

**DELAYS IN DEMAND FOR OBSTETRIC FISTULA TREATMENT: A CASE STUDY  
OF FREEDOM FROM FISTULA FOUNDATION IN KENYA.**

**By**

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**DECLARATION**

This research project is my original work and has not been presented for a degree programme in any other University.

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Dr. Mercy Mugo

**DEDICATION**

I dedicate this work in Honor of my late mother Ann Muriithi. Even in death you remain my greatest motivation in life. I love you mum. May you continue resting in peace.

To my Daughter Anita Dulcie, thank you for giving meaning to my life again. Your love overwhelms me every day. I pray that you will grow to achieve anything that you desire.

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**ACRONYMS**

**WHO –World Health Organization**

**OF- Obstetric Fistula**

**FFF- Freedom From Fistula Foundation**

**ABSTRACT**

Obstetric fistula is an abnormal communication between the vagina, the bladder and or the rectum causing uncontrollable leakage of the urine and or the stool. It is considered as the single most dehumanizing injury occurring from the childbearing process. Although efforts have been put to improve maternal and newborn health, the disease still poses a big challenge to such efforts. Obstructed labour has been identified as the most common cause of fistula. Despite treatment services being available, the uptake of the services by the patients is low. The study seeks to find out the reasons why most of the women with obstetric fistula delay seeking treatment services in Kenya. The study utilized cross-sectional data obtained from Freedom from Fistula Foundation, an organization that funds treatment services for women at the Kenyatta National hospital. The study employed the probit model to estimate the causes of delayed demand for obstetric fistula treatment services. The results show that a woman's level of education significantly affects her health seeking behavior. The more educated the woman is the lower the chances of her delaying seeking fistula treatment. Other factors such as being married, the age of the mother, number of living children and the number of previous repairs attempts significantly affects the health seeking behavior for fistula treatment. The study emphasizes on the need to improve obstetric care in the country by increasing the number of facilities with the capacity to offer fistula treatment services as well as train more health personnel on fistula management. Finally, the study proposes policies that promote community health education on obstetric fistula.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background

Women's ill-health and its impacts remain inadequately described. According to the World Health Organization (WHO) Women and Health Survey 2009, although women's life expectancy is higher than that of the men, their lives are not inherently safe. Pregnancy and childbirth is one disorder that only affects women and can lead to continued illness. While the effective use of competent birth control with supportive emergency obstetrical services will reduce health risks during pregnancy and childbirth, there are significant drawbacks of maternal ill health that go far beyond the mother's health during pregnancy and childbirth period. One of the most overlooked, debilitating and under documented reproductive health problems for girls and women of reproductive age is Obstetric fistula (Semere & Nour, 2008).

Obstetric fistula is an anomaly vaginal canal, urinary bladder, and or rectum communication. Because of neglected childbirth it is considered the single most devastating injury. It is encouraged that a woman should not watch the sun rise or set twice while she is still in labour. A fistula occurs when the woman labours for days without getting emergency obstetric care. The baby puts a lot of pressure on the pelvis tissues cutting off blood supply to the region. This results into cellular death in parts of the bladder wall, rectum, and vagina. The dead tissue then falls off leading to development of a communication between neighboring organs leading to uncontrolled leakage of urine and or stool. If the communication occurs between the birth canal and the bladder, it is referred to as a vesico-vaginal fistula while the communication between the birth canal and the rectum is referred to as recto-vaginal fistula. There are other forms of fistulas which are classified depending on the region they occur. According to Lewis, 2008, every minute a woman succumbs due to pregnancy related or childbirth complication, consequently, for every maternal death, 20-30 others survive but with morbidities, one of which is obstetric fistula. Another common morbidity due to prolonged labour, is damage to the nerve which leads to foot drop making it very hard for the woman to move around. The obstruction can be because of malnutrition or early pregnancy leading to a small pelvis width and consequently cephalo-pelvic disproportion.

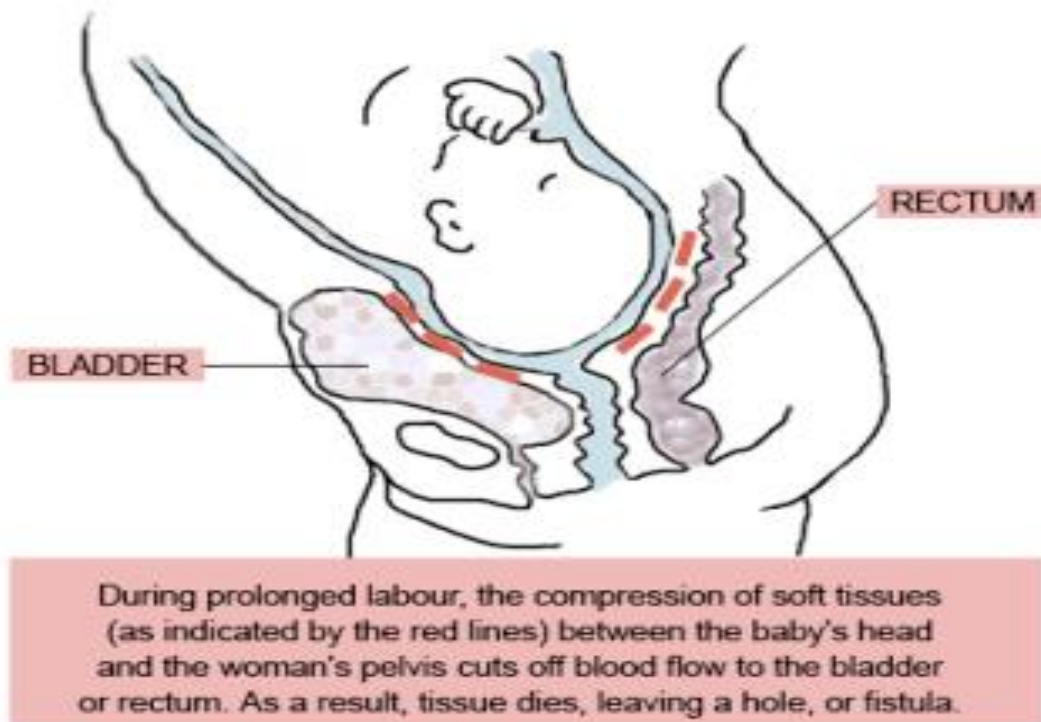


Figure 1: Obstetric fistula Anatomy.

Obstetric fistula was mostly absent from the Global public health agenda for much of the 20th century since it was eradicated in the developing world according to Browning (2018). The last hospital offering obstetric fistula services in the United States, based in New York, locked its doors for good, because its facilities were no longer needed. Throughout Europe and North America, the regional epidemic has been eradicated following improved obstetric treatment (David & Menber, 2008). Across Sub-Saharan Africa and other developing nations, however, women and girls experience humiliating and unimaginable misery owing to this preventable condition and insufficient health facilities with the capacity to deliver life-saving surgery as demonstrated by Abou, (2003). Cook et al., (2014) reports that mitigation of potential cases is undoubtedly the primary objective, while ensuring surgical treatment is sufficient for all current cases. Until this is accomplished, action needs to be taken to improve the quality of life of the two million girls and women living with obstetric fistula worldwide today. According to WHO, an estimated 50,000 to 100,000 women and girls experience fistula globally every year, but that is not the exact statistic because fistula happens mainly in the most vulnerable population where they are not obtaining medical attention and there is no systematic study recording the actual figures.

Women play a big role in societal growth. They are considered the family pillars and contribute greatly to the county's GDP (Gross Domestic Product). However, when women develop obstetric fistula, they are isolated, deprived of their dignity and view themselves as a burden in the society. The disease deprives them the capacity to carry out their usual activities owing to stigma from with and without due to the offensive odor and peri genital dermatitis because of the continuous dripping of urine or fecal matter. As a result, the family experiences great shame which prompts them to hide the patients. Keeping up with hygienic requirements often becomes difficult to the patient due to economic challenges leading to ostracization, divorces, which sometimes leads to destitution in the streets begging for livelihood. In most cases, Fistulas occurs to young first-time mothers who are about to start families or are just starting families and often results into a still birth. According to wall, 2004 and Ahmed and Nafiou,2007, there are between 85% and 100% of infant mortality in births resulting to obstetric fistula.

Surgical repair is the mainstream treatment option and is mostly successful, however, there are a few instances where urinary incontinence has been reported which in the long term affect the long term quality of life (Bellow et al, 2014)Despite the availability of this treatment option, the demand and utilization of the same is generally low. This according to Browning and Patel, 2004, Valez et al.,2007, wall et al., 2005 and Ramsey et al., 2007, can be attributed to the inadequate health facilities with the capacity to carry out fistula surgeries and management due to low training of the health workers in the specialty. In most countries their capacity to offer fistula treatment services does not meet the demand (UNFPA and Engender Health 2003, Women's Dignity Project 2002, Wall, 2006). Many countries, therefore, rely on expatriates' experts in the fistula treatment who are not readily accessible. Due to this challenge the number of untreated women keep accumulating leading to long waiting time and a public health problem which is a challenge in the management of Obstetric fistula. Other factors attributed to delays in demand for the treatment services include the high costs of transportation and health services, low expectation on the quality of services they get(fear of not getting healed), lack of decision making power as well as societal attitudes to seeking medical services. Additionally, most of the women do not understand what they are suffering from neither are they aware of availability of health services that can treat their condition. All these compounds the seriousness of the problem which leads most women and girls to live with the condition for years or even die before getting treatment. Not only do girls and women with fistula suffer

psychosocially without treatment, but they are also economically disabled in families and in the community due to the constant leakage and odor (Wall et al., 2004).

