

Assessing Strategies of Obstetric Fistula Management by Nurses/Midwives of Yaoundé Central Hospital and University Teaching Hospital

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Abstract

Every minute, a woman dies in pregnancy, and for every woman who dies 20 - 30 others will survive with morbidity, one of which is obstetrical fistula. Women who suffer from obstetric fistula experience continuous incontinence of urine and/or stool, stigma, social isolation and associated health problems. The World Health Organization estimates that there are currently more than 2 million women living with untreated obstetric fistula mostly in sub-Saharan Africa and South-East Asia, as well as in various other parts of the world. Caring for fistula patients and nursing them back to full physical and mental health can be one of the most challenging and also rewarding tasks undertaken by nurses. The surgery cannot succeed without proper pre-, peri- and post-operative care. The patients undoubtedly recover better with high-quality care—meaning the truly holistic, generous, and selfless care of a nurse who has the skills, understanding and determination to help these very vulnerable patients. **Objective:** This research seeks to assess the strategies of obstetric fistula management by nurses/midwives of Yaoundé central hospital and CHU by exploring the care they offer to clients pre-operatively, post-operatively, and when they are discharged from the hospital. Achieving Millennium Development Goal (MDG) 3 still remains a challenge to the developing countries although maternal mortality reduction is a priority agenda of each country. **Methodology:** This retrospective cross-sectional descriptive study design employed a sample of 100 nurses/midwives on active service, and who have at least managed a case of obstetric fistula. A quantitative questionnaire was used to collect data, which was analyzed using SPSS version 23. **Results:** The study proved a highly significant difference between management and qualification, with a p-value of 0.002. Also, it showed that there was a

statistically significant difference between longevity of service and management with a p-value of 0.001. A majority of respondents were nurse assistants (52%), and up to 43% of respondents had 11 - 20 years of work experience. Up to 53% did not offer standard care with respect to their qualification, and up to 52% did not offer standard care with respect to their longevity in service. **Conclusion:** VVF is the most common type of obstetric fistula with a frequency of 6 to 10 cases, there is an overall poor management of obstetric fistula by nurses and midwives in YCH and CHU. There is an urgent need to train and retrain these health workers on the management strategies of obstetric fistula and to remind them of their personal commitment as care givers.

Keywords

Obstetric Fistula, Management, Midwives, Nurses

1. Introduction

Female genital fistula occurs when open defects between the female genital organs and adjacent urinary and colorectal tracts create urinary or fecal incontinence [1]. These defects, literally holes, allow the urine or stool to leak into the vagina. In developing nations, where pregnant women often give birth with minimal or no obstetric care, fistula most often occurs as a result of several days of prolonged or obstructed labor. This genitourinary or rectovaginal fistula (RVF) occurring after labor and its complications are labeled obstetric fistula.

1.1. Background of Studies

Millions of girls and young women in resource poor countries are living in shame and isolation, often abandoned by their husbands and excluded by their families and communities. They usually live in abject poverty, shunned or blamed by society and, unable to earn money, many fall deeper into poverty and further despair. The reason for this suffering is that these young girls or women are living with an obstetric fistula due to complications which arose during childbirth. Their babies are also probably dead, which adds to their depression, pain and suffering [2].

Obstetric fistula is an abnormal opening between a woman's vagina and bladder and/or rectum, through which her urine and/or feces continually leak [3]. Naturally these women are embarrassed by their inability to control their bodily functions, that they are constantly soiled and wet, and that they smell. Their pain and shame may be further complicated by recurring infections, infertility, and damage to their vaginal tissue that makes sexual activity impossible and paralysis of the muscles in their lower legs which may require the use of crutches, if any are available [2]. The greater tragedy is that these obstetric fistulas can be largely avoided by delaying the age of first pregnancy, prevented by the cessation of harmful traditional practices and timely access to maternity and obstetric care, and repaired by simple surgery.

Obstetric fistula is an abnormal connection between the vagina, rectum and/or bladder which may develop after prolonged and obstructed labour and lead to continuous urinary or faecal incontinence [3] [4] [5]. A hole between the urinary bladder and the vagina is regarded as vesicovaginal fistula whereas a hole between the rectum and the vagina is known as rectovaginal fistula [6]. Obstetric fistula is an indicator of the health system failing to provide accessible, timely and appropriate intrapartum care [7]. Obstructed labour is one of the leading causes of maternal mortality in developing countries and with it, comes other morbidities, the most devastating being obstetric fistula. It is estimated that for every maternal death, 20 - 30 women develop serious obstetric complications including fistula. These women, apart from surviving the ordeal of obstructed labour, face the physical and psychosocial challenges of living with obstetric fistula [8] [9] [10].

