

A Situational Analysis of Vesico-Vaginal Fistula at the Aberdeen Women's Centre-Freetown

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Abstract - Vesicovaginal fistula is a hole that develops between a woman's vagina and her urinary bladder, usually as a result of prolonged obstructed labour, resulting in continuous or intermittent urine leakage down their legs. The purpose of the study was to have a general overview of the burden of Vesico-vaginal fistula in 50 patients case- notes with urinary and/or stool leakage at the Aberdeen Women's Centre, Freetown city within the period under review. The specific objectives of this study were to investigate; the prevalence/burden of VVF, the risk factors contributing to it, the age distribution, the mode of delivery and the physical and psychosocial impacts of this condition on affected women. The results reveal an overall prevalence/burden of VVF to be 90% with prolonged obstructed labour with difficult vaginal delivery being the main associated cause (80%). Another reported associated cause was shown to be cesarean section (6%). It also shown that patients with ages 15-19 accounted for the highest number of fistula patients (28%) followed by ages 20-24 (20%). Ages 10-14 accounted for only 4%. In all, the age range 15-34 accounted for 82% as these are part of the sexually active reproductive age. Furthermore, the study reveals that a total of 30 patients (60%) were recorded for both stigmatization and depression which was highly responsible for the mental ill health of the patients. The high incidence of VVF is shown to be associated with low socio-economic status of women compounded with cultural and religious beliefs and practices as depicted in the conceptual framework for the risk management systems of fistulas. To reduce both the incidence and social impact of the consequences of VVF, it is recommended that women's status be improved through education, employment and teaching of income-generating skills to augment their resources in addition to creating community awareness at all levels as this involves reaching

different target groups that make up the community such as leaders at national, regional and local levels including politicians, health professionals, traditional leaders, 'Soweyes', Mammy Queens, TBAs, CHWs, Councilors, husbands, teachers etc.

Keywords: Vesico-Vaginal Fistula, Aberdeen Women's Centre, Situational Analysis, Freetown.

I. INTRODUCTION

Age-long ago, vesicovaginal fistula (VVF) is believed to be one of the clinical entities that have been known to the physicians of ancient Egypt, with examples present in mummies from before 2000 years BC. The history of the condition over the subsequent 4000 years and the progress toward the first known successful management by Johann Fatio in 1675, and since, is a subject that has fascinated medical historians, and has been reviewed in the literature on a number of occasions. Zacharin recently provided a further review (Zacharin, R. F., 2000). The particular contribution of Sims has been recognized by the recent republication of his original seminal paper of 1852 (Sims, J. M., 1998) on the treatment of vesico-vaginal fistula and by the inclusion of a description of his sometimes vilified surgical experimentation on Negro slaves in a series of classical texts.

VVF is a public health condition that arises from a wide range of aetiologies; its prevalence following gynaecological and urogynaecological surgery has been highlighted in several recent publications. This can be caused by the interplay of numerous physical factors and the social, cultural, political and economic situation of women. This interplay determines the status of women, their health, nutrition, fertility, behaviour and susceptibility to VVF (WHO, 2005).

The World Health Organization (WHO) estimates that between two and four million women currently live with one form of fistula and that an additional 50,000 to 100,000 are newly affected each year (World Health Report 2005: Make Every Mother and Child Count. Geneva Switzerland; Accessed April 2007). For the vast majority of women and girls who suffer from fistula, services to repair their condition remain unattainable for a number of reasons namely:

- i. Their lack of knowledge that such a condition can be repaired.
- ii. The long distance that they must travel to reach a facility that provides treatment.
- iii. The low likelihood that, even if they can get to a facility, fistula repair services are available.
- iv. Their inability to pay for the services if they are available.
- v. The backlog with which facilities that do provide repairs are faced.

Since an obstetric fistula is an indicator of the health system failing to provide accessible, timely and appropriate intrapartum care, it is justifiable to conduct a situational analysis of this embarrassing condition as it exposes women to physical, social and psychological torture (WHO, 2005). This three-letter abbreviated word, VVF, the most common among obstetric fistulas, carries so much weight that it can hardly be compared. Otherwise-medically known as vesicovaginal fistula, meaning an abnormal communication between the urinary bladder and the vaginal wall, is approximately caused in 98% of cases by obstructed labour.

An obstructed labour occurs when the baby's head is unable to pass through the birth canal and is jammed in its maternal pelvis. If this condition is not relieved on time by cesarean section, the anterior vaginal wall and the bladder become compressed between the fetal skull and maternal bony pelvis resulting in pressure necrosis. This gives rise to a defect known as a fistula, through which there is a continuous leaking of urine that cannot be explained, stopped or controlled by the woman affected.

Focusing simply on the hole between the bladder and the vagina ignores the multifaceted nature of the injuries that many of these patients sustain:

1. Urologic (complete urethral loss, renal failure etc.)
2. Gynecologic (amenorrhea, cervical damage etc)
3. Musculoskeletal (osteitis pubis)
4. Neurological (foot drop)
5. Dermatological (chronic excoriations of the skin)
6. Social Injury: (social isolation, divorce, worsening of poverty, malnutrition, suicide.