The World Health Organization (WHO) reports that at least 8,000 people in Ethiopia each year develop new fistulas. It is estimated that in Uganda, 2.6 per cent of women of reproductive age have had obstetric fistula (UBOS 2007). It is equal to a regional prevalence of over 142,000 people, based on demographic data from the most recent census. An incidence rate of 2500-3000 cases of fistula are reported to occur annually according to Rassen (2005) in Tanzania alone. A previous meta-analysis found that more than 110,000 women in Nigeria have obstetric fistula, however less than 2% of patients received surgery annually.

In Kenya, an estimated incidence of 3,000 cases of obstetric fistula occur annually, out of this number, only 7.5 percent get to be known and treated, (MOH & UNFPA, 2004). The state denies the fistula patients their right to access the highest attainable health care services which is among the sustainable development goals as well as their right to health information and protection from the injustices of not being able to access the required health services. The government has put efforts to improve maternal health such as offering free antenatal services and delivery services in the dispensaries and health centers with the aim of encouraging more girls and women to seek maternal health services without fear of financial impoverishment. Despite these efforts, Obstetric fistula continues to be a challenge to many girls and women. This is an indication that there is more that needs to be done to fill this gap. According to UNFPA, 2004, there is an estimated backlog of 300,000 fistula cases in Kenya. The number shows a need to improve the health services as well as improve on health education and promotion to create more awareness about fistula and its treatment options. There is also a need for the government to meet the huge cost of the treatment regimen for the already poor women and girls besides increasing the number of health care providers and facilities with the capacity to treat fistula. In efforts to prevent future occurrences of fistula, the government needs to improve on accessibility of emergency obstetric care by ensuring that there are adequate health facilities, health personnel and transport facilities equitably distributed to meet the needs of the whole population, (Odhiambo., 2010).

## 1.2 Problem statement.

Pregnancy and childbirth are the most fulfilling journey for any woman. The thought of bringing life into the world bring so much joy which cannot be compared to anything. However, when we suffer in the process, the suffering is gross, and its impact are greatly felt. Obstetric fistula mostly occurs to primigravida's who in many cases were married off early or got pregnant unexpectedly. Due to the stigma associated with early pregnancies, most of them do not seek antenatal care services. When labour sets in they keep it to themselves, some have no means to get to the hospitals, others are afraid of being stigmatized by the midwives in the hospital. As a result, the end up giving birth in their homes alone or at times with the assistance of traditional birth attendants. In cases where they need emergency obstetric care, they get to the hospital when it is already too late. Still births occur and before she digests the loss of her child, she realizes that she cannot control her urine and or stool. What follows is depression and isolation instead of seeking medical attention. The patient does not share with anyone the condition. Others who share with the family members also keep it to themselves. Some consider it a curse; others term it a normal condition that occurs after childbirth and hope that it clears. Only a few women know where to seek help. Efforts by the government have been put to improve maternal health care but when it comes to fistula, the country is still lagging behind in ensuring that women can readily access the required treatment as well as training of the health workers to reduce and prevent future cases this is compounded by stigma, high cost of treatment, geographical inaccessibility of the health facility and lack of knowledge about fistula treatment.

In Kenya due to the stigma associated, most of the women wait for the national medical camps that offer fistula treatment to seek help. This is because of the fear of walking to a health facility alone to seek help, the high cost of treatment that most of them cannot afford and lack of information about fistula and its treatment. These camps offer the ideal opportunity for the women to come and seek treatment. They are sure that they will meet other patients suffering from the same giving them comfort that they are not alone as well as be able to get repaired without spending a coin. In many cases the camps are also far from their homes which most of them prefer to hide from a society that has been stigmatizing them. Many of them also learn about fistula treatment from the advertisements and mobilization efforts by organizations for the treatment the camps. They had no idea that what they are experiencing is treatable. The medical camps are a noble approach but still not without their challenges. Will the women only be waiting until there is a camp to seek for health care services? What can we do to ensure that

these women are able to access fistula repair services at any time of the year without stigma, financial impoverishment and on timely basis? The ideal position is of any woman seeking medical attention as soon as she realizes she is no longer in control of her stool or urine. This should happen at most two weeks postpartum. The study therefore seeks to unruffle the causes of the delays and ways in which these gaps can be filled to ensure that no woman lives with fistula for more than a year.

### **1.3 Main objective**

This study aims at analyzing the causes of delays in demand for obstetric fistula treatment among girls and women in Kenya.

#### **1.3.1 Specific objectives**

- i. To determine the socio-demographic characteristics of girls and women seeking obstetric fistula repair in Kenya.
- ii. To analyze the causes of delays in demand of obstetric fistula treatment among girls and women in Kenya.

### **1.4 Research questions**

The study will seek answers to the following questions:

- i. What are the socio-demographic characteristics of girls and women seeking obstetric fistula repair in Kenya?
- ii. What are the causes of delays in demand for obstetric fistula treatment among girls and women in Kenya?

### **1.5 Study justification**

The research findings will be beneficial for the management of fistula centers nationally and internationally to boost the quality of obstetric fistula care. The study further will provide information that will guide the policy makers on allocation of resources for provision of obstetric fistula health services to different regions in attempt to make progress towards the Universal Health Coverage (UHC) which is an agenda that has raised great concern for all states and government in the world. The community will be informed of the importance of not delaying treatment of obstetric fistula in Kenya especially by the poor and those in the rural areas despite the high rate of morbidity affecting the group of individuals. The study will be



invaluable to researchers and scholars since it will add to the body of knowledge in the field of public health.

## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

In this section, the literature detailing delays in finding obstetric fistula care among girls and women has been discussed. The review will help to identify a suitable econometric model to fit.

### **2.2 Theoretical Literature Review**

#### **2.2.1 Grossman Human capital model.**

The theory borrows from the idea of health as a consumption good. This means that the health of an individual is determined by their consumption of health goods (health care, food, exercises). The theory also assumes that the consumption of health and other goods results in a positive cost to the consumer and that individuals have limited resources. Therefore, investing in health through consumption of health and education yields a positive outcome (good health) in both market and non-market sector of the society. Borrowing from the traditional demand theory, Grossman, (1972) came up with the human capital model which viewed health as a stock that an individual could invest in and which could depreciate with time as well. Healthcare consumers therefore select a combination of goods and services that offer them maximum utility in relation to their income and investments according to the expected utility theory and risky choices.,1989.

Drawing heavily from Becker's G.S (1965), Human capital theory, Grossman came up with the human capital model in which he demonstrates that a person's productivity is highly dependent on his knowledge and education while the ability to produce earnings and commodities relies on his/her stock of health. Additionally, Grossman came up with a production model that could be used to predict demand and the difference between health inputs and outputs.

In the model, health is defined in general as the days in the year when one is free from disease and prolonged healthy life which are needed and produced by the consumer of health (Becker G.S, 1965). Health is a capital investment that is inherited as an original stock but depreciates with time and age. It is therefore the responsibility of every individual to choose the length of their health by increasing their investment in it.

### 2.2.2 Three Delays Model

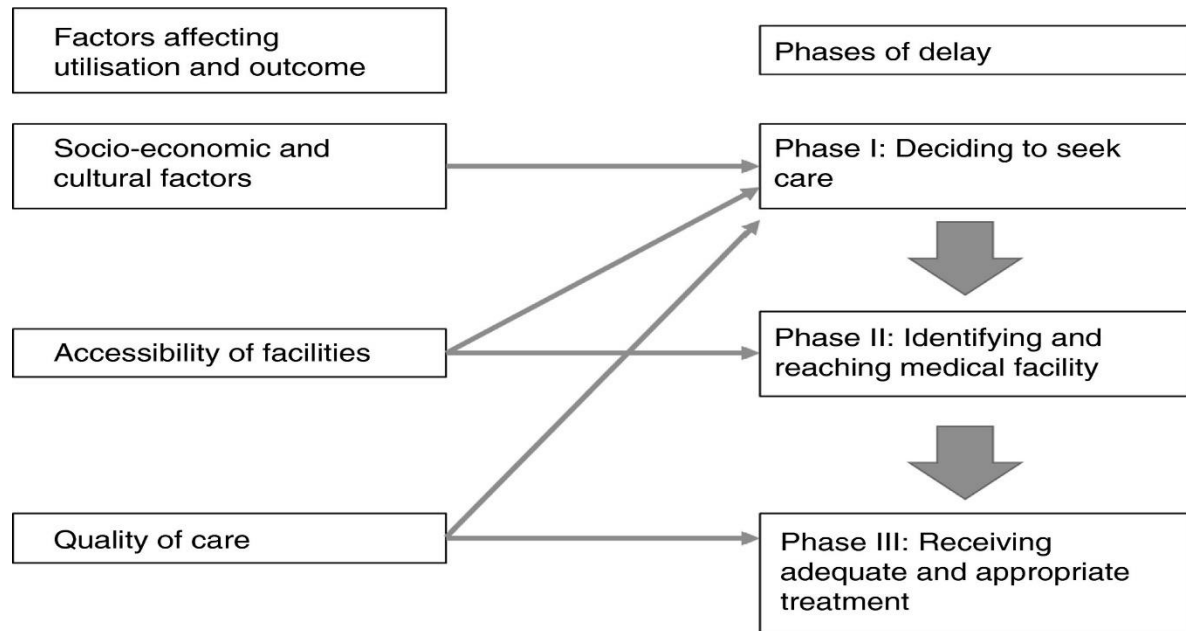


Figure 2 The Three Delays Model (Thaddeus & Maine 1994)