Nurses and midwives play a major role in the care of women who live with obstetric fistula and seek health care. They are responsible for many of the procedures that help prevent infection at all stages of the client's treatment. Nurses and midwives often perform the initial assessment of women living with obstetric fistula. They also manage clients who present early. For women who decide to undergo repair surgery, nurses and midwives perform preoperative care, assist in the operating theatre, and care for the client after surgery. Catheter management is an important nursing function [11] [12] [13].

This study was aimed at analyzing strategies of obstetric fistula management by nurses/midwives of Yaoundé central hospital and CHU.

1.2. Problem Statement

Obstetric fistula (OF), which develops after a difficult childbirth leading to continuous urinary and fecal incontinence, is the most debilitating and devastating condition among all maternal morbidities. Although it has been completely eradicated from the developed world during the early 1900s, millions of marginalized women in developing countries still suffer from obstetric fistula.

The World Health Organization (2005) estimated an annual incidence of 50,000 - 100,000 new cases of obstetric fistula worldwide, directly linked to one of the major causes of maternal mortality, obstructed labour [14].

In Asia and sub-Saharan Africa, it is estimated that more than 2 million young women live with untreated Obstetric fistula and these victims suffer constant incontinence, shame, and social segregation and health problems [15].

In Cameroon, according to 2018 Demographic and Health Survey, it is estimated that about 20,000 women suffer from obstetric fistula and are currently living with this condition, and that Cameroon has one of the world's highest rates of maternal mortality. Affected women remain with anatomical, functional and social defects [1] [15].

According to the multiple indicator cluster survey conducted in Cameroon in 2020, the prevalence of obstetric fistula is 21,000 cases and about 2000 new ones occur each year. The vast majority of women affected by obstetric fistula are very

young and come from poor families. In addition to the lack of resources to pay medical costs, they are victims of stigmatization, violence and other harmful cultural practices which sometimes force them into isolation and even social exclusion. For most of these affected women, obstetric fistula is nothing more or less than a life destroyed, physically, economically, socially and emotionally.

This immense number is very concerning and has generated lots of worry within the researcher especially as the actual prevalence figures may be much higher since many of the affected women live in isolation [2].

In addition, being opportune to partake in a fistula campaign in 2019, the researcher noticed that 80% of victims had undergone surgery at least once without success. At this point, the researcher wonders if it could be at the level of nursing management where more attention needs to be paid and for this reason, the researcher proposed to undertake a study to assess the strategies of managing obstetric fistula by nurses/midwives of Yaoundé central hospital and CHU [4].

1.3. Research Questions

From the above problem statement, the researcher was guided by the following general and specific research questions:

1.3.1. General Research Question

What are the strategies can be used to manage obstetric fistula by nurses and midwives?

1.3.2. Specific Research Questions

What is the prevalence of obstetric fistula in Yaoundé?

- ❖ What are the different types of obstetric fistula commonly identified?
- ❖ What management strategies are offered by nurses/midwives to patients suffering from obstetric fistula in Yaoundé central hospital and CHU?
- ❖ What are the successes and challenges identified in the management obstetric fistula?

1.4. Hypothesis

The management strategy of obstetric fistula and its outcome will be determined by the qualification of health personnel, coupled to the number of years of experience.

- Null hypothesis: There is no significant relationship between qualification, longevity of service of nurse/midwife and strategies used in management of obstetric fistula in the Yaoundé central hospital and university teaching hospital.

- Alternative hypothesis: There is a significant relationship between qualification, longevity of service of nurse/midwife and strategies used in management of obstetric fistula in the Yaoundé central hospital and university teaching hospital.

2. Materials and Methodology

2.1. Study Design/Methodology

A retrospective cross-sectional descriptive study design was used to gain insight

into the management of obstetric fistula by Nurses/Midwives of the Yaoundé central hospital and university teaching hospital during the research period at this site. The study which is cross-sectional in nature was conducted among Nurses/Midwives irrespective of their gender, ages, and are on active service in these respective hospitals. Quantitative questionnaires were developed from literature, theories and management policies to assess the care offered to patients suffering from obstetric fistula, by nurses and midwives, in terms of pre-operative, post-operative and discharge care. The researcher employed a quantitative **data collection** method using the survey approach to collect data. The survey questionnaires were created on the basis of previously validated scales and survey instruments. The primary intent of this statistical approach was to allow extrapolation of the results obtained to the population from which the sample is obtained.

