

Prevalence and Factors Associated with Obstetrics Fistula among Women Admitted at Kitwe Teaching Hospital for Obstetrics Related Conditions between 2021-2022

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Abstract

An estimated 3,000 women in Zambia suffered from obstetric fistula. Suggestions are that more women could be suffering from the same condition but do not report it due to fear of stigmatization. Incidences of obstetric fistula in Zambia may indicate that most pregnant women do not access the much-needed maternal health services, especially at the time of delivery. Therefore, determining the prevalence and understanding the factors that lead to obstetric fistula is vital for developing primary preventive interventions. This study determined the prevalence and factors associated with obstetric fistula among women admitted at Kitwe Teaching Hospital for obstetric related conditions between 2021-2022.

Methodology: This study was a cross-section and used data from Kitwe Teaching Hospital patient records from 2021-2022 on women who gave birth at the hospital and those who gave birth from other hospitals and clinics and later developed obstetric complications that were referred to be managed at Kitwe teaching hospital. Physical interviews on the challenges women face by living with obstetrics fistula was done on the patients available at the institution during the data collection period. The study consisted of 950 women admitted at this hospital for obstetric related conditions. In compiling and analyzing the data collected, SPSS v 26.0 was used. Results were summarized in frequency distribution and cross tabulation tables and pie charts.

Results: A total of 30 women out of 950 women admitted for obstetric related conditions had obstetric fistula representing a prevalence of 3.15%. The identified risk factors were young age at getting married and first pregnancy (50% below 18 years), low socio-economic status, and long distance to the health facilities and home deliveries, low level of education and short physical stature. Half of the women (50%) had not attended antenatal care and had only primary level of education. The study also identified discrimination, stigma and limitation of participation on social and religious life as challenges fistula women face due to living with this condition. Other challenges included psychological, sexual and economic problems.

Keywords: Central Statistics Office (CSO) • Obstetric fistula • Vesico-Vagina Fistula (VVF) • Demographic and Health Survey (DHS) • World Health Organization (WHO)

Abbreviations: CSO: Central Statistics Office; FGM: Female Genital Mutilation; IEC: Information, Education and Communication; MOH: Ministry of Health; NGO: Non-Governmental Organization; TBA: Traditional Birth Attendant; WHO: World Health Organization; UNFPA United Nations Population Fund; UTH: University Teaching Hospital; EmOC: Emergency Obstetric Care; RVF: Recto Vaginal Fistula; VVF: Vesico-Vaginal Fistula Mission Hospita

Introduction

Background

When people first learn about obstetric fistula, their reaction is often to reject hearing it more. The subject is just too unpleasant! Yet

rejection is often what happens among women living with it. Obstetric fistula is no longer seen in affluent nations, yet it continues to cause untold sufferings among millions of women in the developing world. This preventable and treatable condition primarily occurs in sub-Saharan Africa and southern Asia. In 2014, the World Health Organization (WHO) estimated that more than 130,000 new cases of obstetric fistula are recorded in Africa alone [1].

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Medically, obstetric fistula is defined as abnormal link or communication that develop between a woman's vagina and either the bladder or rectum resulting into continuous leakage of urine and/or faeces [2]. This condition is caused by unrelieved obstructed labour in which the entrapped foetal head impacts the soft tissues of the vagina, bladder and rectum against the pelvis causing widespread pressure necrosis and leading into the development of a hole between adjacent organs. This leaves woman leaking urine and sometimes faeces uncontrollably through the vagina, with possible additional consequences including total urethral loss and neurological damage to the lower limbs. Obstetric fistula can either be Vesico-Vagina Fistula (VVF) or Recto-Vagina Fistula (RVF) [3]. In vesico-vagina fistula, urine leak into the vagina uncontrollably whereas in recto-vagina fistula, faeces leak into the vagina.

Studies done on obstetric fistula in Africa are very few mainly due to scarcity of data. For instance, only a small number of studies in sub-Saharan countries have included the question on obstetric fistula in their Demographic and Health Survey (DHS). These countries include Ethiopia, Uganda, Malawi and Zambia [4]. In Ethiopia, Biadgilign, et al. analyzed data from Ethiopian National Demographic and Health Survey (EDHS) and found out that women from rural areas had lower odds of reporting obstetric fistula compared to women in the urban areas. In Malawi, Johnson conducted studies using the Malawi DHS 2004-2005 data and reported a fistula prevalence rate of 15.6 obstetric fistula cases per 1000 live births. While in Uganda, Sagna, et al. used the 2006 Uganda DHS data and found out that lack of autonomy among women was an important risk factor of obstetric fistula.

Much of obstetric fistula studies in Zambia were done at local levels. The first local study was Wadhawan-Wacha, et al. study done at university teaching hospital in Lusaka which revealed that vesico-vaginal fistula was the dominant type of obstetric fistula for fistula patients at this hospital. The second local study was Holme, et al. study done in Southern Province of Zambia at Monze Mission hospital in which the researchers investigated characteristics of obstetric fistula among women managed at this hospital. In Eastern Province of Zambia, Nambala, et al. did a research at Katete and Chilonga mission hospital in which the researcher investigated the intentions to prevent recurrence of Vesico-Vagina Fistula (VVF) and the knowledge of the risk factors [5].

While these studies presented evidence of obstetric fistula on a small sample of women at local level, Zambia is still lacking an up to date nationwide population based studies on the prevalence and awareness of risk factors to developing obstetric fistula. Thus, this study will provide recent findings on prevalence and factors associated with obstetric fistula among women admitted at Kitwe teaching hospital.

Statement of the problem

Obstetric fistula is a condition of public health concern since the condition can be prevented and treated [6]. Untreated fistula can complicate into infertility, neurological disorders, stillbirth and death of the baby within seven days of life [7]. Furthermore, the inability to conceive and give birth to another child could leave a woman grief-stricken. The negative psycho social consequences that result from obstetric fistula are detrimental to the well-being of affected women and their relations [8]. Common experiences such as

stigma, divorce, rejection and isolation as a result of bad odour limit their probabilities to secure jobs and affecting participation in community development work. Some women have been reported involving themselves in commercial sex and begging as a survival strategy [9].