The three delays in this model include the individual’s delay in making the decision to seek medical care, delay in identifying and accessing a health facility, and delay in receiving adequate healthcare services after arriving at the facility (Thaddeus & Maine, 1994). These delay phases are closely interwoven as barriers to health care, poor health care experiences witnessed after arriving at the healthcare facility and influences the subsequent decisions to seek healthcare services. Because women of reproductive age often lack decision-making power in regards to health in poor settings, the use of the three delays model gives insight into the key actors in health decision-making, patient demographics and factors that triggers their health decision-making, and barriers to accessing obstetric emergency care.

This model very well explains the delays that occur when it comes to seeking obstetric care services as well as fistula treatment services. The girls and women often lack the decision-making authority when it comes to seeking health care services. On many occasions, the husband or the larger family are the one that make the decision to seeking or no seeking. Their decision consequently is affected by many other factors such as cultural believes and the cost of seeking medical care leading to delays. Secondly, the delay in accessing a health facility is in many cases is determined by the geographical location, mode and cost of transport as well

as the distance of accessing the right health facility especially in emergency cases that required surgery or fistula treatment which required very advanced healthcare services. The third final delay is the delay in receiving medical attention after reaching the health facility. In many instances, due to lack of adequate health personnel, the patient experiences long waiting time, and, in some instances, they are turned back home. These delays are a great barrier to accessing healthcare making the women stay home or chose other forms of treatment which are not effective such as traditional birth attendants or sorcerers.

### **2.2.3 Andersen and Newman framework of health services utilization**

The framework aims to discover conditions that either encourage or hinder utilization of health services. The aim is to create a clinical paradigm that will provide access to healthcare interventions. An individual's ability to access and use of healthcare services is a function of three factors which include:

**Predisposing factors:** these are the social and cultural traits of people which existed before their illness. They include social structure (i.e. education level, occupation, social interaction, and social networks, as well as ethnicity and culture), health beliefs that are people's views, principles, and awareness of health care and demographics, including race and age.

The enabling factor is second factor. They are the logistical aspect of receiving treatment. These include personal / family factors related to the means and knowledge about health care services, income level, health insurances, source of care, travel logistics, and quality of social relationship. Additionally, the Community in terms of availability of health personnel and health facilities as well as the waiting time.

Thirdly, the need factor. It is the ultimate reason for the use of health services from the functional and health problem that create the urge to consume health care services. The need is further divided into two where we have the perceived need and the evaluated need. The evaluated need is the amount of treatment or services that are offered to the patient after they have presented to the health care provider while the perceived need is the view of the individual on their general state of health and functional state determined by how they experience the symptoms of the disease, pain , discomfort and health concerns. It is from this judgement that the individual can determine if their problem is of sufficient threshold and magnitude to require medical attention, (Andersen., 1995)

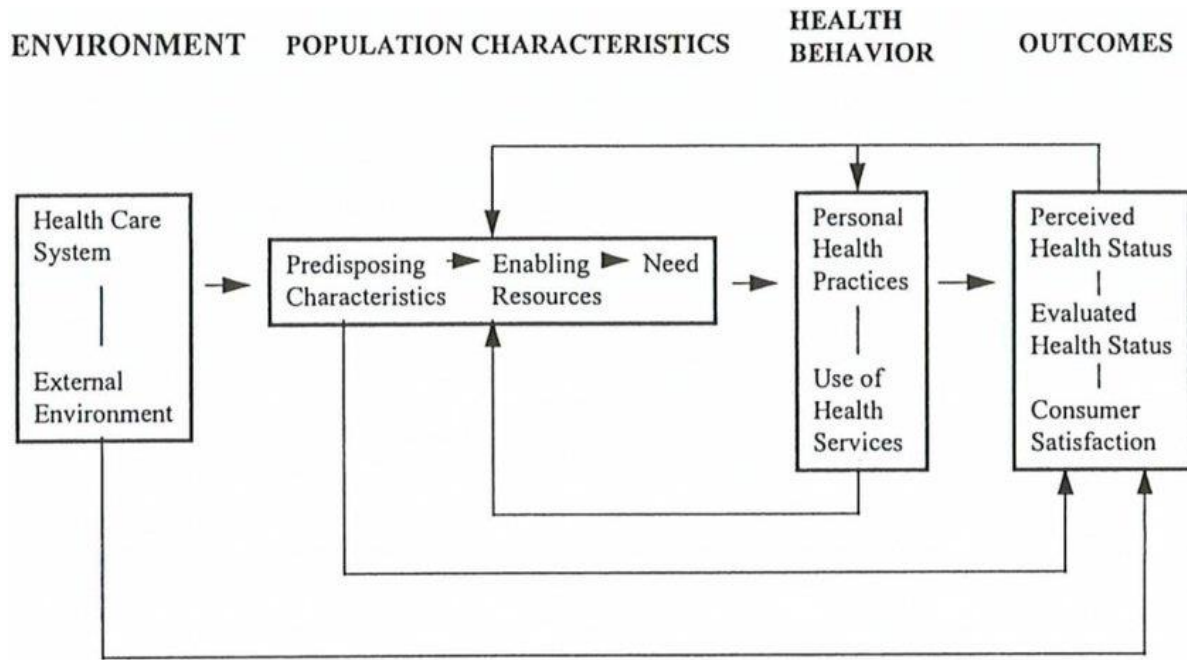


Figure 3: The Andersen model of health services Utilization (1995)

## 2.3 Empirical Literature Review

### 2.3.1: Social and Economic causes of delays in Demand for OF treatment

#### Income level of the woman/ girl

Majority of the women suffering from fistula are low income earners making less than 10,000 a month. The opportunity cost associated with seeking health care services for any services are too high that majority of them prefer to buy food then go to the health facility. The cost associated can be traced back to home deliveries due to lack of funds to seek maternity services or lack of transportation cost to the health facility. Home delivery is a major risk to obstetric fistula. The same applies to the ability of the women to seek family planning services to enable them delay delivery till the right age or even space the children adequately. The low-income level explains clearly why most of the women suffering from fistula have live with the injury until there are free medical camps to seek medical intervention since they have no medical covers and cannot afford the high cost of fistula treatment. .

#### Cost of treating fistula

According to Fistula foundation, (2015), it is estimated that the cost of treating a fistula patient is \$586 which includes the pre-operative charges, intra-operative cost, post-operative charges, and cost of physical rehabilitation. The cost of the same services at the Kenyatta National Hospital is however highly subsidized to \$375 but is still prohibitive to girls and women leaving

only 7.5% of them with the ability to access health care (UNFPA, 2016). According to Keya et al., 2018, the cost of fistula repair displays the inability of the already financially constrained girls and women to prioritize between spending on health care or basic household expenditures such as food and clothing. Although fistula is not considered a life-threatening condition, it greatly affects a woman's economic, social, and family life. The cost of fistula can be traced back to the maternity care fees which includes emergency obstetric care, and fistula repair services cost which includes lost income, transportation to the hospital and companion cost. Families that are already strained financially find it very hard to spend a coin on the repair. Due to its non-fatality nature, most women often choose to delay seeking health care services or live with it for the rest of their lives. Most affected families from the lower social-economic strata often tend to keep the condition a secret to prevent stigma (Lavender et al., 2016)

### **Education level and knowledge about fistula**

Education level means the level at which the woman or the girl has achieved in the formal education system while the knowledge about fistula is the general information that one has in terms of what fistula is, its treatment modes, complications and occurrence. Many of the patients who suffer from fistula have low level of education. This escalates to low knowledge level about fistula. Majority of the women do not even understand what they are suffering from and the kind of treatment they need to seek. These low levels of knowledge and education explains why there is a low demand and delays when it comes to seeking fistula repair care. Low knowledge levels in the community leads to stigma in the community. Many who do not understand the condition associate it with witchcraft and curses which in turn causes moral abuse to the individual. The patients end up isolating from the society and suffering socially, mentally, and economically since they cannot go out to work.

According to Lyimo & Mosha, 2019, most women are unsure of the meaning, symptoms, consequences, and diagnosis of fistula. Others reported recognizing their condition after arrival at the hospital and having been informed about fistula. Lack of knowledge about fistula is cited as one of the reasons for delays in seeking health care services as it affects their timely decision to seek health care. Lack of information consequently appears to be related to the patient's level of education as most of the women suffering from fistula have low education while some have no education at all.

