. The researcher further had key informant interviews with 20 healthcare providers to supplement information obtained from patients. Their suggestions, opinions and views were considered.

Data Management and Analysis

Quantitative data was entered and stored in Microsoft Excel program. Data was cleaned and edited where inconsistent, missing, and extreme values were identified and corrections made. For easy presentation, analysis and manipulation data was coded and verified. Data was then exported to SPSS software version 20.0 for analysis. Presentation of descriptive analysis was in form of graphs, charts, frequency tables and percentages. Inferential statistics were computed using Pearson's Chi-square and Fisher's Exact Test presented in cross tabulations. This was done at 95% confidence

interval and p-values of less than 0.05 were considered significant in testing the association between study variables. Qualitative data from the FGDs and KII was analysed through examination of patterns and trends of responses to generate themes. Key results were presented as direct quotes or narrations and triangulated to validate and enrich the quantitative findings. To determine the determinants of the utilization of Obstructive Fistula service, a multiple logistic regression was undertaken from the factors which Univariately turned out to be significant using the equation below.

$$\log \left[\frac{Y}{1-Y} \right] = b_0 + b_1x_1 + \dots + b_nx_n$$

Ethical Consideration

The researcher sought approval from Kenyatta University Graduate School. The study obtained ethical clearance from Kenyatta University Ethics and Review committee. A research permit was sought from the National Council for Science, Technology and Innovation (NACOSTI). Research authorization was sought from Makueni County Commissioner, County Director of Education and County Director of Health Services. Permission was also sought from the local administration units including the Wards, area Chiefs, Sub-chiefs, and village elders.

The study sought informed consent from research participants before they were interviewed. The purpose of the study was clearly explained, and participants advised of the voluntary nature of their participation. Their identities were kept private and confidential, and the collected information used only for the purpose of this study. Consent for those aged below 18 years was obtained from their parents/guardians. The findings of this research would be presented to Kenyatta University,



Makueni County and the National Commission for Science, Technology, and Innovation.

Results

Socio-Demographic Characteristics

The researcher administered 422 questionnaires to women of reproductive age who had given birth within a period of six months. The study was conducted between June-July 2019. Duly filled and returned questionnaires were considered and considered for analysis. Data was checked and cleaned; 389 questionnaires considered fit representing a 92.18% response rate.

The results showed that the participants were at least 15 years of age. Less than half 164 (42.2%) of the respondents were 25-34 years followed by 111 (28.5%) aged 35-44 years. Majority (251;64.5%) were married while 99 (25.5%) were single. Slightly more than half (204;52.4%) had secondary level education then 100 (25.7%) with primary level of education. The study revealed that 171 (44.0%) of the respondents interviewed were not employed followed by 148 (38.0%) of them who were self-employed. Slightly less than a third 117 (30.1%) of the respondents had an average of Kshs 6000-10000 monthly income. This was followed by 85 (21.9%) who reported an average of Kshs 5000 as their monthly family income as shown in the table 1 below:

Table 1: Distribution of Socio-Demographic Characteristics among Respondents (N=389)

Variable	Respondent response	Frequency (N)	Percentage (%)
Age	15-24	83	21.3
	25-34	164	42.2
	35-44	111	28.5
	≥45	31	8.0
Marital status	Married	251	64.5
	Single	99	25.4
	Divorced/widowed	39	10.1
Highest level of education attained	No formal education	23	5.9
	Primary	100	25.7
	Secondary	204	52.4
	Tertiary	62	15.9
Occupation	Employed	70	18.0
	Self-employed	148	38.0
	Not employed	171	44.0
Average family monthly income (KShs)	< 5000	85	21.9
	6000-10000	117	30.1
	11000-15000	70	18.0
	16000-20000	55	14.1
	≥ 21000	62	15.9



Utilization of Fistula Services

The researcher sought to learn the proportion of the respondents who had ever utilized fistula services. Majority 265 (68%) of the respondents had never utilized any fistula services while only 124 (32%) of the respondents had utilized as shown in the figure 1 below.

Qualitative results established that Obstructive Fistula utilization was inadequate

among women of reproductive age in Makueni County. One of the Focused Group Discussants explained:

“...I have never utilized OF...there are inadequate sensitization programs or campaigns tailored towards reaching most women who are at risk of developing this condition...”