Medical Research experts in Sierra Leone have concluded that the major contributing factors for VVF in Sierra Leone include the following (UNFPA, 2003):

- i. Obstetrical practices of untrained traditional birth attendants (TBAs)
- ii. Cultural practices of early marriages as well as late prenatal care or teenage pregnancy (12-18 years)
- iii. Rape and other encounters of forceful/unusual sexual

Vesico-vaginal and rectovaginal fistulas are debilitating complications of obstructed labor, which primarily affect women and girls in developing countries (McKenna, 2003). During prolonged labor, the baby's head compresses the vagina against the mother's pelvic bones, and if the compression continues long enough, the tissue becomes necrotic, forming an opening between the vaginal wall and the bladder or the rectum (Menefee S.A., Wall, L.L., 2002). Vesicovaginal fistula has been virtually eliminated in developed countries, but it is still prevalent in many parts of the developing world (Cron, J., 2003). Although it is difficult to determine precise rates, it is estimated that there are at least 2 million women living with fistula, primarily in sub-Saharan Africa and South Asia, and some 50,000 to 100,000 women are affected each year (Ashford, L., 2002).

There are physical complications and comorbidities associated with fistula; some caused by obstructed/prolonged labor whilst others are sequelae of the fistula itself. These include fetal demise, damage to the cervix or pelvic bones, neurological conditions such as foot-drop, leakage of urine and/or feces into the vagina, urogenital infections, ammonia dermatitis, genital lacerations, kidney infections and amenorrhea (Hilton, P., 2003).

The psychosocial complications are also devastating, and although they start with social isolation of affected women due to offensive odor, many women are abandoned, divorced and ostracized. Women suffer for many years, since fistula repair services are rare, and even when available, women lack the knowledge that fistula can be repaired and/or they lack resources for treatment.

II. AIM AND OBJECTIVES OF RESEARCH STUDY

2.1 Aim of Research Study

The main aim of the research study is to have a general overview of the burden of Vesico-vaginal fistula (VVF) in patients with urinary and/or stool leakage at the Aberdeen Women's Centre (AWC), Freetown city within the period under review.

2.2 Specific Objectives of Research Study

- i. To identify and provide an estimate of women and household patients suffering from vesico-vaginal fistula at the Aberdeen Women's Centre, Freetown city.
- ii. To examine the socio-economic conditions that increase the risk of women for vesico-vaginal fistula at the Aberdeen Women's Centre, Freetown city.
- iii. To find out the age distribution of affected women with vesicovaginal fistula and suggest possible means of cure and preventive measures at the Aberdeen Women's Centre, Freetown city.
- iv. To identify the locations/places of delivery for affected women with vesico-vaginal fistula and to know whether they were attended to by skilled or unskilled birth attendants at the time delivery.
- v. To assess the physical and psychosocial impacts of this embarrassing condition on affected women with vesico-vaginal fistula at the Aberdeen Women's Centre, Freetown city.

III. METHODOLOGY

The methodology used to collect primary data and justification of the method. The chapter considers the design of the research, the study area, targeted population and sample of the study and the sampling procedure adopted. The chapter also presents an account of the research instrument, procedure for data collection, quality control and the ethical considerations of the research.

Both qualitative and quantitative data were collected and presented in tabular form and in charts using statistical analyses approach. The qualitative data was coded and sorted to arrange the responses as they are related to each other - data collection methods allowed the records being studied to give much richer answers to questions asked by the researcher and it also gave valuable insights of the topic that may be missed by any other method. Information obtained was presented in tables and the tables were aligned based on the objectives. Microsoft Excel was used for calculation and for presenting charts.

The researcher adopted secondary data from the records of patients of the Aberdeen's Women Center and also online published literatures respectively. Information from books and online materials also formed part of the research in chapter two. The researcher only accepted literatures from credible online sources like Google scholar, research gate, academia.edu.com etc. The secondary data also helped the researcher to know the constraints faced by those who have attempted to undertake researches of this nature.

Based on the limitation of the research work, the researcher was able to select the Aberdeen Women's Centre which care for women and household patients suffering from vesicovaginal fistula (VVF) within the period under review (January 2018 to June 2018) located at Aberdeen in Western Freetown.

The targeted population of the research includes records of women and household patients who reported with symptoms consistent with fistula at the Aberdeen Women's Centre, Freetown, that sum up to approximately 50. The researcher was able to match 50 checklists with the identified records of women and household patients with urinary and/or faecal incontinence at AWC. The researcher was able to retrieve the entire 50 checklists that formed the bases of the sample size. The target population was chosen by the researcher because the researcher had the conviction that records of these women and household patients from the AWC contained fistula-related information that could be of help in meeting the research objectives.

Out of the 50 checklists matched with patient records, all 50 were retrieved that formed the bases of the sample size of the research constituting 100% of records of women and household patients with fistula at the Aberdeen's Women Centre during the period under review.

The researcher used both random sampling technique and purposive sampling to select records of the women and household patients. Random Sampling is considered the ideal basis for obtaining a "Representative Sample" because in the situation of random sampling, occurrence is purely by chance, no bias by researcher (not being able to influence who or what gets selected), and there is an equal and known probability of being selected while on the other hand Purposive sampling technique is a technique in which information is obtained through focusing on relatively small number of cases deliberately or purposely selected on a known basis (Probbat et-al, 2015).