Low level of knowledge about fistula in the community affects the demand for fistula treatment since the patient lacks moral and financial support from the family and community (Lyimo & Mosha, 2019).

### **Age**

The age at which the girl or the woman bear her first child is a major determinant of the outcome. Early pregnancies are a great risk to the life of the girl due to the immaturity of the pelvic bones. As a result, majority of the girl requires a caesarian section to deliver the child since their pelvic bones cannot open naturally to let the baby out by the spontaneous vaginal birth. The young adolescent girls are also likely to hide from the society after they get pregnant for fear of stigmatization. In return, this results to home deliveries without skilled attendants. Many maternal and neonatal deaths occur during deliveries while those lucky to survive are likely to end up with fistulas extending the stigma and hindering the young woman from seeking healthcare attention. The education of the girl is also affected since many after suffering the injury do not wish to resume school for fear of being stigmatized.

Teenage pregnancies account for about 7%-30% of all pregnancies in most developing countries (Chang et al., 2003, Tebeu et al., 2006). According to Unfer et al., 1995, teenagers were reported to have required more cesarean sections compared to women who were in their twenties. Low birth weight infants and sudden distress during labour in teenage mothers was also reported. Increased obstetrical risk in teenage mothers can be directly attributed to the anatomic immaturity (Unfer et al., 1995). Early marriages in many communities are the contributing factor to the early pregnancies. According to WHO, 2018, the mean age of women with fistula is 22-23 years but there are many women with fistulas who are as young as 13-14 years. Mother's age is a major risk factor for fistula growth. Young girls are often from poor families with poor nutrition and illiteracy (WHO, 2018). A study conducted in west Pokot to identify the characteristics of the girls and women admitted with obstetric fistula also showed that of the women who presented in the hospital, the mean age was 20 years and a median of 19. All of them had fistula during their first delivery which could have been prevented by delaying the age at first birth (Mabeya, 2004). Age has also been a hinderance to seeking healthcare for fear of embarrassment by the health workers leading to home deliveries and delayed fistula treatment (Pierre et al, 2011).

### **Stigma**

The occurrence of fistula transforms abruptly young women at the motherhood threshold from societal admiration into outcasts shunned by their own families. Because of the foul smell, fistula patients often experience shame and disgrace and are often deserted by their partners, alienated from their family and friends as and incapacitated to perform their daily activities leading to a life of misery (Population Reference Bureau). Numerous researches show a relatively high incidence of depression in women with obstetric fistula (Goh et al., 2005, Alio et al., 2011, Mselle et al., 2011, Weston et al., 2011, Siddle et al., 2013). Studies report that, in besides experiencing depression, fistula patients undergo anxiety, loss of dignity and low self-esteem (Wall, 1998, Inbaraj ,2004, Mselle et al., 2011, Narcisi et al., 2010). Scholars argue that such psychological suffering inhibits the girls' and women's need and motivation to seek medical attention.

### **Quality of care**

A widely mentioned problem affecting several facets of care is perceived poor standard of treatment. Although Surgery is the mainstream treatment for Obstetric Fistula, it is not always effective, particularly when the vagina and rectum (recto-vaginal fistula) are complex and involved, or when there is a substantial scar tissue. Additionally, there are instances where residual stress incontinence has been reported creating doubts in the patients and discouraging others from seeking health care (Beker et al., 2017). According to a 25-year retrospective study of fistula surgery in Nigeria, 82 percent recovered following one operation, with some patients undergoing a minimum of two, three, four, or five procedures (Hilton and Ward 1998). While the overall surgery success rate in this cohort was 98%, many women might be inhibited from seeking fistula treatment following a failed attempt while others who hear of failed surgeries might also refrain from seeking medical attention.

### **Distance to the health facility**

Transport and its prices have repeatedly been cited as an obstacle to treatment. Many girls and women suffering from obstetric fistula live in isolated remote regions while most treatments centers for fistula are in urban centres. Additionally, facility shortages are major hurdles that entail shortages of physicians, qualified nurses, and other staff in addition to the scarcity of services as well as inadequate equipment and materials. Such inadequacies lead to accumulation of numbers of women who need repairs, especially in the remote and rural areas (Beker et al., 2017)



### **2.3.2: Proximate, Environmental, and cultural determinants of demand**

Political obstacles have been cited less frequently but remain a major obstacle to consider. Fistula repair (and maternal wellbeing generally) is not receiving the focus and support it needs due to conflicting interests. Governments in developing countries may be overcome by certain illnesses (such as malaria or HIV), which demand a large proportion of their attention and money (Beker et al., 2017)

Cultural influences, like male social domination, may serve as obstacles to certain women's treatment. There is "a supposed societal need in some societies (e.g. in Nigeria) for feminine reproductive capability to be under tight masculine influence" (Wall, 1998). Where women suffering from fistula lack the capacity to make decisions or manage household finances, whether services or transport are readily accessible it may not matter, because they will not be able to receive care anyway. Male domination affects female reproductive and health care decisions and can also lead to female fistula growth (Odhiambo, 2010). Cultural differences include dependence on herbal drugs or home remedies and derogatory views against medical clinics or physicians. Studies have shown the effect of cultural and ethnic affiliation to the usage of health care services such as (Aseweh et al., 2011, Nnaji and Agu, 2015 and Gyimah, 2002). In Kenya, communities such as the kikuyus have shown increased usage of birth attendants and have easier access to health care facility for family planning services. Such intervention offers an opportunity to provide health education to the reproductive age category such as on the occurrence of fistula (Manzi et al., 2018).

### **2.4: Methodological Considerations and Data Choices**

Muthoni, Ogutu and Kibe (2014) conducted a study on the causes and consequences of Obstetric Fistula on Kaptembwa women-Nakuru, Kenya. The study was carried out using cross-sectional design with qualitative and quantitative components to investigate the prevalence, experiences, and consequences of obstetric fistula. The results showed that Obstetric fistula prevails among women between the ages of 25 -39. The fistula can occur either during the first (28%), second (23.9%), third (19.7%) or fourth (28%) pregnancies. The strain in assessing the actual number of girls and women affected by obstetric fistula has been linked to the fact that the disease is considered to be an shameful and dehumanizing medical condition in our communities, leading to silent isolation of the women concerned. The awful odor emerging from the leaking girls and women leads to embarrassment; severe social-cultural stigmatization which consequently decapitates the women and girls from performing their daily roles. Impediments from taking part in meaningful income generating activities has pushed them to

despair and begging. Nevertheless, there are inadequacies in that the study did not address the effect of Obstetric Fistula on Women wellbeing.

Mwangi (2018) performed a case-control analysis based on factors linked to obstetric fistula repair failure among patients admitted to the women's and fistula hospital in Gynocare, Kenya, 2012-2016. The research population consisted of obstetric fistula patients suffering from fistula and had repairs done. A sample size of 357 was used (119 cases and 238 controls). The logistics regression model was used to test the adjusted likelihood ratio at a point of 0.05 for alpha importance. The findings revealed that on average age at fistula formation was 21 years but 30 years at repair time for an overall 4.3-year fistula duration. Participants in the study were mainly married women with little to no form of any form education.

Opondo (2018) conducted a study on risk factors for vesico-vaginal fistula in girls and women in the Ebonyi State Local Government Area. A cross-sectional, community-based descriptive study and a total of 386 women of reproductive age were evaluated using questionnaires administered by interviewer. The study revealed that VVF was known to 80 per cent (309) of the population studied. The study also showed that the risk factors to VVF were also influenced by; education level and occupational- status being statistically significant as both variables. The level of education and employment status was directly proportional to one; knowledge and inversely proportional to those factors that led to VVF development. In conclusion, it still needs a breakthrough to get the women of Ebonyi Local Government Area of Ebonyi State to know about VVF and the risk factors for VVF development. To reduce those risk factors that can lead to VVF; the study recommended advocacy, health education and economic empowerment of women, education of girls and the improvement of women's socioeconomic status as instruments for bringing about the desired change. Although the study is relevant to the current study, as the survey focused only on women in Nigeria, the results are regionally demarcated.

## **2.5 Overview of Literature Review**

Previous studies show that there exist various risk factors that contribute to OF. Some of these factors that have been identified include cost of treatment, age of the woman, level of education which affect their knowledge about obstetric fistula and its treatment options, additionally the distance to the health facility as well as the quality of health services greatly affect the health seeking behavior of the women. Other factors also identified in the literature review include approval from the partner to seeking medical services and stigma from the immediate family as well as the community. For the health sector to bring about broad improvements in health in

Kenya, it is important to comprehend the effect of obstetric fistula on women well-being. This study come in handy to provide essential information that will guide on the steps and policies being implemented to increase the timely demand for obstetric fistula treatment services and therefore improves the women's well-being.

## CHAPTER THREE: METHODOLOGY

### 3.0 Introduction

This chapter outlines the research methodology as the mode of achieving the purpose of the study. It specifically highlights the research methods to be used in carrying out the study to answer the research questions.