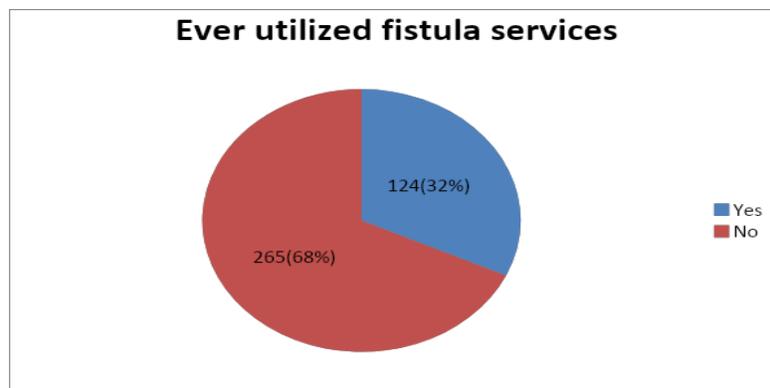


Figure 1: Utilization of Fistula Services among Respondents

Type of Services Utilized

The researcher further sought to know the type of fistula services utilized by the respondents. The study revealed that among the respondents who had utilized fistula services, 55

(44.4%) had sought counseling services, 38 (30.6%) screening services and the rest 31 (25.0%) had sought fistula treatment. The figure 2 below shows the results on the type of services utilized:

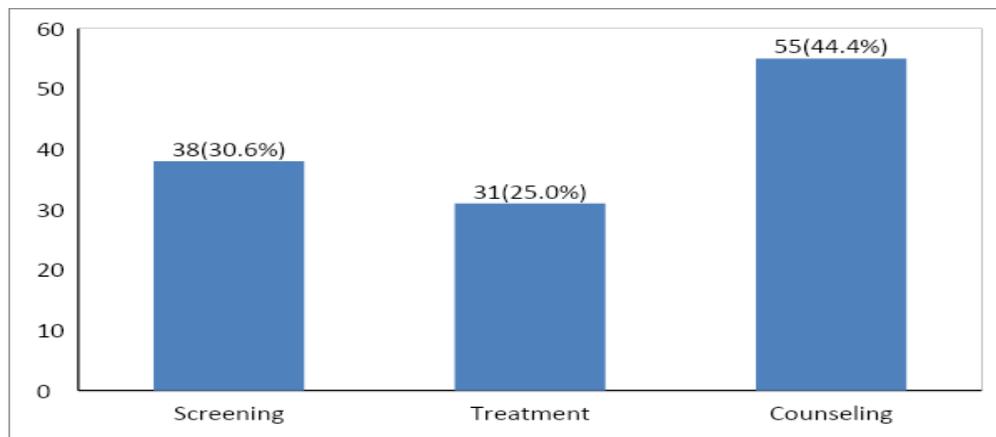


Figure 2: Type of Services Utilized by Respondents



Facilitators for Fistula Service Utilization

The research showed that more than half (70; 56.5%) of the respondents liked the reception when they sought fistula services, while the rest (54; 43.5%) did not like the reception. When they were asked whether they received any health information before, during and after receiving the service, the study found out that majority (84; 67.7%) of them received information while 40

(32.3%) did not receive any information. Most (79; 63.7%) of the participants reported that healthcare services were not readily available for them with the rest (45; 36.3%) revealing the services were available for them whenever needed. In terms of affordability of the services sought, majority (85;68.5%) felt that the services were not affordable for then while 39 (31.5%) felt they were affordable when needed. Table 2 below shows the results:

Table 2: Factors for Fistula Service Utilization among Respondents

(N=124)

Independent variable	Respondent response	Frequency (N)	Percentage (%)
Liked reception while seeking the services	Yes	70	56.5
	No	54	43.5
Received information about the services	Yes	84	67.7
	No	40	32.3
Healthcare services readily available	Yes	45	36.3
	No	79	63.7
Affordability of services sought	Yes	39	31.5
	No	85	68.5

Hindrances for Seeking Fistula Services

Regarding hindrances to utilization of fistula services, among the respondents who had not utilized fistula services, slightly above a third (94;35.5%) of them reported they did not know whether the services were offered followed by 63