In 2003, the United Nation Population Fund (UNFPA), Non-Governmental Organizations (NGO) and Zambian government started a nationwide campaign to end fistula in line with the 2015 MDG, and its aim pertaining MDG was to be met by 2015. The aim was to improve maternal health and reduce the number of fistula cases to zero by 2015 especially in developing countries such as Zambia. However, despite the strides that have been made, recent estimates by UNFPA show that at least 3,000 obstetric fistula patients await surgery each year in Zambia. It is suffice to mention that values reported by UNFPA 2017 may be underestimated since many affected women remain unidentified owing to social isolation by their partners and communities [10].

According UNFPA 2017 annual report, numbers of fistula patients have increased from 2,000 in 2015 to 3,000 in the year 2017 countrywide. However, there has been under reporting of fistula cases with statistical variations appearing in Ministry of Health (MOH) and hospitals reports [11]. Furthermore, there are inadequate health care professionals and facilities to repair fistula cases. Several women with fistula do not undergo fistula repair due to shortage of professional staffs.

Globally, obstetric fistula has resulted in the dissolution of intimate relationships between women suffering from the condition and their partners [12]. In Zambia, the study done by Holme, et al. found out that women who experienced fistula condition during childbirth fall prey not only to divorce and depression but also suffer from poverty. Despite this reiteration, little has been documented and published on how education attainment, wealth status and woman's autonomy relate to fistula condition in Zambia. Also, no studies have been published in Zambia on the prevalence of obstetric fistula at Kitwe teaching hospital. It is for these reasons that this study will focus on determining the prevalence and identifying maternal factors associated with obstetric fistula among women admitted at Kitwe teaching hospital from 2021-2022.

Justification of the study

Most of obstetric fistula studies in Zambia have been focusing on determining the prevalence and succession of obstetric fistula treatment at national level [13]. Furthermore, no study has been done at primary level to determine the prevalence and maternal factors associated with obstetric fistula at Kitwe teaching hospital. Thus, this study will focus on this information gap by collecting data from obstetric fistula patient records and actual patients at Kitwe teaching hospital the biggest hospital in Kitwe district. The results from this study will help to formulate policies and strategies for preventing obstetric fistula occurrence and determine the appropriate support needed by fistula patients.

Literature Review

This section provides review of literature on the prevalence of obstetric fistula and associated risk factors at multiple levels which are globally, sub-Saharan Africa, Southern Africa and Zambia.

Sources of the reviewed literature included articles, professional journals, published researches, newspapers, and data from Zambia DHS and UNFPA publications on obstetric fistula.

Globally, the prevalence of obstetric fistula is divided between developed and undeveloped countries. In United States of America (USA) and Europe, obstetric fistula was eradicated between 1935 and 1950 owing to improved and high quality of obstetric care [14]. Studies show that obstetric fistula is more in the low income countries especially those in southern Asia and sub-Saharan Africa [15]. The difference may be attributed to the fact that obstructed labour still remains the major challenge in the low income countries. For instance, a study by Jorkhio, et al. which looked at the prevalence of obstetric fistula in rural Pakistan reported a prevalence rate of 0.4, while India showed that obstetric fistula prevalence ranged from 0.3% in urban India to 3.4% in rural India.

Sub-Saharan Africa has a relatively high incidence of obstetric fistula evidenced by more than 33,000 cases reported in single year in this region. A study in 19 sub-Saharan African countries using DHS data showed that there were at least 6 fistula patients per 1,000 women of reproductive age (15-49). These studies further showed that of the 19 countries Ethiopia and Zambia has the highest prevalence of women with symptoms of obstetric fistula. Variations in prevalence of obstetric fistula occurred among the 19 countries. For instance, Burkina Faso had a prevalence rate 0.4 while Uganda had a prevalence rate of 19.2 [16]. Conversely a study in Ethiopia, Gambia and Berlin reported a prevalence of 1.62 cases per 1,000 of women, in Ethiopia 0.96 cases per 1,000 women in Gambia, and 1.41 cases per 1,000 women in Berlin. In Tanzania the annual incidence rate of obstetric fistula has been reported to be at 3.38 cases per 1,000 women. Findings of Patel, et al. in Sierra-Leon showed that the prevalence rate was 606 cases per 100,000 of women. In addition, data obtained from global fistula map indicated that in the year 2013 about 2,300 fistula cases were treated in Uganda, 1,600 fistula cases in Ethiopia and 1,300 cases of fistula were treated in Nigeria [17]. It must be noted that most of the estimated incidences and prevalence of obstetric fistula reported in the studies were from hospital based studies. Therefore, there could be more unreported cases.

In Southern Africa, studies on obstetric fistula have been mostly published in Malawi and Tanzania. For example, a study that focused on the prevalence of obstetric fistula in Malawi found that the prevalence of obstetric fistula was 1.6 per 1,000 women [18]. In another study conducted in Malawi, the crude prevalence of obstetric fistula was 15.6 per 1,000 women. From the results of the two studies in Malawi, there is a contradiction in the prevalence of obstetric fistula. The contradiction may be due to the fact that the sizes of the study population in the two studies were different. For instance, a study by Kalilani-Phiri, et al. estimated the prevalence of obstetric fistula using a community survey of 9 districts and hospital records, whereas Johnson used Malawi DHS data which covers 28 districts.

In Zambia the prevalence rate of Obstetric fistula is suspected to be high, but most women do not report and die in silence at home. The UNFPA in 2002 reported a high maternal mortality rate ratio in which 870 women out of 100,000 expecting mothers died due to obstructed labour complications. Although certain countries managed to come up with rate of obstetric fistula using DHS data, very little at national level in Zambia is known about the

prevalence, factors associated with the risk of developing the condition and the impact of fistula on the woman's life. Most of studies in Zambia on obstetric fistula were conducted at a local level. In Southern province of Zambia, a study which investigated obstetric fistulae among women managed at Monze mission hospital was conducted in 2007. This study found that the education level for women with obstetric fistula was low, and that these women were short with a height of about 148.0 cm, and that 75% of the women with fistula were married. A study at the University teaching hospital in Lusaka reviewed the presence of urinary fistula, and found that out of the 61 fistula cases, 54 cases (89%) were a result of prolonged obstructed labour, 25% were teenage pregnancies, and 38% had given birth to their first child [19].