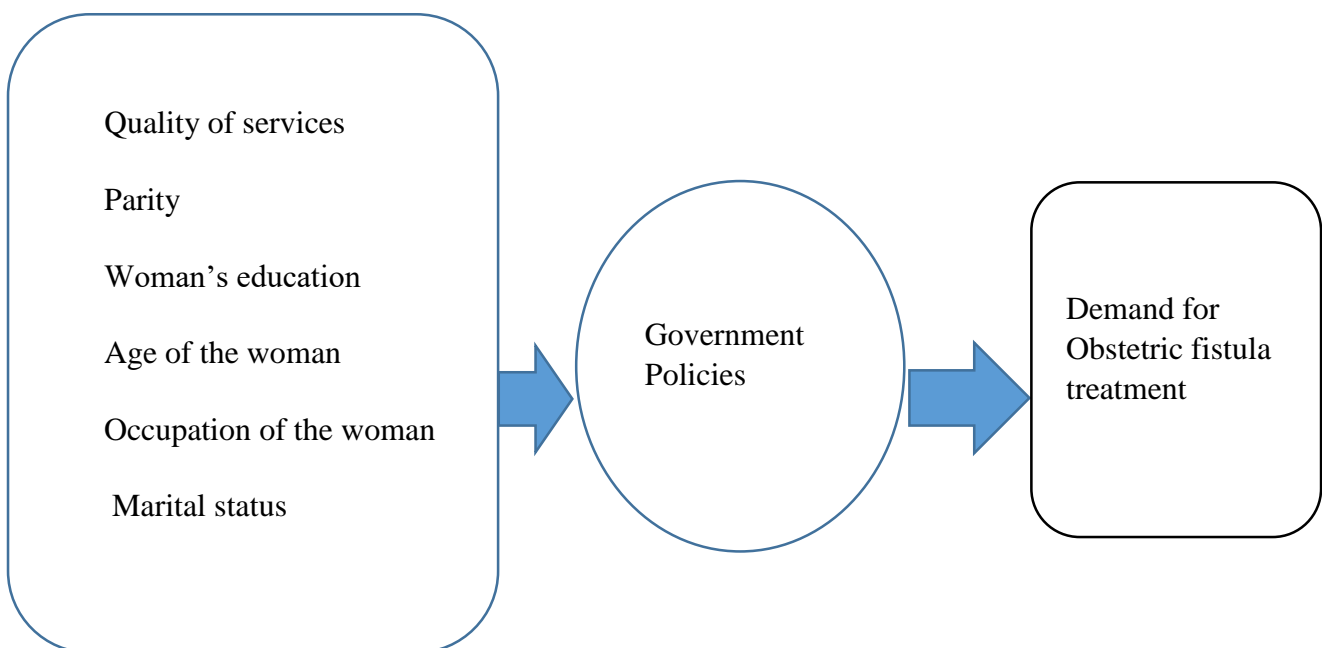
### 3.1 Conceptual Framework

The conceptual framework represents the relationship between the dependent variables and the independent variables in the study.

**Independent variable**

**moderating Variable**

**dependent variable**



In coming up with the conceptual framework and the empirical model the study borrows from Andersen, 1973 with the modifications supported by the framework of health services utilization. An attempt was made to provide a theoretical explanation for certain empirical observations about a woman in her effort to seek the service, in this case, obstetric fistula treatment. The model assumed that a woman should seek medical attention within 6 months from the time injury, therefore any time after 6 months is considered as a delay in demanding for the services. In the study the demand of a representative consumer (woman) was expressed as:

$$DD=f(\chi)+\varepsilon.....(1)$$

Where: DD is the consumer’s demand for OF treatment service,  $\chi$  is a vector of characteristics of the consumer seeking the services and the attribute of the service provider of the facility.

**3.2 Estimation Model and Specification**

The study employed the probit model for empirical estimation informed by the fact that the dependent variable has binary outcome signifying delay or timely outcome of the study outcome. The model lies within the range of (0,1) to examine the variables. Given the explanatory variables, the key consideration will be to view the dependent variable as a likelihood of deciding to use Obstetric fistula care service on time. It is assumed that there will be a linear relationship between the latent variable  $y^*$  and explanatory variables  $X_i$ . The general structural model will be presented in the equation 2 as follows:

$$y^*=x_i\beta+\varepsilon..... (2)$$

where  $y$  is the unobserved latent variable ranging from  $-\infty$  to  $\infty$  whilst  $X_i$  represents a vector of explanatory variables: cost of Fistula treatment (COFt), Education(Ed), Age(Age), Parity(Prt), Occupation of the woman/girl(OC) Quality of services(Qts) and marital status (Mrt). the latent variable  $y^*$  and the observed variable are then linked using equation 3 as follows:

$$y = \begin{cases} 0 & \text{if } Y^* < K \\ 1 & \text{if } Y^* \geq K \end{cases} ..... (3)$$

Where  $Y^*$  is the probability of the woman delaying seeking OF treatment services (1 if the woman has delayed the demanded OF treatment services, 0 if otherwise).  $K$  is the threshold point/cut off, Critical level of the index  $Y^*$  beyond which the individual will seek OF treatment services. The average characteristics of the variables  $X_i$  are the regressed against  $Y$  to determine the influence of each variable on a woman demanding OF treatment services.

The probability of reporting that the woman delayed the consumption OF treatment services will be expressed as follows, assuming the error term has a standard probit distribution.

$$P_i = E(M=1/X_i) = \frac{1}{1 + e^{-(\beta_0 + \beta_1 x_i + \varepsilon_i)}} \dots \dots \dots (4)$$

Where  $P_i$  is the likelihood of a woman delaying the demand OF treatment services, 1 if the woman delays the demands for OF treatment services, 0 if otherwise.

$X_i$  represents the factors affecting the probability of seeking obstetric fistula treatment services,  $\beta_0$  and  $\beta_1$  are parameters and  $\varepsilon_i$  is the error term.

This was further simplified as;

$$P_i = E(M=1/X_i) = 1 \frac{1}{1 + e^{-z_i}} \dots \dots \dots (5)$$

Where  $z_i = \beta_0 + \beta_1 X_i + \varepsilon_i$

The actual probit regression model for OF treatment services demand is given by the equation.

$$Dof_{it} = \beta_0 + \beta_1 Qts_{it} + \beta_2 Prt_{it} + \beta_3 Ed_{it} + \beta_4 Age_{it} + \beta_5 OC_{it} + \beta_6 Mrt_{it} + \varepsilon_{it} \dots \dots \dots (6)$$

Where:

- $Qts$  is the quality of the health services offered
- $Prt$  is the parity of the woman
- $Ed$  is the education of the woman
- $Age$  is the age of the woman
- $OC$  is the occupation of the woman/girl
- $Mrt$  is the marital status of the woman
- $\varepsilon$  is the error term for the model

**3.3 Definition, measurement and expected sign of the variables**

The dependent variables for this study was the probability of a woman delaying her demand for obstetric fistula treatment services. The explanatory variables in the study were the socio-economic and demographic factors that influence the decision of the woman to promptly demand or to delay the demand for obstetric fistula treatment services. The independent variables include: Quality of the health services (Qts), No of living children of the woman

(Nlc), Education level of the woman (Ed), Age of the woman (Age), Occupation of the woman/girls (OC), , and the marital status of the woman.

**Table 1: Definition of the variables and their expected signs**

*Table 1: Definition of variables and their expected signs*

Variable Name	Variable code	Variable Description	Expected sign
<b>Dependent variable</b>			
Demand for obstetric fistula treatment services	1. Delayed, 0. Prompt,	The need to seek health care services for a patient suffering from fistula	
<b>Independent variables</b>			
Marital status (MS)	1. married, 2. special single (divorced, separated, or widowed) 3. never married(single)	Marriage association grouped into: married, divorced, widowed, or separated, single	Positive
Education (ED)/knowledge of obstetric Fistula	0- None 1- Primary 2- Secondary 3- Tertiary+	Highest attained education level categorized into: no education, primary level, secondary level and tertiary level	Positive
Number of children surviving	0. none 1. one 2. two and more	Number of children the woman has that are alive	positive
Occupation	0. Unemployed 1. Formal Employment 2. Informal Employment	The kind of work/occupation that the woman engages in on a daily basis for income	positive

Age (women and girls or reproductive age)	<ul style="list-style-type: none"> <li>0. 15- 19 years</li> <li>1. 20-24 years</li> <li>2. 25-34 years</li> <li>3. 35 -42 years</li> <li>4. 42-49 years</li> <li>5. 50 + years</li> </ul>	Age group of the woman 15-19 -this is the age where most girls are not fully developed hence the chances of getting Fistula are very high ; 25-34 this is the ideal age for getting children; 35-40 late child bearing; 41-49 most women are done giving birth and are heading to menopause	Positive
Residence	<ul style="list-style-type: none"> <li>0. rural,</li> <li>1. urban</li> </ul>	Place where the woman lives i.e rural, urban) respondent comes from	Negative
Quality of service	<ul style="list-style-type: none"> <li>0.first time repair surgery,</li> <li>1. Second repair</li> <li>2 third of more repair attempt</li> </ul>	Is the quality of the fistula repair treatment in relation to successful recovery	positive

### 3.4 Data estimation Issues and Diagnostic tests

The study endeavored to get consistent and reliable estimates in determining the causes of delays in seeking OF treatment among women and girls in Kenya hence a number of issues that would undermine the reliability of the results had to be addressed prior to carrying out full estimation. The potential estimation issues identified include multicollinearity and heteroscedasticity.