(23.8%) of them who felt that cost was the major hindrance to utilization of such services. The other respondents reported (46 ;17.4%) that the health facility was far, 31 (11.7%) inadequate equipment and 31 (11.7%) insensitive health care workers. The results were as shown in the figure 3 below:

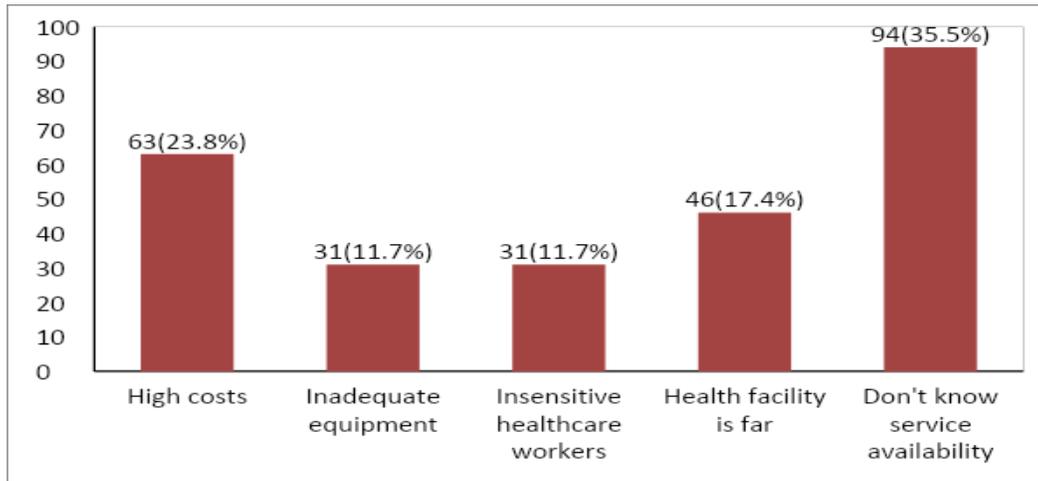


Figure 3: Hindrances for Seeking Fistula Services among Respondents

Socio-Demographic Factors and Utilization Services

The study sought to find out the socio-demographic factors influencing utilization of fistula services. Less than half (115;43.4%) aged 25-34 years did not utilize fistula services. Utilization of fistula services and respondent's age had an association ($p=0.001$). Majority (171;64.5%) of the married had not utilized fistula services. However, marital status and utilization of fistula services ($p=0.088$) had no statistical connection.

More than half 152 (57.3%) of participants who had attained secondary level of education had not utilized fistula services. The association between highest level of education attained and utilization of fistula services ($p=0.002$) was statistically significant. Regarding occupational status the study found out that

slightly less than half 128 (48.3%) of the respondents who were not employed had not utilized any fistula services. There was an association between the respondents' occupational status and utilization of fistula services ($p=0.001$).

Slightly more than a third (92 ;34.7%) whose monthly income was between Kshs 6000-10000 had not utilized fistula services. The results further showed that there was a statistical association between education level (primary, secondary and tertiary), occupation (self-employed and not employed) and income levels and utilization of fistula services ($p<0.05$).

Respondents aged between 15 – 24 years were 1.3 (0.8-2.1) times more likely to utilize the OF, single respondents were 1.4 times more likely to utilize the OF and primary school level of education respondents were likely (2.3) to utilize the OF. Table 3 below shows the findings



Table 3: Association between Socio-Demographic Factors and Utilization of Fistula Services among Respondents (N=389)