With the study being retrospective in nature where past records of inpatients were scrutinized, the fifty (50) case notes of patients admitted during the six-month period were selected and studied. The proportion of records of registered patients with diagnosed VVF among patients with urinary and/or faecal incontinence represented the prevalence rate/burden of this condition. The records of women and household patients were selected for a known purpose (because they are women and household patients affected with obstetric fistula at AWC).

The researcher used the AWCs' patient records for collecting data. This necessitated the use of instruments such as pens and papers. The essence of using the patient's record

was because the required data has to do with the medical diagnosis records during the period under review. The researcher was also observant to issues pertaining the topic under review though, the researcher suspended personal judgments on issues of this research even during the process of collecting information from AWC and data analysis so that the research outcome can be less influenced by the researcher’s self-perception.

3.1 Ethical consideration

This research posed no threat to the wellbeing of discharged participants as case notes were scrutinized in retrospect. Confidentiality was maintained throughout the study and this was exemplified in the checklist in which no names were written but were rather coded. The researcher ensured that records of all the research participants were ready for the process. Before records of the women and household patients at AWC were reviewed, permission was sought from the AWC’s medics and administration. Letters of consent were written to the Aberdeen’s Women Center administration and it was clearly stated both in oral and in writing that the research has no bearings to any non-academic objective but rather to complete this research work which will serve as a partial fulfillment for the award of the Master’s degree in Public health at the Njala University.

3.2 Exclusion Criteria

Other records of patients admitted at the study site without fistula were not considered part of the study.

IV. RESULTS/ FINDINGS

The findings of the researcher from the field work conducted, through the use of the methodologies explained in the previous chapter. This reflects analysis of the findings realized from the field data in relation to the literature review conducted. The information the researcher recorded from the patients record with VVF related at the Aberdeen’s Women Center were presented in tables and each table deals with a specific objective. Addendum to the analysis based on the specific objectives, demographic analysis was also made. The qualitative data was accordingly sorted to arrange the records as they are related to each other.

4.1 Demographic Characteristics of Fistula Patients at Aberdeen Women’s Center

Out of fifty (50) case notes scrutinized and recorded at the Aberdeen’s Women Center (AWC) during the period under review, below is the statistics recorded looking at various demographic indicators;

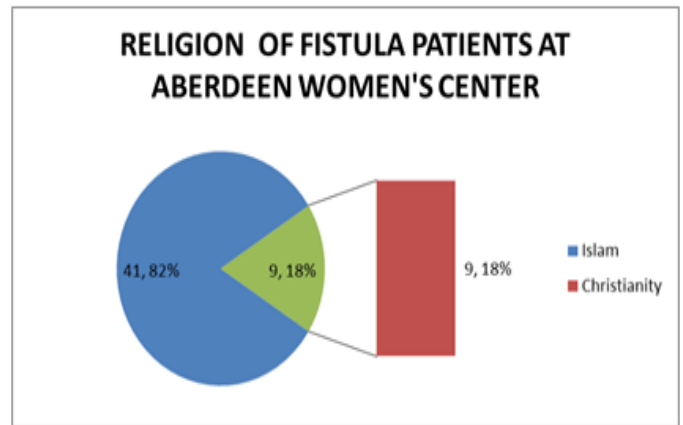


Figure 1: Religion of Fistula patients

Figure 1 indicates that out of the 50 patients affected with fistula, Muslims were in the majority recording 42 patients (84%) whilst 8 (16%) were recorded for Christianity during the period under review at the Aberdeen Women Center. This may be due to the fact that early marriages and teenage pregnancies are more common in Muslim-dominated rural communities. Also most Islamic scholars do not consent for male doctors to perform pelvic examination on their beloved wives.

Table 1: Marital status of fistula patients at time of Presentation

MARITAL STATUS OF FISTULA PATIENTS	NO. OF PATIENTS	PERCENTAGE (%)
Unmarried(Divorced/Separated)	35	70
Married	15	30
TOTAL	50	100

Table 1 reveals that 35 patients (70%) of women with fistula were unmarried (divorced/separated) compared to 15 patients (30%) who were married women. This may be due to the social stigma attached to fistula women and unmarried women are more vulnerable to be affected with fistula as compared to married women.

4.2 Estimates of Research Findings Based on Research Objectives

Out of fifty (50) case notes scrutinized and recorded at the Aberdeen’s Women Center (AWC) during the period under review, below is the statistics recorded looking at the estimates based on the research objectives’ indicators:

4.2.1 To identify and provide an estimate of women and household patients suffering from vesico-vaginal fistula at the Aberdeen Women’s Centre, Freetown city

Table 2: Prevalence/burden of VVF at Aberdeen Women’s Center (January-June 2018) in patients presenting with urine and/or stool leakage

PREVALENCE/ BURDEN OF VVF AT AWCs	NO. OF PATIENTS	PERCENTAGE (%)
VVF	41	82
VVF & RVF	4	8
RVF	5	10
TOTAL	50	100

From Table 2, it was revealed that out of fifty (50) case notes scrutinized and recorded at the Aberdeen’s Women Center(AWC) during the period under review, 41 patients (82%) were shown to be suffering from VVF alone, 5 patients (10%) from RVF alone and 4 patients (8%) from mixed fistulas(VVF & RVF). The overall prevalence/burden VVF was thus 90%.