#### 3.4.1 Multicollinearity Test

According to Gujarati, 2004, multicollinearity is common in cross sectional data, which this study will employ. This is expressed when two independent variables are dependent linearly.



Its presence inflates the variance of the parameter estimates leading to the provision of wrong magnitudes of the coefficient estimates and hence poor and incorrect conclusions, variance inflation factor and collinearity matrices were used to check for its presence. If found the correlated variable will be dropped or retained if not highly correlated or sample size is increased.

### **3.4.2 Heteroscedasticity test**

Mackinnon and Davidson (1984) proposes test statistics for heteroscedasticity in probit and logit models. The assumption is that heteroscedasticity is a function of variables  $Z$ . The  $Z$  variables are chosen from the  $X$  variables that are included in the probit and logit models. Test statistics are based on the Lagrange multiplier (LM) principle. The estimation results from the modes are then used to construct an artificial regression designed to test for heteroscedasticity. The test statistics is the explained sum of squares from the artificial regression. The results were then be compared to the results of homoscedastic probit model to test for the presence of heteroscedasticity within the model. The LM test for homoscedasticity was applied to test for heteroscedasticity in the regressed probit model

### **3.5 Data source and type**

The study used secondary data of all the girls and women who underwent surgery to repair Obstetric Fistula obtained from freedom from Fistula Foundation patient database. Freedom from Fistula Foundation is an organization that facilitates fistula treatments at Kenyatta National Hospital. Using a hierarchical data extraction tool, the cross-sectional data was collected from medical information and stored in MS access. The data addressed some of the variables such as time with the Fistula injury, marital status, level of education, occupation, number of deliveries and number of living children as well as place of residence which determines distance to the health facility.

### **3.6 Data processing Analysis**

Analysis was be done using STATA software. The data collected was be devoid of any identifier information on the clients and confidentiality was at all-time be ensured. Only authorized persons had access to the data that was be always under a password protection.

### **3.7 Ethical Approval**

Approval to access the data was be sought from the organization's country director. The patients already signed consent during data collection. The data also will not include the patient's names instead the identity will be numbers.

## **CHAPTER FOUR: RESULTS AND DISCUSSION**

### **4.0 Introduction**

The chapter presents the study findings and empirical results discussions on delayed demand for obstetric fistula treatment in Kenya. Diagnostic tests and descriptive statistics of the study population are also presented.

### **4.1 Sample description**

The section contains descriptive statistics of the women that sought health care at Kenyatta National hospital. A total of six hundred and forty-nine women were interviewed. The variables under study include age, level of education, marital status, residence, parity, type of employment and duration with the injury.

From Table 2. the number of respondents who reported delayed in seeking Fistula treatment were 76.9 per cent, while that reported to have sought timely treatment were 33.1 per cent.

From the analysis, the youngest respondent was 15 years of age. However, there was a 97-year-old patient who sought treatment that late after leaving with the disease for over 65 years. The mean age of the women interviewed was 39 years. Further, the Table 2, has shown that most of the respondents were of the age bracket of 25-34 at 29.6 per cent followed by those in the age bracket of 50 years and above at 25.3 per cent.

Table 2: Sample Description (n=649)

Variable	Mean	Std. Dev.	Min	Max
Delay in Demand for treatment	0.7689	0.4219	0	1
Never Married	0.1356	0.3426	0	1
Married	0.6179	0.4863	0	1
Special single	0.2450	0.4304	0	1
No education	0.1687	0.3748	0	1
Primary education	0.5023	0.5004	0	1
Secondary education	0.2786	0.4487	0	1
Tertiary education	0.0480	0.2139	0	1
Unemployed	0.2712	0.4449	0	1
Informal employment	0.6271	0.4839	0	1
Formal employment	0.0924	0.2899	0	1
Age	39.311	15.328	15	97
15-19 years	0.0462	0.2101	0	1
20-24 years	0.1094	0.3124	0	1
25-34 years	0.2958	0.4568	0	1
35-42 years	0.1864	0.3898	0	1
43-49 years	0.1094	0.3124	0	1
50> years	0.2527	0.4349	0	1
Urban residence	0.4684	0.4994	0	1
No child surviving	0.1233	0.3290	0	1
One child surviving	0.1772	0.3821	0	1
Two or more children surviving	1.0015	5.4720	0	1
First treatment	0.6918	0.4621	0	1
Second treatment	0.2373	0.4257	0	1
Two or more treatment	0.0586	0.2350	0	1

Source: FFF data, STATA output

Additionally, majority of the respondents had only attained primary level education at 50.2 per cent followed by those who had attained secondary education at 27.9 per cent. The least were those who had attained tertiary education at 4 per cent while the uneducated were 16.9 per cent. When it comes to marriage, majority of the respondents were married at 61.2 per cent followed by the special single comprising of the separated, divorced and widows at 24.5 per cent. The least were those who have never been married at 13.4 per cent.

From the analysis, majority of the respondents were in informal employment at 62.7 per cent. These include the small-scale farmers; small scale businesses like vegetable vendors and hairdressers. The second majority were the unemployed at 27.1 per cent. These are students and pupils as well as the housewives and those totally incapacitated because of the disease including those with drop foot and severe genital wounds.

Majority of the respondents live in the rural areas at 53.2 per cent in comparison to those living in urban areas at 46.8 per cent. Additionally, majority of them were seeking treatment for their first time at 69.2 per cent as compared to those who were seeking fistula treatment for their second, third or more treatment at 23.7 per cent and 5.9 per cent consecutively.

## 4.2 Estimation Issues

### 4.2.1 Likelihood Ratio Test for Heteroscedasticity.

The study addressed Heteroskedasticity by using robust standard error estimates referred to by (Wooldridge.2002) as Heteroskedasticity-robust standard errors. According to Gujarati, (2008), it is also called the White's general heteroskedasticity but has an advantage of simplicity and capacity to identify both specific errors and heteroskedasticity as shown in Table 3 below.

The test shows: **LR test of  $H_0: \sigma^2 = 0$ :**

**chi2 (17) = 40.66                      Prob > chi2 = 0.0010.**

Since **Prob > chi2 = 0.0010** we conclude that the model has heteroskedasticity. To correct for this, we have estimated the model with robust standard errors. This is done by adding 'robust' to the Stata command after stating the probit regression (with the regress and the regressors). The results are shown in the table below.

Table 3: Likelihood Ratio Test for Heteroscedasticity: Heteroskedastic probit model

Variables	Coefficients	Std. Err.	z	P >  z	[95% Conf. Interval]	[95% Conf. Interval]
<b>Delay in seeking Treatment for Fistula</b>						
Married	-.5682616	.3237008	-1.76	0.079	-1.202703	.0661803
Never Married	-1.033439	.5532859	-1.87	0.062	-2.11786	.0509812
Primary education	.1287386	.2477638	0.52	0.603	-.3568695	.6143468
Secondary education	-.1628395	.1628476	-1.00	0.317	-.4820148	.1563358
Tertiary education	-.6280864	.3449476	-1.82	0.069	-1.304171	.0479984
One child surviving	-.2001768	.221014	-0.91	0.365	-.6333563	.2330026
Two or more children surviving	-.4838247	.3271063	-1.48	0.139	-1.124941	.1572918
Formal employment	.0171498	.2273374	0.08	0.940	-.4284234	.4627229
Informal employment	.3803074	.2885777	1.32	0.188	-.1852945	.9459093
Twenty to twenty-four	1128.905	14812.79	0.08	0.939	-27903.62	30161.43
Twenty-five to thirty-four	1.062656	.8236797	1.29	0.197	-.5517264	2.677039
Thirty-five to forty-two	.373182	.2765438	1.35	0.177	-.1688339	.9151978
Forty-three to forty-nine	.7088799	.5970382	1.19	0.235	-.4612934	1.879053
Fifty and above	.2161245	.182339	1.19	0.236	-.1412534	.5735024
Urban residence	-.1275714	.1512484	-0.84	0.399	-.4240127	.16887
Second treatment	.289167	.2055039	1.41	0.159	-.1136133	.6919472
Two or more treatments	-.29622	.1985925	-1.49	0.136	-.6854542	.0930141
_cons	1.085135	.5591814	1.94	0.052	-.0108401	2.18111
<b>Insigma2</b>						
married	-.5033179	.2764769	-1.82	0.069	-1.045203	.0385669
Never Married	-1.708048	.3977793	-4.29	0.000	-2.487681	-.9284148
Primary education	.5834948	.3189818	1.83	0.067	-.0416981	1.208688
Secondary education	-.1354565	.2830991	-0.48	0.632	-.6903205	.4194076
Tertiary education	-1.312181	.3989875	-3.29	0.001	-2.094182	-.5301797
One child surviving	-.3263749	.3503424	-0.93	0.352	-1.013033	.3602836
Two or more children surviving	-.8954278	.352037	-2.54	0.011	-1.585408	-.2054479