Independent variable	Respondent response	Dependent variable (Ever utilized fistula services)		OR (95%CI)	Chi - Square, DF, P-Value
		Yes (N=124)	No (N=265)		
Age	15-24	30(24.2%)	53(20.0%)	1.3 (0.8 – 2.1)	$\chi^2 =42.17$ DF= 3 P<0.001
	25-34	49(39.5%)	115(43.4%)	0.9 (0.6 - 1.3)	
	35-44	31(25.0%)	80(30.2%)	0.8 (0.5 – 1.3)	
	≥45	14(11.3%)	17(6.4%)	1.1 (0.5 – 2.3)	
Marital status	Married	80(64.5%)	171(64.5%)	1.0 (0.6 – 1.6)	$\chi^2 =4.86$ DF=2 P=0.088
	Single	37(29.8%)	62(23.4%)	1.4 (0.9 – 2.2)	
	Divorced/widowed	7(5.7%)	32(12.1%)	0.4 (0.2 – 1.0)	
Highest level of education attained	No formal education	9(7.3%)	14(5.3%)	1.4 (0.6-3.3)	$\chi^2 =14.50$ DF=3 P=0.002
	Primary	46(37.1%)	54(20.4%)	2.3 (1.4-3.7)	
	Secondary	52(41.9%)	152(57.3%)	0.5 (0.3-0.8)	
	Tertiary	17(13.7%)	45(17.0%)	0.2 (0.1 – 0.3)	
Occupation	Employed	23(18.5%)	47(17.7%)	1.1 (0.6 – 1.8)	$\chi^2 =56.33$ DF=2 P<0.001
	Self-employed	58(46.8%)	90(34.0%)	1.7 (1.1 – 2.6)	
	Not employed	43(34.7%)	128(48.3%)	0.6 (0.4 – 0.9)	
Average family monthly income (KShs)	< 5000	15(12.1%)	70(26.4%)	0.3 (0.2-0.7)	$\chi^2 =33.94$ DF=4 P<0.001
	6000-10000	25(20.2%)	92(34.7%)	0.5 (0.3-0.8)	
	11000-15000	38(30.6%)	32(12.1%)	3.2 (1.9 – 5.5)	
	16000-20000	24(19.4%)	31(11.7%)	1.8 (1.0 – 3.2)	
	≥ 21000	22(17.7%)	40(15.1%)	1.2 (0.7 – 2.1)	

Discussions

Socio-Demographic

The study sought to learn the socio-demographic factors that influence utilization of obstetric fistula services among women of reproductive age in Makeni County. The results obtained revealed that majority of respondents were aged between 25-34 years. This may be attributed to the fact that this is a prime productive age among women in the African communities. They also form a larger part within the reproductive age category among women in a true Kenyan context with most of them having completed their secondary and college studies. The results were contrary to a study done in Nigeria which revealed that majority of respondents who sought obstetric fistulae services were aged 15-26 years (Basheer et al., 2015).

There was a significant statistical association between age and utilization of

obstetric fistulae services. It was further indicated that those in the age brackets of 25-34 years utilized more of these services. This may be attributed to the fact that this is the age category when they prefer getting children consequently being exposed to a possibility of developing obstetric fistulae. This could also be because they were most of the respondents interviewed.

The results were inconsistent with another study done in Kenya, Uasin Gishu County in which majority of those who sought treatment for obstetric fistula were aged 15-24 (Muia, 2017). This perhaps is because this is a young cohort who probably experience complications during pregnancy and eventual delivery. The results concur with another Kenyan study which revealed that majority of those who sought treatment for obstetric fistula aged late 20s and early 30s (Khisia et al., 2017).

The study revealed that most of the respondents were married. This is because such an age is when majority of the women prefer



getting married to bear children while they are young to take care of their families. Similarly, another study done in Nigeria revealed that majority of respondents interviewed on obstetric fistula were married (Basheer et al., 2015).

The study results showed that majority of respondents had attained a secondary level of education. This is because in true contemporary Kenyan society, most people are secondary school leavers because of government support in provision of basic education. This is because the government seeks to see out a 100% transition rate to secondary schools from primary education. The results were contrary to a study done in Nigeria which revealed that majority of the respondents interviewed had attained a primary level of education thus barring them from accessing information with regards to their health status (Ameka, 2018).

There was a significant statistical association between level of education and utilization of fistulae services as education enlightens and create more awareness on the essence of seeking health services for the betterment of their health status. The results agreed with another study done in Uganda which showed that education increases chances of seeking health care services as it informs the respondents on the need to seek medical attention. This also enables women to know the risk factors associated with occurrence of maternal complications (Barageine et al., 2014).

The study revealed that slightly less than half of respondents were not employed. This may be because the study was done in a rural area where employment opportunities were limited especially with most women tasked with playing the role of housewives. In India, unskilled occupational respondents formed majority of those interviewed on utilization of obstetric fistulae (Chauhan et al., 2015). Occupational status influenced utilization of fistulae screening

services as most women who were not employed did not utilize such services. This could be since they lacked the means of accessing such vital services among women of reproductive age who might be at risk especially those who had experienced childbirth. The results were contrary to a study done in India which showed that there was no association between occupational status and seeking of screening services among women of reproductive age (Chauhan et al., 2015).