Another study at Katete and Chilonga mission hospitals investigated the intention to prevent the recurrence of obstetric fistula and knowledge of the risk factors. Findings revealed that approximately 69% of the women with vesico-vaginal fistula (a sub-type of obstetric fistula which develops between the vagina and rectum) were girls and young women between the ages of 12 and 20 years. In 2018 during the commemoration of international day to end obstetric fistula, the UNFPA reported that fistula cases are still high in rural areas where people do not know that this maternal condition is a treatable and preventable UNFPA Zambia, 2018 [20].

Objectives

The study question: What is the prevalence and factors associated with obstetric fistula among women admitted at Kitwe teaching hospital?

Main objectives: To determine the prevalence and maternal factors associated with obstetric fistula among women admitted at Kitwe teaching hospital.

Specific objectives of the study: The specific research objectives for this study are:

- To determine the number of obstetric patients admitted at Kitwe teaching hospital between 2021-2022.
- To determine the demographic and social-economic factors associated with obstetric fistula among women admitted at this hospital.
- To find out the perception of obstetric fistula by the people of Kitwe district.
- To establish the impacts of obstetric fistula on patients admitted Kitwe teaching hospital.

Hypothesis statement

Based on the reviewed literature and the conceptual framework presented in Table 1 below, the following hypotheses were being tested in this study.

H₁: Place of residence is associated with obstetric fistula.

H₂: Age at first sex is associated with obstetric fistula.

H₃: Household wealth status is associated with obstetric fistula.

Conceptual framework

The conceptual framework used in the study was adapted from Wall's framework for analysing the determinants of obstetric fistula formation. As shown in Table 1 below, the conceptual framework used three sets of determinants of obstetric fistula formation.

According to this framework, socioeconomic covariates have a direct influence on intermediate determinants such as health status, reproductive status, access to health care and use of health care resources, which in the end have an indirect influence on the development of obstetric fistula.

Remote determinants	Intermediate determinants	Acute clinical determinants
Socioeconomic and cultural factors women's status in the family and community <ul style="list-style-type: none"> • Education • Occupation • Income • Social and legal autonomy • Gender equity 	Health status <ul style="list-style-type: none"> • Nutritional status (anaemia, height, weight, pelvic capacity) • Infections and parasitic diseases • Other chronic conditions (diabetes, hypertension) 	Obstructed labour degree of cephalopelvic disproportion <ul style="list-style-type: none"> • Foetal sex, size, lie, and presentation • Foetal abnormalities (hydrocephalus, tumours)
Family's status in the community <ul style="list-style-type: none"> • Family Income • Education • Occupation • Social networks and • Political connections 	Access to health care <ul style="list-style-type: none"> • Location of family planning, prenatal care, emergency • obstetric services • Range of services available • Quality of care • Access to information about 	Level and nature of obstruction <ul style="list-style-type: none"> • Pelvic inlet, midpelvis, pelvic outlet • Extent of maternal tissues affected • Degree of bladder filling
Community's status <ul style="list-style-type: none"> • Aggregate wealth • Community resource 	Use of health care resources <ul style="list-style-type: none"> • Use of family planning • Receiving prenatal care • Receiving skilled care for labour and delivery • Intended location of delivery 	Forces of uterine contractions <ul style="list-style-type: none"> • Improper use of oxytocic preparations • Delays in receiving effective care • Delay in reaching a health

Table 1. A framework for analyzing the determinants of obstetric fistula formation.

Methodology

A cross-sectional study was done for obstetric fistula patients admitted at Kitwe teaching hospital between 2021-2022. This study was conducted for a period of two weeks. The variables captured included age of the obstetric fistula patient, age at first pregnancy, age at marriage, town or area of residence (rural or urban); highest educational level attained, occupation, and height of the patient, number of antenatal care visits and the challenges women face by living with this condition.

Study site

Kitwe teaching hospital is located in Kitwe district, copper belt province of Zambia which is about 290 km from the capital city Lusaka. The hospital has a larger catchment area beyond Kitwe district and Copperbelt Province such as areas in Northern due presence of specialized health cares offered. It has a catchment population of 735,000 as of 2022.

Study population

The study population comprised of the women with and without fistula admitted at Kitwe teaching hospital between 2021-2022 for obstetric conditions.

Independent variable: The independent variable was: Factors associated with obstetric fistula among women admitted at Kitwe teaching hospital.

Covariates: The perception of obstetric fistula by Kitwe residents. Covariates were grouped into socioeconomic, health status, reproductive

status, access to health care and use of health care resources based on the conceptual framework:

Sampling size

The following formula was used to determine the required sample size using the statistical program in Epi info version 7. A random representative sampling was employed. The sample size was determined using the formula below:

$$n = Z^2 pq / d^2 \text{ was used}$$

where,

n=Required sample size,

z=Standard normal value corresponding to 95% confidence interval (1.96),

p=Estimated proportion of women with obstetric fistula, which in this case is 15% prevalence estimated by Holme and colleagues,

q=p-1, and

d=Absolute errors between estimated and true value (5%). (i.e. ± 0.05) for the prevalence estimate Therefore, using the above formula,

$Z=(1.96)^2$ for 95% confidence interval (i.e. $\alpha=0.05$);

P=Prevalence estimates at 0.15 (based on 15% prevalence estimated by Holme,

e=Maximum tolerable error at 5% (i.e. ± 0.05) for the prevalence estimate;

The sample size was $n=(1.96)^2 \times 0.15 \times (0.15-1)/(0.05)^2$

Giving n=195 as the sample size targeted in this study.

Inclusion criteria

The people included in this study were women with and without obstetric fistula admitted at Kitwe teaching hospital for obstetric related conditions between 2021-2022 aged above 15 years.