Formal employment	.1699621	.4837655	0.35	0.725	-.7782008	1.118125
Informal employment	.1445671	.2854216	0.51	0.613	-.414849	.7039833
Twenty to twenty-four	8.834966	13.13237	0.67	0.501	-16.904	34.57393
Twenty-five to thirty-four	1.818037	.6719705	2.71	0.007	.5009995	3.135075
Thirty-five to forty-two	1.213362	.4390931	2.76	0.006	.3527553	2.073969
Forty-three to forty-nine	1.067884	.5731485	1.86	0.062	-.0554661	2.191235
Fifty and above	1.172194	.4656709	2.52	0.012	.2594957	2.084892
Urban residence	-.3251367	.2089147	-1.56	0.120	-.734602	.0843286
Second treatment	-.2743823	.2425123	-1.13	0.258	-.7496976	.200933
Two or more treatments	-1.445413	.3513921	-4.11	0.000	-2.134129	-.7566973
<b>Number of obs = 646</b>				<b>Wald chi2(17) = 4.26</b>		
<b>Zero outcomes = 150</b>				<b>Prob &gt; chi2 = 0.9992</b>		
<b>Nonzero outcomes = 496</b>				<b>Log likelihood = -312.9553</b>		

Source: FFF Data, Stata output

### 4.3 Econometric model Estimation

To gain a better understanding of the delays in demand for obstetric fistula treatment, the study analysed some of the demographic characteristics and socio-economic determinant of delays in the health seeking behaviours of the women suffering from obstetric Fistula.



Table 4: Probit estimation model

Delay in seeking Treatment for Fistula	Coefficients	Robust Std. Err.	z	P>z	[95% Confidence Interval]	
Married	-0.3073	0.1441	-2.13	0.033**	-0.05898	-0.0248
Never married	-0.1900	0.2011	-0.91	0.360	-0.57813	0.2102
Primary education	-0.2883	0.1642	-1.76	0.079*	-0.6102	0.0335
Secondary education	-0.1944	0.1787	-1.09	0.277	-0.5446	0.1559
Tertiary education	-0.1072	0.2958	-0.36	0.717	-0.6870	0.4726
1 child surviving	0.1707	0.1990	0.86	0.391	-0.2193	0.5607
2 > children surviving	0.3151	0.1792	1.76	0.079*	-0.0361	0.6663
Formal employment	-0.0121	0.2054	-0.06	0.953	-0.4146	0.3905
Informal employment	0.2066	0.1285	1.61	0.108*	-0.0453	0.4585
20-24 years	0.1740	0.2896	0.60	0.548	-0.3935	0.7415
25-34 years	0.4228	0.2624	1.61	0.107*	-0.0915	0.9372
35-42 years	0.1591	0.2696	0.59	0.555	-0.3693	0.6876
43-49 years	0.6430	0.2967	2.17	0.030**	0.0615	1.2245
50> years	0.0991	0.2627	0.38	0.706	-0.4158	0.6141
Urban residence	0.0183	0.1118	0.16	0.870	-0.2008	0.2375
Second treatment for Fistula	0.4036	0.1428	2.83	0.005**	0.1238	0.6835
2> treatments for Fistula	0.2897	0.2555	1.13	0.257	-0.2111	0.7906
_cons	0.4225	0.3386	1.25	0.212	-0.2412	1.0862

Source: FFF Data, Regression Result from Stata, \*\* and \* indicates significance at 5% and 10% respectively.

From the Table showing regression model results, married, primary education, 2 > children surviving, informal employment, 25-34 years, 43-49 years, and second treatment for fistula are statistically significant in influencing delay to seek treatment for fistula at 95% and 90% confidence intervals.

However, to explain both the magnitude and the sign of the coefficients, we have generated marginal effects as shown in Table 5.

Table 5: Marginal effects probability of delaying seeking Obstetric care treatment.

Variables	Marginal Effects	Standard Error	z	P>z	[[95% Confidence Interval]	
Married	-0.0883	0.0399	-2.22	0.027**	-0.1664	-0.0102
Never married	-0.0572	0.0654	-0.88	0.381	-0.1854	0.0709
Primary education	-0.0852	0.0483	-1.76	0.078*	-0.1799	0.0095
Secondary education	-0.0594	0.0562	-1.06	0.290	-0.1696	0.0507
Tertiary education	-0.0329	0.0940	-0.35	0.726	-0.2171	0.1512
1 child surviving	0.0484	0.0537	0.90	0.368	-0.0569	0.1537
2 > children surviving	0.0975	0.0575	1.70	0.090*	-0.0151	0.2101
Formal employment	-0.0036	0.0613	-0.06	0.953	-0.1238	0.1166
Informal employment	0.0625	0.0395	1.58	0.114	-0.0150	0.1398
20-24 years	0.0489	0.0765	0.64	0.524	-0.1011	0.1987
25-34 years	0.1164	0.0666	1.75	0.080*	-0.0140	0.2469
35-42 years	0.0453	0.0735	0.62	0.538	-0.0988	0.1894
43-49 years	0.1522	0.0531	2.87	0.004**	0.0481	0.2563
50> years	0.0288	0.0748	0.39	0.700	-0.1178	0.1754
Urban residence	0.0054	0.0331	0.16	0.870	-0.0594	0.0702
Second treatment for Fistula	0.1094	0.0349	3.14	0.002**	0.0410	0.1777
2> treatments for Fistula	0.0771	0.0601	1.28	0.200	-0.0407	0.1949

(\*) dy/dx is for discrete change of dummy variable from 0 to 1.

Source: FFF Data, Output from Stata, \*\* and \* indicates significance at 5% and 10% respectively.

The marginal effects shown in Table 5, indicates that variables: married; primary education; 2 or more children surviving; 25-34 years of age; 43-49 years and second treatment for Fistula have a great effect of the delay in seeking Fistula Repair.

A married woman with Fistula has a lower likelihood to delay in seeking treatment compared to those who were divorced, widowed, and separated. The probability of a married woman with Fistula experiencing delay in seeking treatment is 8.83% lower than a woman who has the disease and is divorced, widowed, and separated. This scenario perhaps can be explained by

husbands being in the forefront in urging and taking their wives to seek for healthcare in a proper health facility early enough when the disease rear its ugly head. Additionally, financial and emotional support from the partner enables the woman to seek medical attention earlier unlike the singles and the special singles who have only one stream of income and many competing needs hence the delay on seeking help.

An increase in the level of education is positively correlated with a lower chance to delay in seeking for treatment for the case of Fistula. A woman with primary level of education has a lower probability of 8.52% to delay in going for treatment for fistula than one with no education level at all. As education level increases, women get empowered by widening their ability to acquire information on health issues that affect them and employment, which effectively gives them incomes, hence able to pay for health services sought even on their own. With the right information and income, women are not only able to learn much about different health conditions, but, also, seek treatment at the earliest opportunity.

An increase in the number of children surviving shows a higher likelihood for a female having Fistula to delay in seeking treatment than one who has no child surviving. The probability of a woman with Fistula and has 2 (two) children and above delaying in seeking healthcare increases by 9.75% compared to one with no child surviving. This perhaps can be explained by the fact as a woman with such condition experiences more births, less and less time is devoted to seeking treatment having to care and nurse her children combined with house chores. Additionally, one with more surviving children has more financial needs hence seeking healthcare services for Fistula is never a priority.

As age increases, the probability of a woman with Fistula experiencing delay in seeking treatment for Fistula increases. There is an increase in probability of 11.64% and 15.22% for a woman with Fistula in the age bracket of 25-34 and 43-49 years respectively to fail in seeking for healthcare than one who is in the age bracket of 19-20 years. The results show Fistula burden is higher with higher ages. This can be due to such women being in the child-bearing face which has been shown to increase the chance of delay in seeking for treatment for Fistula. Older women could also be battling with other health conditions hence prioritizing other treatments which could be graver. It can also be that such older people seek treatments on medical conditions they can easily afford other than Fistula. Also, the stigma attached to Fistula could be more for the older women than younger ones hence, preventing them from seeking treatment as they fear being exposed.

The frequency of seeking treatments increases the chance to experience delay in seeking treatment for Fistula. A woman who has Fistula and has gone for 2 (two) treatments has a higher likelihood to delay in seeking treatment than one who recovers only after first treatment. There is an increase in probability of 10.94% for a woman with Fistula and has gone for 2 (two) treatments to experience delay in seeking treatment for her condition compared to one who has only gone for one treatment. This can be explained by such women perhaps seeking treatment in health facilities that misdiagnose every time, making them to treat other medical condition which is or rather are not necessarily Fistula. Failed repairs also makes a woman lose confidence in the quality of health services discouraging them from seeking health. This, hence, prolongs the time taken to know the real medical condition for such women.