The findings further showed that slightly less than a third of the respondents earned an average of average of Kshs 6000-10000 monthly family income. This is because majority of the women interviewed were not employed due to limited employment opportunities in the current Kenyan context. There are also limited self-employment opportunities due to high living standards thus getting enough capital to start a business becomes challenging. The results were contrary to a study done in Kenya, Machakos County which showed that majority of respondents interviewed on socio-economic factors influencing occurrence of vesico-vaginal fistulae earned an average monthly family income of less than 6000 shillings (Munene et al., 2017). There was a significant statistical association between average monthly income and utilization of fistulae services. This could mean the amount they earned could not enable them to seek for screening services unless urgency dictates otherwise. The results were like another study done in Nigeria which revealed that the level of income plays a significant role in seeking obstetric screening services among women of reproductive age (Ezeonu et al., 2017).

Utilization of Obstetric Fistulae Services

The findings of the current study revealed that majority of the respondents had never sought fistulae services. This could be



because this condition is a rare occurrence hence a few of those who ever utilized such services were more likely exposed to developing obstetric fistula or were more at risk. This means a low utilization rate of obstetric fistulae services among women of reproductive age in Makueni County. In fact, globally about 20% of women of reproductive age seek obstetric fistulae services (Jakhio et al., 2014). According to Mwangi (2017), majority of people with obstetric fistulae never utilize fistula services due to hindrances in obtaining care. In Ghana, despite the availability of fistula repair services, there are low utilization rates (Delamouet *et al.*, 2016).

Regarding the type of fistula services utilized, study results revealed that among the respondents who had ever utilized fistula services, slightly less than a half had sought for counseling services with minimal number going for screening and eventual treatment. This may be due to other factors that hinder screening and treatment for fistula among affected individuals. These findings were like another study done in Kenya in which it was revealed that there were low screening rates among people at risk of developing the condition (Musyoki et al., 2016). In another study, low treatment rates were associated with low level of education as people tend to ignore deteriorating health conditions such as being at risk of developing OF due to lack of adequate information (Hawkins et al., 2013).

The results further revealed that among those who sought for fistula services, several factors played a significant role. Regarding how the respondents were handled during seeking such services, majority of the respondents received a warm welcome. Good reception ensures patients seek services and ensure continuity of care. Unfriendly interaction with care providers means patients shy from seeking health services thus hence their problems are unknown to the health care system since they are

suffering in silence and in isolation (Barone *et al.*, 2015). Proper counseling enables people to stick to treatment options prescribed to them (Matoke, 2018). During counseling and screening sessions provision of information on the individual patient by healthcare providers is of paramount significance.

Availability of services is another factor that influences utilization of fistula services. In the current study, it was revealed that obstetric fistulae services were not readily available to those who utilized. This is because not all health facilities in Makueni County provide fistula services. This may mean that respondents travelled larger distances to seek screening and treatment services in facilities where they were being provided. This greatly impacts on the utilization rates as there may be people who are suffering from such a condition but are locked out due to service unavailability within their reach.

In low-income countries availability of health services is a major hindrance to seeking medical care (Baker et al., 2017). According to a study done in Neighboring Tanzania, the results revealed that transportation to health facilities, especially to people with low financial power is major obstacle to access to health services and consequently people tend to live with untreated fistula (Mselle et al, 2016).



Conclusion

The study revealed that several socio-demographic factors influenced utilization of fistula services in Makueni County. In fact, age, highest level of education attained occupation and average monthly family income significantly influenced service utilization. Findings of this study showed that the rate of fistula service utilization was low. It was further revealed that counseling was the most after sought service, followed by screening and finally fistula treatment. This may be due to existence of social hindrances such as low awareness levels, high costs and availability of services.