Exclusion criteria

Women patients not managed for obstetric conditions and those aged below 15 years

Plan on data collection

Data was collected by: Requesting hospital records files of women admitted for obstetric conditions between 2021-2022 as well as physical interviews with fistula patients present at times of the study.

Data management in the field

A questionnaire was used to collect data in the field. This questionnaire contained questions whose answers were answered by obstetric fistula patient record files. The quality of questionnaires was assessed to ensure that they were easy to understand and fill.

Data entry

After the collection of data was done using a questionnaire it was entered in the computer using SPSS version 26.0. A double entry was done to ensure that the data was entered correctly, to achieve this, the data entry assistant also entered the exact data in another computer using the same software (Epi info version 26.0) and the results were then compared.

Data analysis

In this study, data analysis was both quantitative and qualitative. Firstly, after the data was entered into the computer using Epi data, it was then analysed using Epi info version 7. Data was summarized using frequencies and tables.

Results

Social, demographic, economical and obstetric findings

A total of 950 women were admitted for obstetric related conditions between 2021-2022 at this hospital. Out of this number a total of 30 women representing prevalence of 3.15% had obstetric fistula (Table 2). About 25 (83.3%) of the fistula cases were of vesicovaginal ones and 13.3% were rectovaginal. Uterovaginal fistulas occupied 3.3 of the total number with no single record of urethrovaginal fistula. From this study, a total of 15 women (50%) had their first deliveries before reaching 18 years and 26.7% had their first deliveries between 18-25 years. A 23.3 percent of these women had first deliveries when over 25 years. On the age of developing a fistula, 66.7 percent were below 18 years and 33.3 percent were above 18 years. A total of 18 women (60%) of these women were first married when below 18 years where as 23.3% where 18 years and above at first marriage. About 17.6% of the women were not married. Majority of the women (70%) came from rural areas and 30% from urban areas.

Regarding the number of deliveries the women had before developing fistula, 43.3 percent had more than 3 deliveries, 26.4% had not delivered before and 20% had 2 deliveries before. Only 10% had single delivery prior to developing fistula. Many of these fistula women (73.4%) experienced a very difficult labor delivering after abdominal expression (a strong push on the woman's abdomen facilitate the expulsion of the fetus) while 26.6% had normal labor. Majority of these women with fistula (73.4%) had either delivered from home or ambulance and the remaining 26.6% delivered from a health facility. About 60% of these women had a difficult delivery compared to the 40% who had uncomplicated labor (Table 3). A great number of these women had only primary education background (50%), 33.3% no education background and only 13.4% had secondary education. More than half have of these women (63.3%) were unemployed while 36.7% were in employment. Half total number (53.3%) was married, 23.3% divorced and 16.7% single while 6.7% separated from their partners. The median duration of labor was 24 hours. Twelve (40%) patients delivered within 12 hours of labor and 18 (60%) delivered after 24 hours.

Variables	Frequency (n)	Percentage (%)
Age at marriage		
Below 18 years	18	60
18 years and above	7	23.3
Not married	5	17.7
Age at first delivery		
Below 18 years	15	15
18-25 years	8	26.7
Above 25 years	7	23.3

Level of education		
No education	10	33.3
Primary education	15	50
Secondary education	4	13.4
Tertiary education	1	3.3
Occupation of the women		
Employed	11	36.7
Not employed	19	63.3
Marital status of women		
Single	5	16.7
Married	16	53.3
Divorced	7	23.3
Separate	2	6.7
Widowed	0	0
Place of residence		
Rural	21	70
Urban	9	30
Distance to the hospital		
Not a problem	12	40
Very big problem	18	60

Table 2. Socio-demographic factors of the respondent.

Variable parity	Frequency (n)	Percentage (%)
Primipara	10	33.3
1-3	4	13.4
Grand para	16	53.3
No. of ANC visits		
0	15	50
1	6	20
2	4	13.4
3 and more	5	16.6
Mode of delivery		
Prolonged delivery	8	26.6
Uncomplicated delivery	22	73.4

Table 3. Obstetric and physical characteristics of respondents.

Vesicovaginal Fistula (VvF) represented 83.3%, Rectovaginal Fistula (RvF) was 13.3% and Urethrovaginal Fistula (UvF) represented 3.3%. Altogether there were three types of fistula identified (Figure 1).

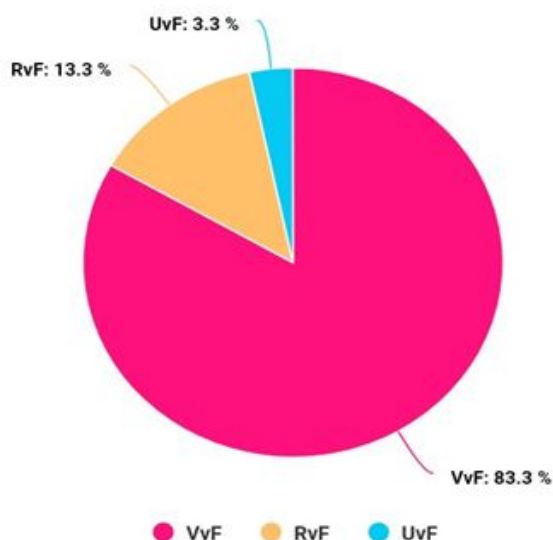


Figure 1. Types of obstetrics fistulae.

About 60% of these women were married below 18 years, 23.3% married. When above 18 years and 16.7% not yet married (Figure 2).

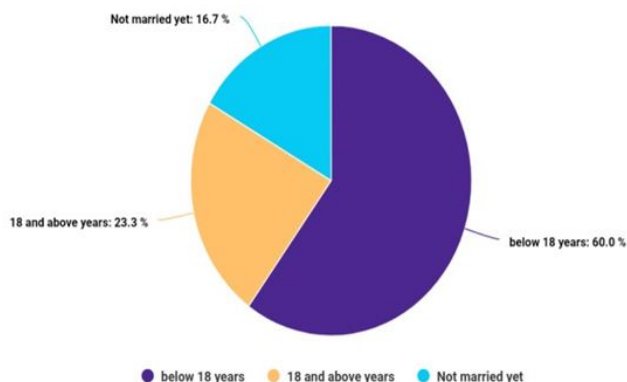


Figure 2. Age at first marriage.