4.2.2 To examine the socio-economic conditions that increase the risk of women for vesicovaginal fistula at the Aberdeen Women’s Centre, Freetown city

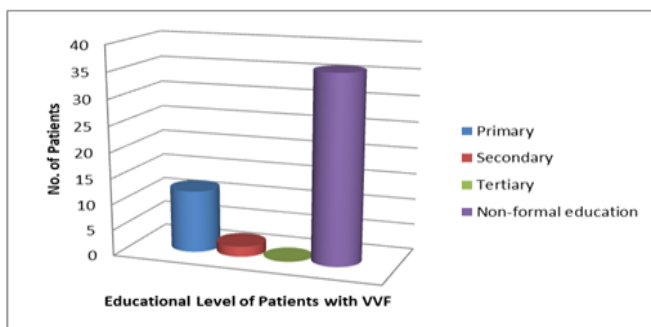


Figure 2: Educational level of Fistula patients (N=50)

Figure 2 shows patients with both formal and non-formal education. Fistula patients with formal education recorded 14 patients (28%) and 36 patients (72%) with informal education indicating that majority of the patients lack formal education. 12 patients (24%) were recorded with Primary school education, 2 patients (1%) were recorded for Secondary school education. The high percentage recorded for the informal education is because girls in the rural communities are restricted to their natural role of childbearing while boys are accorded the opportunity to acquire formal education.

Table 3: Occupational status of fistula patients

OCCUPATIONAL STATUS OF FISTULA PATIENTS	NO. OF PATIENTS	PERCENTAGE (%)
Employed	15	30

Unemployed	35	70
TOTAL	50	100

Table 3 reveals that fistula patients who were unemployed recorded the highest with 35(70%) and they were in the majority whilst 15 patients (30%) were gainfully employed and in the minority. The implication is that affected women have little or no income-generating capacity and the husbands may not be prepared to disburse funds for obstetric emergencies. Hence delay in seeking healthcare.

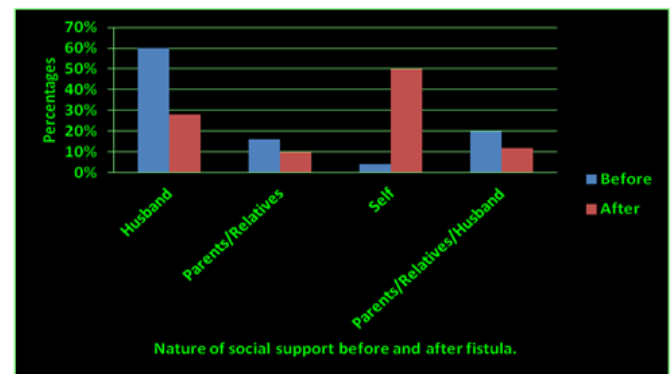


Figure 3: Nature of social support before and after fistula

Figure 3 reveals that even though a large proportion of the patients which was recorded an estimate of 40 patients (80%) had initial support from their husbands, this proportion dropped sharply to 20 patients (40%) after fistula. The burden was placed on the patients themselves with an estimate of 2 patients (4%) before fistula to 25 patients (50%) after fistula. This is due to the fact that not every man can afford to accommodate a wife that is all the time smelling of urine and/or faeces. Parent/ Relatives support before fistula recorded an estimate of 8 patients (16%) and after fistula an estimate of 5 patients (10%).

Table 4: Mode of transportation of fistula patients

MODE OF TRANSPORTATION	NO. OF PATIENTS	PERCENTAGE (%)
PRIVATE	1	2
PUBLIC	24	48
ON FEET	25	50
TOTAL	50	100

The table shows that only 1 patient (2%) had access to a private transport which recorded the lowest. Patients who walked on feet mode of transportation to access medical attention recorded the highest with an estimate of 25 (50%) whilst patients using public transport recorded an estimate of 24 (48%). Public transports are not available at all times of the day and so there was delay in getting soon to referral hospitals

that was the very reason why majority of the patients walk to access medical attention.

Table 5: Address (Rural or Urban origin) of Fistula patients

COMMUNITIES OF FISTULA PATIENTS	NO. OF PATIENTS	PERCENTAGE (%)
Rural Community	41	82
Urban Community	9	18
TOTAL	50	100

The table reveals that the community of origin affected with Fistula at AWC in Rural Community and Urban Community recording 41 patients (82%) and 9 patients (18%) respectively. The figure further shows that the bulk of patients were from rural communities, which may be hard to reach in terms of healthcare service deliveries and social amenities, with only a minimum proportion in urban settlements.