#### **4.4 Discussion of the findings**

The study finding shows that the marital status of a woman has an implication on the probability of delaying seeking Fistula treatment. A married woman often has both financial and emotional support from her partner which prompts them to seek timely health care when a fistula injury occurs. On the other hand, single women, the widowed, separated or divorced are likely to delay seeking medical attention due to resource constraints and lack of support. This finding disagrees with the findings of Khisa and Nyamongo (2012) which highlighted that Fistula patients often do not get support from their spouses since most of their husbands consider the condition a curse or bad omen in marriage and leave them untreated

The level of education has a positive effect on a woman health seeking behaviour. Most of the women who delayed seeking Fistula treatment had zero or primary level education. The level of education is related to a woman's knowledge about healthcare and consequently her health seeking behaviour. A more educated woman has more understanding about her health and is more likely to seek medical attention at the earliest opportunity. Additionally, the higher level of education is directly proportional to levels of income which is a factor in seeking medical care. This agrees with the findings of Lymo & Masha who found out that low levels of education translate to low knowledge level of Fistula in the community and affects the demand for obstetric Fistula treatment.

The Burden of fistula increase with an increase in Age. This can be attributed to the fact that older women have had enough children hence Fistula treatment is not a priority compared to younger women who are beginning their child bearing stage hence they are prompt in seeking healthcare compared so as to continue giving birth. Additionally, older women got their

Fistula when there was very little knowledge about it in the country and many considered it an incurable condition and others a curse unlike now when most young women are knowledgeable about fistula and have access to health services. The findings agrees with those of Adam et al (2018) where a woman who had lived with the fistula for 29 years believed that it was a curse from her husband for being troublesome in the marriage while another believed it was a curse from Allah hence could delayed seeking treatment.

As the number of treatment trials increases, the probability of delaying seeking treatment increases. Women who have had more than two failed repairs reported delays in seeking treatment unlike those seeking treatment for the first time. This can be attributed to loss of confidence in the quality of services offered and loss of hope in getting cured. Failed repairs were also a discouragement to other patients causing delays in seeking treatment. The study findings are in agreement with Hilton & Ward (1998) who found that although in most cases the success rate of the repairs is above 80%, those who had had more than two repairs posed the risk of failure in consequent repair attempts. This inhibited the women from seeking treatment and discouraged others who heard about the failures from seeking help.

## **CHAPTER FIVE: SUMMARY AND POLICY RECOMMENDATIONS**

### **5.0 Introduction**

This chapter contains a summary of the study finding in relation to delays in demand for obstetric care in Kenya and key policy recommendations in relation to the same.

### **5.1 Summary of the study findings**

From the study, delays in seeking obstetric fistula care in Kenya is a major challenge that depicts the gap that exists in the obstetric care management. The study analysed both demographic and socio-economic factors that can be attributed to delays in demand for obstetric fistula care treatment. They included the age of woman, her education level, occupation, marital status, residence, number of living children and previous attempts to seek treatment.

Overall, the older the woman, the higher the probability of delaying seeking treatment. Additionally, as the level of education increases, the chances of the woman delaying seeking treatment decreases due to increase in knowledge increase. Having less children, fewer attempted repairs, being married as well as being an urban residence lowers the chances of delaying seeking fistula treatment in the country.

### **5.2 Recommendations**

The study depicts that improved emergency obstetric care is key to reducing future occurrences of obstetric fistula and that improved care to the existing is required to end the shame that the women are living with. An increase in the number of health facilities with the capacity to carry out successful repairs is required. Currently, patients depend of free medical camps which are occasional and not reliable due to the distances involved in relation to where they are held. Regional central hospitals will greatly bridge this gap and enable timely seeking of health care.

Adequate training of health care providers on fistula management is also required to equip them with the correct skills and knowledge on how to handle the patients. This will go in handy to preventing failures in fistula repairs which make it harder to cure and discourage the patients from seeking health care for fear of not getting healed.

Community health education on fistula is also required to equip the people with fistula knowledge. Considering that many do not understand the condition, others think that it is a curse while others do not know where to seek help. Educating them on the etiology, treatment options and demystifying the disease as any other will greatly help in ending the stigma that

the patients experience leading to delays in seeking help. A supportive community will be very crucial to the healing process of the patient.

Including Fistula education to the national curriculum system will also help equip the young one with information that will greatly delay their age at first birth as well as help others who may be suffering in isolation.

### **5.3 Areas of further study.**

The study recommends further research on the factors that hinder treatment seeking from a regional level especially in east African. Kenya is leading in health care quality in the region, yet we still have these challenges. An analysis of the same from the neighbouring countries such as Uganda, Tanzania and Somalia are highly recommended to end this dehumanising condition. A further study on the key causes of failures in the fistula treatment is also recommended to address issues of failed repairs and increase success rate.

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**APPENDIX  
QUESTIONNAIRE**

**COMMUNICATION CONSENT**

**Patient Name:** \_\_\_\_\_

**Patient ID:** \_\_\_\_\_ **DOA** \_\_\_\_\_ **DOD** \_\_\_\_\_

I, \_\_\_\_\_ allow Freedom from fistula Foundation to take photographs of me, to interview me, to publish, print and broadcast my voice and image. I understand my identity may be revealed through my photographs but only my first name will be used.

*In children under 16, consent will be authorized by the guardian*

I understand that FFF is a charitable organization and rely on donations to provide services, and may use my image for public relations purposes, such as for newspaper, internet or news television programs and for educational or research purposes such as to illustrate medical lectures. FFF Foundation will not use photographs that will compromise my modesty or my dignity.

Having authorized the FFF to photograph me, I waive any right to compensation for the use of my image and understand that the term “photograph” as used in this agreement shall mean motion picture of still photography in any format, as well as videotape, videodisc and any other means of recording reproducing visual images and sound.

I understand that the Freedom from Fistula Foundation will treat me regardless of whether I give permission to be photographed.

Patient/guardian signature, thumbprint or mark: \_\_\_\_\_

Witness / translator name: \_\_\_\_\_

Witness / translator signature: \_\_\_\_\_

Date: \_\_\_\_\_

**CAMP INTERVIEW QUESTIONNAIRE**

Date \_\_\_\_\_

Filled in by (staff name) \_\_\_\_\_

1. Patient Name (3) \_\_\_\_\_
2. Patient Height (cm) \_\_\_\_\_ Weight (Kg) \_\_\_\_\_
3. Age in year's \_\_\_\_\_ In-patient No \_\_\_\_\_
4. Home County \_\_\_\_\_ Village \_\_\_\_\_
5. Current Residence (if outside home county) \_\_\_\_\_
6. Phone \_\_\_\_\_ Name of N.O.K \_\_\_\_\_
7. Phone for Next of Kin \_\_\_\_\_ Relationship \_\_\_\_\_
8. Education level \_\_\_\_\_ Occupation/source of income \_\_\_\_\_
9. Marital Status: Tick ✓one (a) Married(b) Never married (c) Separated(d) Widow
10. Number of deliveries \_\_\_\_\_ Number of living children \_\_\_\_\_

**FISTULA DETAILS**

1. Urinary incontinence \_\_\_\_\_ Stool incontinence \_\_\_\_\_
2. How did the injury occur? Obstetric/Surgical/Trauma/Diseases/Other  
\_\_\_\_\_
3. If through childbirth, during the delivery that caused the fistula,
  - a. How long were you in labour? \_\_\_\_\_ days \_\_\_\_\_ hours
  - b. (i) Condition of baby? \_\_\_\_\_ (ii) Sex of baby \_\_\_\_ (iii) Weight \_\_\_\_\_
  - c. Where did you deliver? \_\_\_\_\_
  - d. When did this happen? Month \_\_\_\_\_ Year \_\_\_\_\_
4. Have you ever received a form of treatment for this condition before? N/Y \_\_\_\_ If yes, Where? \_\_\_\_\_ When? \_\_\_\_\_
5. Clinical diagnosis (screening)  
\_\_\_\_\_
6. Who is aware of your condition?  
\_\_\_\_\_
7. How was their reaction?  
\_\_\_\_\_  
\_\_\_\_\_
8. How did you get information about availability of treatment?

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9. Which form of transport did you use to get to hospital? \_\_\_\_\_

10. How long did it take to get to hospital? \_\_\_\_\_

11. Who paid for your trip? \_\_\_\_\_

12. Would you still want to have more children after the surgery? \_\_\_\_\_

**REPAIR DETAILS – From operation notes**

1. Name of surgeon \_\_\_\_\_Assistant \_\_\_\_\_

2. Diagnosis \_\_\_\_\_

3. Procedure done \_\_\_\_\_Date \_\_\_\_\_

4. What number of attempt? \_\_\_\_\_Ureteric catheters \_\_\_\_\_

5. No. of days with catheter \_\_\_\_\_Results of Dye test at removal \_\_\_\_\_

**FOLLOW UP DETAILS – circle on in each case**

1. On Discharge (i)**Cured** (dry and voiding) (ii)**Fistula closed** but has **S.U.I** (iii)**Wet** (failed)

2. At 2 weeks (i) **Cured** (dry and voiding) (ii) **Fistula closed** but has **S.U.I** (iii)**Wet** (failed)

3. At three months (i) **Cured** (dry and voiding) (ii) **Fistula closed** but has **S.U.I** (iii)**Wet**  
(failed)

4. At six months (i) **Cured** (dry and voiding) (ii) **Fistula closed** but has **S.U.I** (iii)**Wet**  
(failed)

5. Comments

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