Forty-three percent of the women had more than 3 deliveries, 20% 2 deliveries, 10% just a single delivery and 27% had not delivered before (Figure 3).

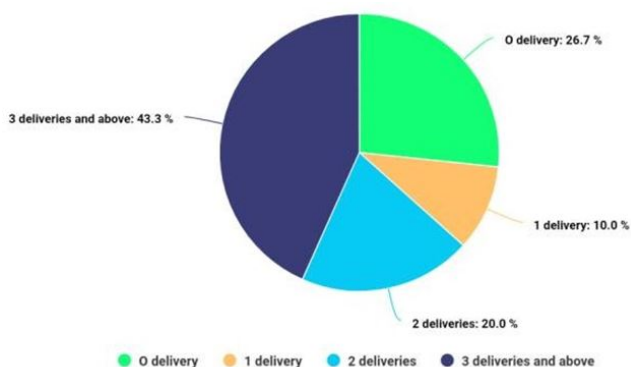


Figure 3. Deliveries before fistula development.

Half of the woman 50% didn't not attend any Antenatal care service, 20% had one visit, 13.3% had 2 visits and 16.7 had at least three visits (Figure 4).



Figure 4. Antenatal care visits.

About 50% of the women had only primary education, 33.3% had not attended any level of education, 13.4% reached secondary school level and 3.3% had tertiary education (Figure 5).

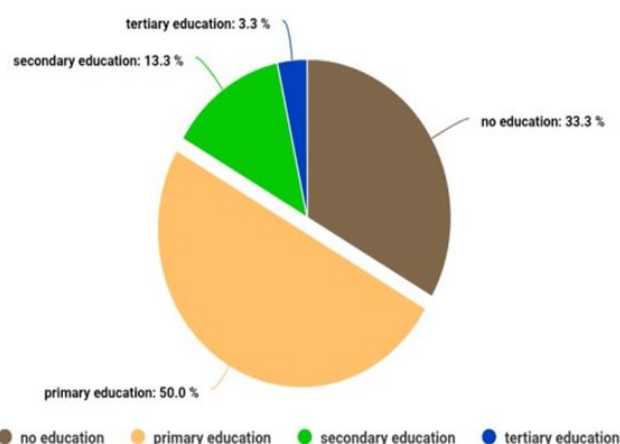


Figure 5. Level of education.

Fifty-three percent of the women were married, 16.7% single, 23.3% divorced, 6.7% separated and non-widowed (Figure 6).

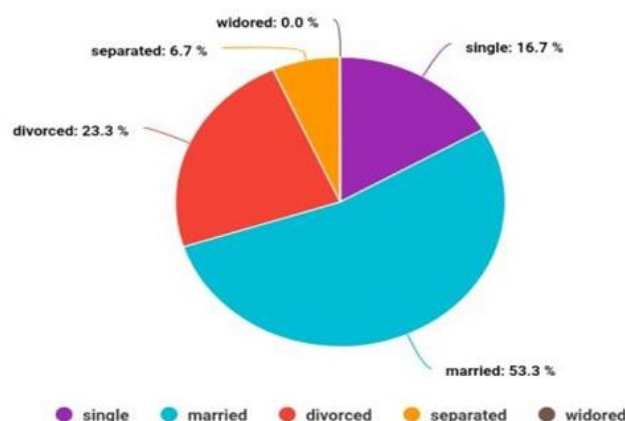


Figure 6. Marital status of the women.

Half the women had first delivery when below 18 years old, 26.7% delivered between 18-25 years and 23.3% delivered when above 25 years old (Figure 7).

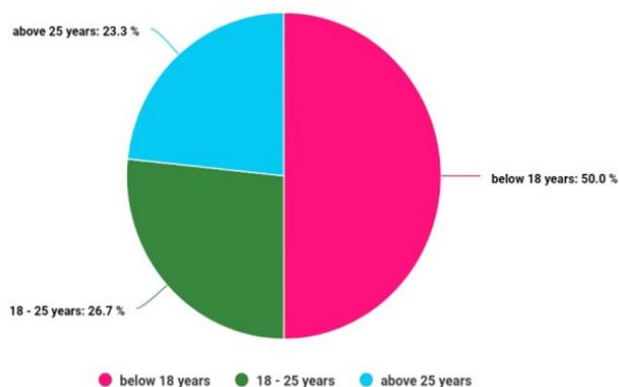


Figure 7. Age of women at first delivery.

Factors women with obstetric fistula experience by living with condition

During data collection, four women who had obstetric fistula and admitted at Kitwe teaching hospital were met physically. Oral interviews to find out the factors that they experience due to living with this condition were done. There are a number of factors women with obstetric fistula experience due to living with this obstetric condition. These were discrimination due to fistula, enacted stigma, perceived stigma, limitations on religious practices, and limitations on social life participation.

Discrimination due to fistula: Obstetric fistula patients reported that they had encountered discrimination from their families, neighbors, and the community due to the disgusting odor of urine and the unremitting wetness they had been experiencing from an obstetric fistula: You'll face a lot of discrimination from some of your dads and moms, friends, and the community due to the disgusting odor and discolored clothes you wear. "My family refused to accept me as a functional person after this disease. They removed me from any community and family participation. I lived on my own in one house with a hunger for a long time. I couldn't do marketing due to worry about people's facial expressions. The neighbors cover their noses and mouth and begin to speak about me once they observe me." (divorced woman with fistula, 25 years).

Enacted stigma: Similarly, many women with fistulas had reported being stigmatized by society: "What is shocking for me is when I go to church; people prefer talking about me rather than hearing the paster. I have a bad memory of the market; one of the women returned what her child bought from me after hearing that the material was mine. I lost a lot from the fistula my beauty my hope and my laugh I am socially paralyzed." "Our society (community) is the first to discriminate against us. When I pass nearby them on the road, they insult me with slang words saying a urinating cow as they are saying to cows. Even though my cloth is dry, they know I am a victim, they cover their noses, expel their saliva, turn their face, do not want to move with me to the market area, and do not inform me when they go for social life." (married woman with fistula, 30 years).