4.2.3 To find out the age distribution of affected women with vesico-vaginal fistula and provide cure and preventive measures at the Aberdeen Women’s Centre, Freetown city

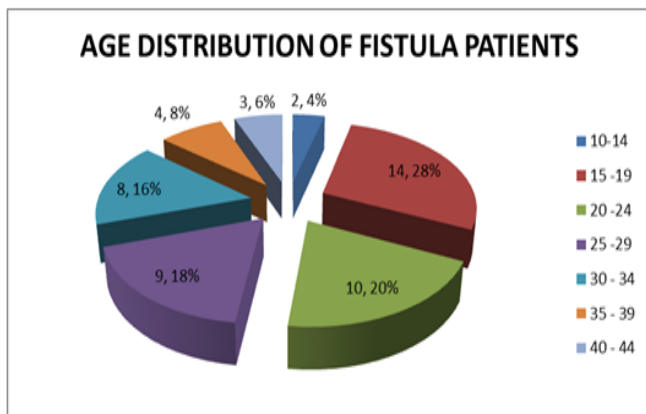


Figure 4: Age distribution of fistula patients

Results from Figure 4 indicate that patients with ages 15-19 account for the highest number of fistula recorded 14 patients (28%) followed by; ages 20-24 with 10 patients (20%), ages 25-29 with 9 patients (18%) and ages 30-34 with 8 patients (16%) . Ages 40-44 recorded the least with 3 patients accounted for 6% followed by ages 35-39 with 4 patients (8%). It is prudent to note that the age range 15-34 years accounted for 41 patients with VVF (82%) as these are part of the sexually active reproductive age.

Table 6: Age at which Menarche Occurred that leads of fistula

AGE AT WHICH MENARCHE OCCURRED THAT LEADS OF	NO. OF PATIENTS	PERCENTAGE (%)
10-14	34	68
15-19	15	30
20-24	1	2
Total	50	100

FISTULA (YEARS)	No. of Patients	Percentage (%)
10 -14	34	68
15 -19	15	30
20 -24	1	2
Total	50	100

The table clearly shows that out of the 50 patients under review, 34 patients (68%) recorded to experience their first menses in the ages of 10-14 years followed by 15 patients (30%) in the ages of 15-19 years and only 1 patient (2%) was recorded for the age group of 20-24 years. Menarche is a significant sign for a girl’s maturity to get married and bear children. Thus earlier menses lead to too early marriages and/or early pregnancies and the possibilities of obstructed labour and fistula.

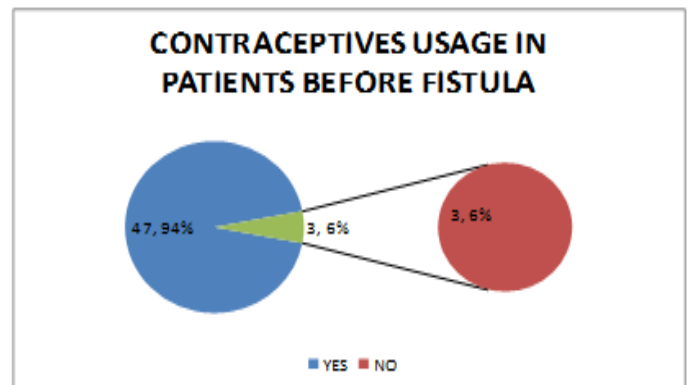


Figure 5: Contraceptive usage in patients before fistula. (n=50)

Figure 5 reveals that 47 patients (94%) were not on any contraceptive use and 3 patients (6%) had used some form of contraceptive before. Illiterate young girls and women do not only lack the knowledge and attitude but also fail to practice safer family planning methods which will leads to fistula.

Table 7: Previous repair of Fistula

PATIENTS WITH PREVIOUS REPAIR OF FISTULA	NO. OF PATIENTS	PERCENTAGE (%)
YES	1	2
NO	49	98
Total	50	100

In the aforesaid table, it can be seen that almost all the cases which recorded 49 patients (98%) were fresh cases and have never had a previous surgical intervention/repair and only 1 case (2%) was recorded having repaired before. It is likely that this single case did not heed to medical advice or comes from

a hard-to-reach area where there exist barriers to quality obstetric care.

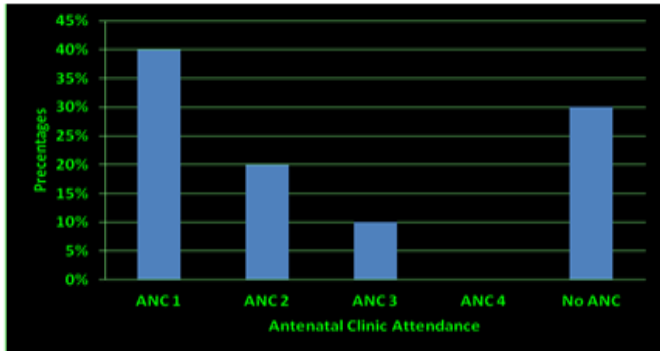


Figure 6: Antenatal Clinic Attendance (n=50)

From figure 6 above, an estimate of 35 patients (70%) of the fistula patients attended at least one ANC services whilst 15 patients (30%) did not. However, the ANC attendance dropped significantly from 20 patients (40%) at ANC 1 to 0% at ANC 4. It is possible that even with Free Health Care Initiative, there are still barriers (financial, proximity of health facilities, illiteracy and negative health workers' attitude) that are preventing pregnant women from having the recommended ANC contact schedules.