References

1. **Ameka, O. P.** (2018). Determinants of Obstetric Fistulas occurrence among Kenyan women.
2. **Baker, Z., Bellows, B., Bach, R., & Warren, C.** (2017). Barriers to obstetric fistula treatment in low-income countries: a systematic review. *Tropical Medicine & International Health*, 22(8), 938-959.
3. **Barageine JK, Tumwesigye NM, Byamugisha TK, Almroth L and Faxelid E.** (2015). Risk factors for occurrence of obstetric fistula in Western Uganda: a case-control study. *Plos One* 2014; 9:e112699
4. **Barone MA, Widmer M, Arrowsmith S, Ruminjo J, Seuc A, Landry E, Barry TH, Danladi D, Djangnikpo L,** (2015). Breakdown of simple female genital fistula repair after 7 day versus 14 day postoperative bladder catheterisation: a randomised, controlled, open-label, non-inferiority trial. *Lancet*. 2015;386(9988):56–62.doi: 10.1016/S0140-6736(14)62337-0.
5. **Basheer, S. A., &Pumpaibool, T.** (2015). Knowledge, Attitude and Maternal Health Care Utilization among Married Women of Reproductive Age towards Vesicovaginal

- Fistula in Kebbi State, Nigeria. *Journal of Health Research*, 29(2), 93-100.
6. **Chauhan, S., Kulkarni, R., & Agarwal, D.** (2015). Prevalence & factors associated with chronic obstetric morbidities in Nashik district, Maharashtra, India. *The Indian journal of medical research*, 142(4), 479
 7. **Delamou A, Diallo M, Beavogui AH, Delvaux T, Millimono S, Kourouma M, Beattie K, Barone M, Barry TH, Khogali M, Edginton M, Hinderaker SG, Ruminjo J, Zhang WH.** (2016). Factors associated with obstetric fistula repair failure in Guinea: Implications for practice. *Reproductive Health*, 13(135):1-9.
 8. **Dworkin S, Ghandi M. and Passano P.** (2016).Fistula in Kenya: A holistic model for outreach, treatment and reintegration. In *Women's Empowerment and Global Health: A Twenty-First-Century-Agenda*. California, University of California Press.
 9. **Ezeonu, P.O, Ekwedigwe K. C., Isikhuemen M. E., Eliboh M. O., Onoh R. C., Lawani L. O., Ajah L. O., and Dimejesi E. I.** (2015):Awareness of Obstetric Vesicovaginal Fistula among Pregnant Women in a Rural Hospital. *BMC Pregnancy and Childbirth* Vol.5 No.3(2017), Paper ID 78621 pp 1-8.
 10. **JokhioAH , RM Rizvi ,J Rizvi ,C MacArthur.** (2014). Prevalence of obstetric fistula: a population-based study in rural Pakistan . 2014 <https://doi.org/10.1111/1471-0528.12739>
 11. **Kalembo F.W and Zgambo M.** (2016).ObstetricFistuala: A hidden Public Health Problem in Sub-Saharan Africa. *Arts and Social Sciences Journal*.
 12. **Kayla McGowan and Sarah Hodin.**(2017). Obstetric Fistula: A Global MaternalHealth challenge. Havard, *Cambridge*; Massachusetts.
 13. **Keya Kaji, Sripad Pooja, Nwala Emmanuel and Warren Charlotte** (2018).