Limitations on religious practices: Most of the women with fistula reported that they faced serious difficulties to practice their religious worshipping due to unrelieved dribbling of urine: "A lot of suffering was with this disease; which was continuous throughout the day and night. When you wake up every morning, you should have to hurry to clean up the area to remove the disgusting odor of urine.

It has been difficult for me to go to church to pray with such a difficult condition" (woman with fistula, 28 years).

Limitations on social life participation: Many women with fistula also reported that they encountered difficulties in participating at work and engaging in social life: Participating in social life is painful for us as we think of our odor always. For example, going to church, going to a marital ceremony, and coming to the salon. "It becomes too tough to work as an ordinary person and to engage in social life since the leakage of urine will boom together with your motion. The big problem is being afraid of standing up from your sitting. Participating in social life is very difficult. For example, going to church, going to condolence, and going to marriage occasions are difficult" (married woman with fistula, 30 years).

Consequences of fistula: Obstetric fistula has different consequences on the health of women with fistula. Almost all the four interviewed fistula women explained that they faced: Internal suffering/psychological problems, physical health problems, marital problems, and sexual and reproductive health problems. They noted that: They felt despair, failed to live the desired life, lost desire, satisfaction, and confidence in their marital and sexual health, were ashamed of their condition, with diminished self-esteem, had a painful life, felt bad, and preferred to die.

Psychological health problems: Many women living with obstetric fistulas encountered psychological health problems such as stress, depression, feeling bad, despair, worrying about their perceived and enacted stigma, and related internal suffering: "I have continuous mental stress about my health and the future life of my children. Previously, I had no problems. However, now I have incontinence of urine and feces. I am very depressed. Sometimes when I am alone, I think about my children's care and my husband's attitudinal changes due to my fistula. Thus, I am always worried about who takes care of my children if I die." "Sometimes my friends come to my house to ask me but they stay far from me. When I go to a wedding or condolence, people cover their noses and mouth; talk about me, and try to stay far from me. I always worry about such encounters. These make me feel very bad and think about why I am the only person troubling with this problem. This provokes my feelings of sadness and depression; and leads me to cry most of the time. I also always think that all people talk only about me. Thus, I am afraid to see people and stay at home" (married woman with fistula, 18 years).

Physical health problems: Women living with obstetric fistula reported facing physical health problems including repair site infection, burning sensations, and foot drops: "I fail to move and even to stand alone right away after delivery. The episiotomy area nurse cut was very pain full; nothing was done to treat the wound. I was very sick, I developed fever, headache, loss of appetite (I couldn't eat and drink), and loss of sleep during the night. When I sit or try to use the toilet, I feel heaviness just like something is coming out" (married woman with fistula, 18 years).

Sexual and reproductive health problems: Many women living with obstetric fistulas reported that they faced sexual and reproductive health problems: Lost feelings for sex and satisfaction, the difficulty of having a marriage and a baby: "Fistula makes you full of fear whilst you consider sexual life. It makes you different from other women. (e.g., vaginal secretion of urine decreases your feeling

for sex). The big problem was thinking about sexual intercourse, having a marriage, and having a baby. This is to say, you will lose your confidence in talking with a male (boy), and the impact will make you lose your desire and satisfaction. You will also consider yourself as infertile and inferior to all women" (married woman with fistula, 30 years).

Limitations to daily activities: Most of the women with obstetric fistula reported that they had faced difficulties to run day to day routine productive activities: "As a result of this problem, I can't do routine activities like going to the market to buy or sell goods and going to the farming area. I only try to wash clothes and bake scones and sell, just to obtain money for my children's daily food. My husband died while I used to be pregnant. I could not do more productive activities that would enable me to gain a better income. I have three children. I have paid sacrifices to grow my my children without their father. You can see how much it is difficult (crying). It is an additional burden" (Woman with fistula, 30 years).

Impaired marital status: Woman with fistulas gave testimony that their marital status was impaired and most of them divorced after their marriage due to fistula: "It is polygamy based on my decision. I have badly suffered from this condition for five years. I stayed one and a half years with my family, leaving my husband alone then he asked me to come back to my home. I came back home thinking about his loneliness. After four years he told me as he needs to have a child; I allowed him to marry, and I left his home. Of course, due to this problem, my husband married another wife over me; due to the marriage, I had these challenges; I am insulted a lot" (multigravida woman with fistula, 30 years).

Discussion

Demographic, socio-economical and physical factors associated with obstetrics fistula

From this study, it was found that 66.7% of obstetrical fistula patients were teenagers at the time of fistula management, and 43.3% were multiparous at the moment of fistula occurrence. Majority of these women were married off before 18 years (60%). According to 2018-19, childbearing begins early in Zambia especially among women without formal education with more than one-third gives birth by the age of 18 and more than half giving birth by the age of 20. This agrees with a report by UNFNP 2018 which reported a prevalence of 31 percent on early marriage among girls before 18 years. In sub-Saharan Africa, several studies found a higher rate of obstetrical complications in teenagers; Unfer, et al. reported a higher rate of cesarean section in teenagers compared to women in their twenties. Unfer et al. also reported a higher incidence of low birth weight infants and acute intrapartum distress in adolescent mothers. Holme, et al. also reported that majority of women with obstetric fistula were teenagers below 19 years at the time of fistula development. The increased obstetrical risk in teenagers can partially be explained by anatomic immaturity. The immature pelvis offers challenges to the engagement and decency of the baby during labor leading to prolongation of labor and ultimately fistula development. Teenage pregnancies account for a higher proportion of all pregnancies (7%-30%) in developing countries. These findings suggest that efforts

to reduce obstetrical fistula should target reduction in teenage pregnancies.

About 73.4% of obstetrical fistula patients tried to labor at home but were later transferred to the hospital. The WHO recommends that labor should be monitored with a partograph (an instrument on which the labor events are recorded) and interpreted for decision making during labor and delivery. This is impossible if women choose to labor at home. As indicated about 60 percent of the women came from the rural areas making delivery at home very probable. When women try to labor at home unsuccessfully, they are more likely to come to the hospital at a late stage. Transportation may be further delayed by the absence of good transport system, poor roads, heavy rains, and great distances to the health facility. In many developing countries, patients have to use their own money to pay for health care, and this may further delay treatment.