4.2.4 To identify the locations/places of delivery for affected women with vesicovaginal fistula and to know whether they were attended to by skilled or unskilled birth attendants at the time delivery

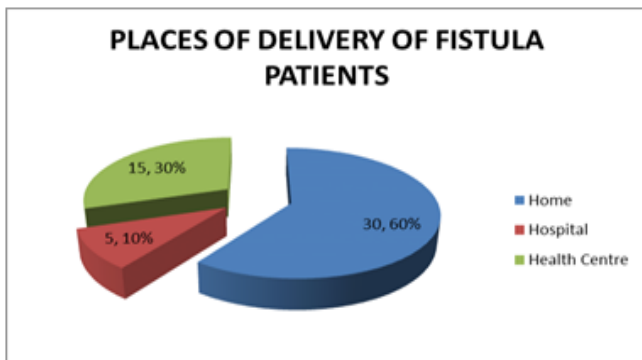


Figure 7: Places of delivery of fistula patients (n=50)

From figure 7, an estimate of 30 patients (60%) and 15 patients (30%) of deliveries were recorded as occurred at home and health centres respectively. One-tenth (10%) of deliveries which was 5 patients occurred in hospital. Usually the 'Soways', Mammy Queens and other untrained birth attendants are consulted first. Hospital delivery services are considered a second option only at the eleventh hour possibly due to negative attitudes of health workers and frequent stock outs of drugs and medical supplies.

Table 8: Mode of delivery in fistula Patients

MODE OF DELIVERY OF FISTULA PATIENTS	NO. OF PATIENTS	PERCENTAGE (%)
Normal Vaginal Delivery	7	14
Difficult Vaginal Delivery	40	80
Caesarean Section	3	6
Total	50	100

Table 8 reveals that estimates of 40 patients (80%) were recorded for Difficult Vaginal Deliveries and 7 patients (14%) recorded for Normal Vaginal Deliveries whilst 3 patients (6%) were recorded for Caesarean section of all deliveries. With difficult vaginal deliveries, prolonged contact of foetal presenting part, usually the head, causes tissue ischaemia and necrosis of the urinary bladder and/or rectum with consequent fistula formation.

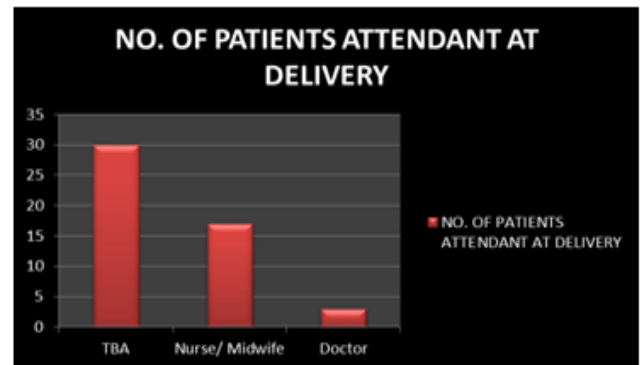


Figure 8: Attendant at delivery (n=50)

Figure 8 reveals TBAs were in the highest among the number of birth attendants recording 30 patients (60%) at delivery followed by Nurse/Midwife with 17 patients (34%) and doctors with 3 patients (6%). This is because TBAs are the immediate attendant to consult in rural communities and there is almost always a delay in the referral system. Robust social mobilization and the designing and implementation of bye laws at community levels on home deliveries could be laudable strategies to prevent maternal morbidities and mortalities.

Table 9: Number of days in labour

NUMBER OF DAYS IN LABOUR (DAYS)	NO. OF PATIENTS	PERCENTAGE (%)
<1	0	0
1-2	1	2
3-4	32	64
5-6	16	32

≥7	1	2
Total	50	100

The table shows that all the patients spent at least one day in labour with the majority 32 patients (64%) spending 3-4 days followed by 16 patients (32%) with 5-6 days labour time. In summary, an estimate of 95% spent between 3-6 days in labour. Only 1 patient (2%) was recorded each for a period of 1-2 days and ≥7 days respectively. This denotes delay in decision making and getting to referral hospitals.

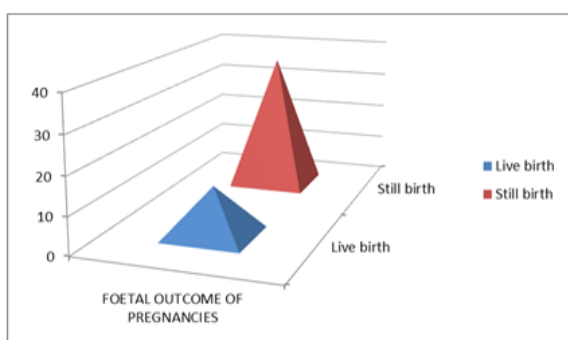


Figure 10: Foetal outcome of pregnancies (n=50)

In Figure 10, an estimate of 37 patients (74%) of pregnancies associated with fistula formation resulted in stillbirth while 13 patients (26%) ended with live births. This is most likely due to both the foetal and maternal distress associated with prolonged obstructed labour with consequent birth asphyxia and intrauterine death.