- Poverty is the big thing: Exploring financial, transportation and opportunity costs associated with fistula management for Nigeria and Uganda. *International Journal for Equity in Health*, 2018(17):70
14. **Khisa, A. M., Omoni, G. M., Nyamongo, I. K., & Spitzer, R. F.** (2017). 'I stayed with my illness': a grounded theory study of health seeking behaviour and treatment pathways of patients with obstetric fistula in Kenya. *BMC women's health*, 17(1), 92.
 15. **Matoke, V. O.** (2018). Health Seeking Behavior Associated With Prostatism Among Men Aged Over Forty Years In Nyamira County, Kenya (Doctoral Dissertation, Kenyatta University).
 16. **Maulet, N., Berthé, A., Traoré, S., & Macq, J.** (2015). Obstetric fistula "disease" and ensuing care: patients' views in West-Africa. *African journal of reproductive health*, 19(1), 112-123.
 17. **Mselle, L. T., & Kohi, T. W.** (2016). Healthcare access and quality of birth care: narratives of women living with obstetric fistula in rural Tanzania. *Reproductive health*, 13(1), 87.
 18. **Muia, C. M.** (2017). Women's perceptions and experiences of post-operative physiotherapy management at an Obstetric Fistula Center in Eldoret, Kenya. University of Nairobi, Nairobi.
 19. **Munene, F., Gicheru, M. M., Warutere, P. N., Wachira, S. G., & Njogu, J. W.** (2017). Socio-economic Factors Associated with Patients with Vesicovaginal Fistula in Machakos County, Kenya. *Asian Journal of Public Health* 2017;11(5):71-76
 20. **Musyoki, G. K.** (2016). The effects of obstetric fistula on womanhood: the case of West Pokot County, Kenya (Doctoral dissertation, Kenyatta University). *Kenyatta University, Nairobi*.
 21. **Mwangi Henry** (2017). Factors associated with obstetric fistula repair failure admitted at Gynocare Women's and Fistula Hospital in Kenya, 2012-2016: A case control study. Nairobi, *Nairobi University Printing Press*.
 22. **Nambala Nchimunya** (2012). Women's intention to prevent Vesico-vaginal fistula recurrence in two repair hospital in Zambia. University of Zambia, Zambia. Ngugi Ak, Agoi F, Mahoney MR, Lakhani
 23. **Nasser Kasamba, Dan K Kaye and Scovia N** (2013): Community awareness about risk factors, presentation and prevention and obstetric fistula in Nabitovu village, Iganga district, Uganda *BMC pregnancy and childbirth* 2013:1471-2393/13/229
 24. **Okoye, U. O., Emma-Echiegu, N., & Tanyi, P. L.** (2014). Living with vesico-vaginal fistula: experiences of women awaiting repairs in Ebonyi State, Nigeria. *Tanzania Journal of Health Research*, 16(4).
 25. **Oladapo O.T, Adetoro O.O, Ekele B.A, Etuk S.J, Adegbola O.G and Geidam A.D** (2015). Nigeria's Near miss and Maternal deaths surveillance Network. When getting there is not enough: A nationwide cross-sectional study of 998 maternal deaths and 1451 near misses in public primary hospitals in a low income country. *BOGJ*
 26. **Omboga, J.** (2018). Characteristics of obstetric fistula women repaired at Kisii Gynocare Fistula Centre. *Nepal Journal of Obstetrics and Gynaecology*, 13(2).
 27. **Roka Z.G. et al** (2013). Factors associated with obstetric fistulae occurrence among patients attending selected hospitals in Kenya, 2010: A case control study. *BMC Pregnancy and Childbirth*, 13(1).
 28. **Taylor-Smith K, Zachariah R, Manzi M, van den Boogaard W, Vandeborne A, Bishinga A,** (2014). Obstetric Fistula in Burundi: a comprehensive approach to managing women with this neglected disease. *BMC Pregnancy Childbirth*.



- 2014;14:164. doi: 10.1186/1471-2393-14-164.
29. **Tuncalp O, Tripathi V, Landry E, Stanton CK, and Ahmed S.** 2015. Measuring the incidence of obstetric fistula: approaches, needs and recommendations. *Bulletin of the World Health Organization*. Geneva, Switzerland.
 30. **Umeora OJ, Emma-Echiegu NB** (2015) Vesico-Vaginal Fistula in Developing Countries - Time to Turn off The Tap. *J Preg Child Health 2*: e120. doi:10.4172/2376-127X.1000e120
 31. **UNFPA** (2016). UN report on obstetric fistula. New York, UNFPA.
 32. **WHO** (2015). Measuring the incidence and prevalence of Obstetric Fistula: Approaches, needs and recommendations. *Bulletin of World Health Organization* 2015, 93:60-62.
 33. **WHO** (2016). *Fistula statistics in Kenya*. Geneva, Switzerland.
 34. **WHO** (2018). *Obstetric fistula. Guiding principles for clinical management and programme development*. Geneva: Lewis G and de Bernis L; 2016. Assessed 25 Sept 2018. Available at: http://apps.who.int/iris/bitstream/10665/43343/1/9241593679_eng.pdf.
 35. **WHO.UNICEF.UNFPA.** (2015). *World Bank Group and the United Nations Population Division . Trends in maternal mortality: 1990 to 2015: estimates by WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division*. Geneva: WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division.