Woman's level of education especially non formal (no education, primary education) was strongly associated with obstetric fistula while post-secondary education was protective. This is because majority of obstetric fistula patients (33.3% no education, 50% had no formal education had no formal education. According to the ZDHS 2018, 16 percent of females had never been to school, 46 percent had some primary education, 11 percent had completed primary school, 19 percent had secondary education, 4 percent had completed secondary school, and 13 percent had more than secondary education. These results agree with the findings of a number of researches done in Zambia in which there was more than 68%, prevalence of obstetric fistula among women without formal education. One of the explanations for this high prevalence is that women with formal education have high levels of awareness on methods that prevent fistula (use of contraceptives and antenatal care attendance) compared to the women without formal education. The low number of education among women with obstetric fistula poses a great challenge as education presents an opportunity for effective health education because people with education find it easy to internalize the information given than those without any education. The fact that women with formal education having obstetric fistula are few compared to those with low levels of education carries both clinical and policy implications. Clinically, women with low level of education or no education at all should be a target during health education sessions to make them understand the need for delivering at a health facility under the supervision of a skilled birth attendant. Policy wise, these study results show that there is a need to target education programs to those without formal education as one of the strategies to control and eliminate obstetric fistula in Kitwe district.

The median duration of labor in this study was 24 hours with three quarter of the patients experiencing more than 24 hours. WHO defines prolonged labor as any delivery in which the woman experiences persistent pain and contractions for more than 12 hours without the occurrence of delivery. Several studies in sub-Saharan Africa have also reported a median duration of labor among obstetric fistula patients to range from 20 to 28 hours and that more than 70% of the patients had been in labor for over 24 hours. Delay in intervention in prolonged labor increases the time of compression of the other's soft pelvic organs (i.e bladder and rectum) between the fetal presenting part (fetal head) and the mother's pelvic bones leading to necrosis of these soft tissue. This

necrosis causes uterine rupture, obstetric fistula and sometimes fetal death. Poor health seeking behavior and poor access to quality emergency obstetric Care (EoMC) at a right time are important risk factors for the occurrence of the fistula.

In this study, more than half of the women had considerable shorter height (height less than 150 cm). From various studies done in Zambia found that women whose height was less than 150 cm were 2.5 times more likely to develop fistula compared to those whose height was more than 150 cm. The trend can be explained by the fact that shorter stature is likely to be allocated with high risk of contracted pelvis and cephalo-pelvic disproportion. This causes for the policies in preventing obstetric fistula from childhood by addressing nutrition and growth monitoring of the girl child to prevent her from stunted growth. Clinically, women of the shorter stature should routinely have pelvic assessment before being pregnant and have their labor monitored using a partograph.

Over 60 percent of the women with obstetric fistula in this study were not in employment. This agrees with the 2018-19 ZDHS findings which showed that the agricultural sector remains the primary employer in Zambia with about 50 percent of the women engaging in agricultural occupation. It is vital to note that the self-employment could be attributed to the fact that majority of the women in this study had never been to school or had just attained primary school education making it hard for them to find formal employment with their little or no education. The high unemployment rate also implies that majority of these women depend on their husbands and relatives for financial support. This puts these women in serious financial hardships which make it hard for them to deliver at a healthy facility due to high transportation costs to the health facility and in an event that home delivery becomes complicated delays the women from reaching the health facility for advanced services. Adding to the problem is the fact that most of these women resided in rural areas where transportation is a great challenge especially during rainy season. Cumulatively, these lead into majority of these women delivering at home under the supervision of unqualified birth attendants and sometimes experience prolonged labor without intervention.

About half of the obstetric fistula patients did not attend any prenatal care visits during the index pregnancy. The prenatal care attendance among the patients aged 15-30 years was below 50 percent which is to the 2018-19 ZDHS findings in which only 41 percent of the women had at least one prenatal care visit in Zambia. This low turnout can be explained by the fact that despite women attending antenatal care programs, the antenatal care messages may not be well packed to emphasize the importance of delivering under skilled birth attendant. This may also be attributed to transport problems, poverty, and home delivery practices. In a study from Entebbe, Uganda, about one in two women who delivered at home with no skilled assistance lacked finances for transport and were poor. This finding is clinically relevant and calls for improvement of quality of information during antenatal care. Policy wise, this calls for government to consider a scheme to fund transport of women in labor and this would prevent women from getting obstetric fistula.

Factors women with obstetric fistula face by living with the condition

Participants gave their testimonies on challenges those women with fistula face. These include painful social life, marital problems, sexual and reproductive health problems, stigma, internal

suffering or psychological health problems, and physical health problems.

In this study, women with fistula faced diverse demanding situations together with a painful/hard social lifestyle at the same time as dwelling with fistula. Similar studies in Malawi, Tanzania, Niger, and Nigeria showed that their families and community members rejected women with fistulas. Such women have been: Pushed away from attending spiritual observances or community gatherings; lost social support, and highly stigmatized, marginalized, and ostracized by their husbands, families, and community because of their obstetric fistula condition. Studies show that throughout most African countries, most of the women living with obstetric fistulas experienced almost similar difficult social life and consequences of fistula. However, studies in Malawi, Ghana, and Tanzania show that many women with fistula experienced stigma, isolation, disgrace, decreased feelings of worth, and psychological trauma due to their incapability to fulfill the culturally ascribed marital roles and social expectancies of them as ladies, wives, and mothers (the cultural importance of childbearing and motherhood).