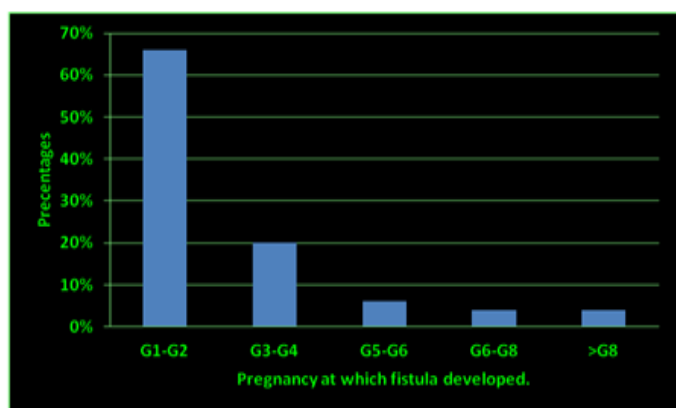


Figure 11: Pregnancy at which fistula developed (n=50)

Figure 11 shows that about two-thirds of the patients recording 33(66%) developed fistula in the first or second pregnancy (G1-G2), 10 patients (20%) in the third and fourth pregnancy(G3-G4) , 3 patients (6%) in the fifth and sixth pregnancy and 7 patients (14%) in the grand multigravida women. Overall, 43 patients (86%) are between G1 and G4. Teenagers are physically immature and prone to many obstetric complications like obstructed labour.

4.2.5 To assess the physical and psychosocial impacts of this embarrassing condition on affected women with vesicovaginal fistula at the Aberdeen Women’s Centre, Freetown city

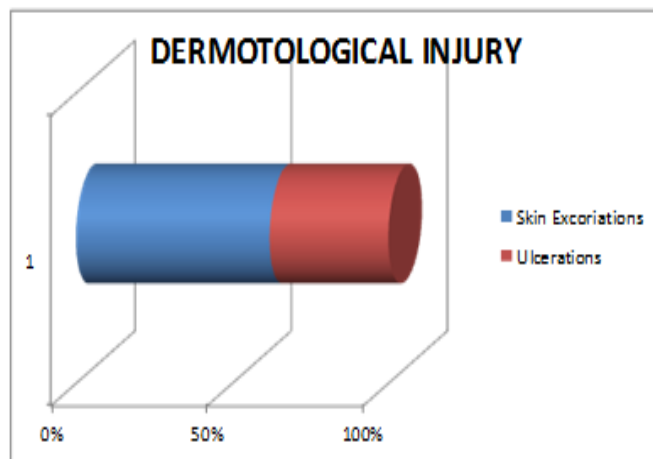


Figure 12: Dermatological Injuries in patients with fistula (n=50)

In Figure 12, it can be seen that for dermatologic injuries, 30 patients (60%) recorded the highest with skin excoriations whilst 20 patients (40%) recorded for ulcerations. This indicates that majority of fistula patients were having skin excoriations related the constant urinary leakage.

Mental Health Implications on Fistula Patients

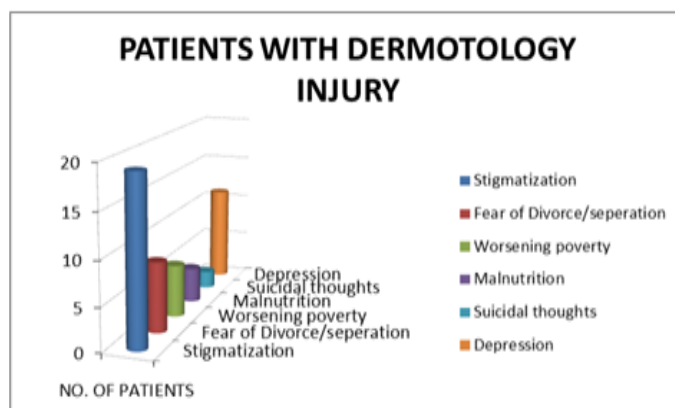


Figure 13: Implications for Mental Health Status of VVF Victims (n=50)

Figure 13 reveals that an estimate of 18 patients (36%) recorded the highest for stigmatization that’s crucial in the patients mental health, followed by depressive illness with 12 patients (24%), fear of divorce/ separation with 8 patients (16%), worsening poverty with 6 patients (12%), malnutrition with 4 patients (8%) and suicidal thoughts recorded the lowest with 2 patients (4%). A total of 30 patients (60%) were recorded for both stigmatization and depression which were highly responsible for the mental health disturbances of the

patients under the period under review and therefore emphasizes the embarrassing nature of fistulas.

V. CONCLUSION

Conclusively, based on the research objectives and results estimates of this study, it's prudent to note that there is a high prevalence/burden of vesicovaginal fistula indicated by 45 patients(90%) compared to rectovaginal fistula with 9 patients (18%) in patients presenting with urinary and/or faecal leakage at the Aberdeen Women Centre in the period under review.

It's imperative to note from the analysis of the study that teenagers, young adults, illiterates, the unemployed, Muslims, those with short stature and those with no knowledge on family planning are mostly affected with high certainty of having vesicovaginal fistula. The paramount cause of VVF is prolonged and difficult labour which recorded 43 patients (86%) especially with home deliveries, 30 patients(60%) in the hands of TBAs with over 45 patients(90%) spending at least three days in labour. The vesicovaginal fistula is physically, socially and psychologically damaging to susceptible women since 37 patients (74%) lose their babies at birth and are prone to other obstetric complications like sepsis, hemorrhage and ruptured uterus requiring urgent surgical management. Moreover, with the continuous urine and/or faecal leakage, the ammoniacal odour is stigmatizing and the analysis further shows that husband-related support dropped from an initial 80% to 40% after fistula. Besides, no VVF or RVF patient is allowed to prepare food at home or for public consumption in most communities especially in the rural areas where the bulk of the study population originated from.

It's worthy to note that prevention cannot be provided within the Primary Healthcare system as a cesarean section has to be performed within three hours from the moment labour becomes obstructed. The only role Primary Healthcare can play is, first to detect risk factors in pregnant women during ANC and later to diagnose prolonged, difficult and obstructed labour and to take immediate decision to refer to CEmONC centre's where cesarean section could be performed as soon as possible.

VI. RECOMMENDATIONS

It has now been established that certain factors are associated with fistula formation. In order for fistula to be prevented, it has to be a combined effort at every level starting from the home, community and government as indicated in the conceptual pathway for developing and managing fistulas (figure 1).

The following are hereby recommended based on the findings of this study:

- i. **Home Level:** Every parent should ensure that the girl child is educated at least up to Primary 6 level and teachings on Sexual Reproductive Health, early marriage, teenage pregnancy and its complications should be included in the school curriculum at the level of Class 5. This should be so because some girls reach puberty as early as age 11 years right from primary school. Though some parents are illiterate, it becomes the responsibility of the healthcare workers and community health workers to educate these parents.
- ii. **Community Level:** Community leaders, community health workers, religious groups and local councilors should also be educated and empowered by healthcare workers through focused group discussions, trainings and workshops/seminars on the benefits of educating the girl child, the risk of early marriage and teenage pregnancy.
- iii. **Traditional Belief:** Emphases must be laid on the traditional belief of associating obstructed labour with marital unfaithfulness and therefore a punishment from the gods and ancestors. Creating peer groups for pregnant women ("Belle woman groups") and other women's group in communities that will address Maternal and Child Health care issues including VVF prevention, ANC attendance and delivery by skilled birth attendants at health facility. These groups should be up-graded by health workers in the communities from time to time.
- iv. **Monitoring Community Health Liaison Officers:** Fistula champions will help identify girls who are ostracized in their communities and encourage them to undertake screening and receive treatment. Having undergone a similar process themselves and reintegrated back into their communities, the fistula champions are best placed to encourage women and girls suffering from fistula to receive help.
- v. **Community Laws:** The community should have established new bye-laws or reinforce the old bye-laws against home deliveries and a fine or punishment levied on defaulters.
- vi. **The Role of Men:** Men are the gate keepers to medical care and ensuring that they too are sensitized is rational. Targeting the husbands and other male relatives by health professionals will increase the number of women making appropriate use of health facilities thus reducing the 1st delay of taking decisions at community level.
- vii. **Governmental Level:**

1. The “Hands Off Our Girls” campaign that no girl child should be given in marriage before age 18 must be popularized and supported. Also all associated issues that lead to deflowering the girl-child like rapping and early marriages must be seen as a crime and defaulters must be punished accordingly.
2. The “Free and Quality Education” agenda for human capital development must have the political will it deserves and be sustainable with a legislative backing especially for the girl child.
3. Government should also strengthen Reproductive Maternal Newborn Child and Adolescent Health Programs through the Ministry of Health and Sanitation. Every woman should have access to skilled birth attendants during pregnancy, labour and postnatal periods. Health Posts and Health Centres should be available within 3 miles radius or 5 kilometers in remote communities, with trained, qualified and committed personnel that should be retained with good salaries, allowances, accommodation, the necessary equipment and materials needed for simple procedures like vacuum delivery for obstructed labour to address delays in health facilities.
4. The National Emergency Medical Services (NEMS) should be strengthened and made sustainable for a prompt referral system to address the second delay. Government must also ensure that bad roads in rough terrains are repaired or constructed to reduce the time of travel from communities to referral centres to access emergency obstetric and newborn services.
5. Government should continue partnership with organizations like UNFPA, UNICEF, WHO, DFID, etc. as stated by WHO in the World Health Report in 2005 “collective action can eliminate fistula and ensure that girls and women who suffer this devastating condition are treated so that they can live in dignity” so as to prevent and eliminate the condition.
6. Establishment of Fistula Repair Centres manned by adequately trained National Fistula Surgeons and nurses at Provincial/Regional level is strongly recommended. Following fistula repair, social integration centres are recommended at Provincial/Regional levels to help women with obstetric fistula overcome physical, psychological and socio-economic challenges in order to enhance their return to the communities and social networks of their choice such that the risk of them presenting with another fistula is minimized.
7. A Fistula Awareness day is recommended to be set aside by the Reproductive Health Directorate of the

Ministry of Health and Sanitation to conduct massive sensitization to prevent and mitigate the health hazards of this socially embarrassing condition for affected women.

8. This research study findings will serve as a proxy to further researchers within the framework of study and policy makers and practitioners will use it to inform rightful decisions to strengthen the health system in areas related vesicovaginal fistula and other pregnancy-related morbidities.

If the aforesaid remedies are taken into consideration, it will help build a rigid health system that will be more accessible, effective, efficient and sustainable in mitigating and eradicating the health hazards associated with prolonged obstructed labour with the risk of developing vesico-vaginal fistula and its related physical and mental impacts.

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