Similarly, in this study, fistula women reported that fistula had devastating health problems in their sexual and reproductive health, psychological health, physical health, routine household activities, and marital responsibilities. This confirms findings from sub-Saharan Africa on the consequences of obstetric fistula on women who endured the condition including physical challenges of losing body control, women's social and family relationships, and the challenges of losing financial gain. Obstetric fistula has also a far-reaching consequence on women's physical well-being, social and marital relationships, mental health, and economic capacity. This collaborates also with a global public health report on obstetric fistulas that women with fistulas who usually have incontinence are equally affected and live a stigmatized life with social, economic, psychological, reproductive, and sexual repercussions. A similar study in Nigeria shows that many women and girls with obstetric fistulas face many psychological problems such as humiliation, abandonment, stigmatization, loneliness, separation from their husbands, and hopelessness. Other studies in developing countries show that victims of obstetric fistula often feel that their future is frightening. They uncertain about having partners; marriage, sex, becoming pregnant, giving birth, and reintegrating back into their local communities. Related to their physical health problems, the previous study shows that inconsistencies of urine due to obstetric fistula affect the self-esteem of women with fistulas and might bring about great secondary morbidity, incapacity, and infertility.

Obstetric fistula is associated with several risk factors, and they appear to be preventable. This disease is associated with teenage status at delivery, primiparity, prolonged labor, home delivery, and short status at delivery. Knowledge of the leading risk factors for obstetric fistula in a given population is of paramount importance and should be studied. This knowledge should be used in strengthening preventive strategies both at the health facility and at the community level. Furthermore, women living with this condition experience a number of challenges ranging from painful social life, marital problems, sexual and healthy problems, stigma, psychological and physical problems. There is a great need for policy makers to allocate more resources in

educating the community about this condition in order for people to know and understand that fistula victims are just like any other normal woman in the community.

Conclusions

This study aimed to explore experiences the prevalence and factors associated with obstetrics fistula among the women admitted at Kitwe teaching hospital between 2021-2022. The results from this study identified demographics, social and economic factors that are associated with obstetrics fistula. The study findings identified lack of formal education, lack of employment and short stature to be strongly associated with obstetrics fistula. Others included long distance to the health facility, delivery at home and lack of attendance for antenatal health care as being among the risk factors for developing the fistula. Women who became pregnant at young age had higher prevalence of obstetric fistula compared to those who got pregnant at 20 years and above. The study however provides new knowledge on the understanding the factors associated with obstetric fistula in the district and the impact of the condition on the overall health of the woman. These included:

- Social and economic factors heavily predispose women to obstetrics fistula
- Women with obstetric fistula live with the condition for years despite fistula repair services being offered in the country.
- Factors women with obstetric fistula experience in seeking fistula repair services have been identified in many African countries. Thus, the study offers a new understanding on factors women experience in seeking repair services in Zambia.
- Women with obstetric fistula experience challenges which are social, physical, psychological and economical. The challenges have an impact on the overall health of the woman. All in all, obstetric fistula is a common obstetric condition at Kitwe teaching hospital which could be prevented by ensuring that there is adequate educational information given to women during pregnancy to prevent them from getting the condition.

Implications of the study

There is an urgent need to establish the magnitude of obstetric fistula in Zambia through an epidemiological study. This is important because the findings could be used as justification for advocating for upward adjustment of financial resources to obstetric fistula services. One of the reasons why the MoH allocate inadequate resources for obstetric fistula services is because there is absence of epidemiological information regarding the magnitude of obstetric fistula in the country to guide and justify the allocation.

Further, the amount of research being conducted on obstetric fistula in Zambia forms a small percentage of health research and is disproportionate with the disease burden arising from obstetric fistula problems. Literature review has recorded only very few studies done in Zambia on obstetric fistula. In terms of the Kitwe teaching hospital, this is one of the first studies to look at the prevalence and factors associated with obstetrics fistula among women admitted at this institution.

Limitations

This study was conducted at the hospital using patient records which were missing some of the variables needed to be captured as included in the questionnaire. Secondly, since obstetric fistula is a sensitive condition that most people do not easily disclose, meeting actual patients at this hospital was a challenge. Lastly, lack of enough finances hindered contacting patients who had already left the hospital at the time of the study.

Ethical considerations

Ethical approval first sought from Copperbelt university school of medicine. From there the research was ethically approved by the Tropical Diseases Research Centre (TDRC) before beginning the study. Written permission to conduct the study by the managements of Kitwe teaching hospital was granted. A lucid explanation was conveyed to the participants met physically at the hospital about the study and its benefits. Also, a verbal informed consent was obtained from the subjects and confidentiality with respect was upheld.

Recommendation

The following recommendations are made in order to reduce the incidence of obstetric fistula in Kitwe district.

Policy recommendations

- Given the significance of health education, all pregnant women should receive health education on obstetric fistula and factors associated with it. Further, there should be formulation of educational materials on obstetric fistula which should be put in all clinics/hospital department to enable people read on obstetric fistula and factors associated with it. These educational materials should even be interpreted in local languages so as to improve knowledge on obstetric fistula and factors associated with it.
- Counseling services should be offered to all women who develop obstetric fistula on how to live and cope up with the condition.
- Obstetric fistula programmes should consider follow up visits and review dates. Follow up visits should be planned and be conducted by health facilities in conjunction with the communities as well as non-governmental organisation to ensure the needs of the repaired women are addressed promptly.
- There is need to create a database to capture information on women with obstetric fistula. Further proper record keeping at all levels of the health facility is needed. Policy makers should ensure that development of tools and registers are done. Complete documentation of physical addresses of women with obstetric fistula as well as their phone numbers is essential in tracking women with obstetric fistula.
- Policy makers should advocate for formulation of obstetric fistula clinic in all district hospitals to encourage afflicted women in seeking the service.
- Mass sensitization programme on obstetric fistula and repair services should be done in order to improve awareness to communities if the goal to end fistula is to be achieved.

- Policy achieved. makers should advocate for the review of policies related to obstetric fistula for example, the policy on management of obstetric fistula in Zambia.
- Community participation should be ensured in obstetric fistula programme planning, designing and implementation in order to ensure that planned interventions have community support Programmes should also consider women with obstetric fistula as partners in obstetric fistula management and not as recipients of their service.
- Building of fistula hospital whose main objective would be conducting fistula repair services only is a necessity. Also as part of the services offered, survival skills should also be taught to empower women with obstetric fistula.

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