2.2. Study Site

This study was carried out at Yaoundé Central Hospital and the university teaching hospital. These are two of the main teaching hospitals in the center region of Cameroon, which provide fistula care programs when need be.

2.3. Study Population

The study population consisted of nurses and midwives in active service at the Yaoundé central hospital (YCH) and CHU, who must have managed at least a case of obstetric fistula. A sample of 100 Nurses/midwives was selected and issued questionnaires.

2.4. Inclusion Criteria

Participants were enrolled in the study after meeting the following screening criteria:

- Nurses/midwives on active service in either Yaoundé central hospital or the university teaching hospital.
- Participants should have managed at least a case of obstetric fistula.
- Participants should be willing to provide information needed.
- Participants should be willing to fill a consent form.

2.5. Exclusion Criteria

Some nurses/midwives were excluded from the study if any of the following apply:

- If participants were not willing to provide necessary information.
- If they were not willing to sign the consent form.

2.6. Sample Size and Sampling Technique

According to NKOUM, 2019 a researcher should always work on a representative sample of his/her original population [15]. A sample size of 100 Nurses/Midwives on active duty was selected from hospital records and contacted for

delivery of questionnaires.

The Cochran's formula was used to determine the sample size for the study, whereby,

$$no = (Z^2 pq) / e^2 \quad [1]$$

where,

no is the sample size;

e is the desired level of precision (*i.e.* the margin of error, for 95% confidence interval = 0.05);

p is the estimated proportion of the population which has the attribute in question;

q is $1 - p$;

Z is corresponding value on Z -table for desired confidence interval (95% = 1.96).

Assumption = proportion p of nurses and midwives among other health personnel is 1:15 ($1/15 = 0.066$). Therefore,

$$q = 1 - p = 1 - 0.066 = 0.934$$

$$\begin{aligned} no &= (1.96^2 \times 0.066 \times 0.934) / 0.05^2 \\ &= 0.2368115904 / 0.0025 = 94.724 \end{aligned}$$

which is approximately 95.

Hence, a sample size of 100 was collected.

2.7. Data Collection

Instrument for Data collection

The process of data collection involves collecting opinions and useful information from target participant about the research questions or topic [2].

Data collection was carried out by the principal researcher through a questionnaire. The tool was designed with questions that sought to collect information on; demographic data, the pre-operative, post-operative and discharged care offered to patients towards the management of obstetric fistula. These questionnaires were drafted both in English and French which are the main languages used in these two hospitals.

2.8. Data Analysis Process

The questionnaires were analyzed using SPSS version 23 for descriptive and inferential statistics.

The data were coded before being entered into SPSS. There after it was screened for missing data or outlier. The few Missing data less than 2% were substitute with the mean value.

The descriptive central tendencies were expressed by mode or mean based on the level of measurement. They were expressed using frequencies, percentages and bar charts. MANOVA (Multivariate Analysis of Variance) was carried out to

investigate any significant group differences on demographic or professional factors such as sex, experience, professional titles, and the hospital.

2.9. Ethical Consideration

Authorisation was obtained from the Faculty of Health Science; an authorisation to conduct the study was also obtained from the Directors of the Yaoundé Central Hospital and the university teaching hospital, with an informed consent gotten from each participant. Each participant was assured of privacy and confidentiality of information.

3. Results and Interpretation

3.1. Socio-Demographic Data and Health Facility

Table 1 shows that the majority of respondents (56%) were from Yaoundé central hospital

From **Table 2**, it can be observed that majority of the respondents were between the ages of 40 - 49 years (*i.e.* 59%); a greater number of them were of female gender (*i.e.* 82%).

Also, we realized that most of the respondents were Nurse assistants (*i.e.* 52%), and up to 43% of them had a longevity of service ranging between 11 - 20 years.

3.2. Prevalence of Fistula

From **Table 3**, we discovered that the most common type of obstetric fistula is the vesico-vagina fistula (*i.e.* 100%), and up to 87% of the respondents indicated that it occurred at least 6 times in every 10 cases of obstetric fistula. Up to 62% of the respondents revealed that they use 0.5% chlorine solution to effectively decontaminate instruments and other healthcare items for 10 minutes before use, 34% use it at times while 4% don't use it at all.

Majority of the respondents *i.e.*, 54% confirmed that they use sterile gloves when inserting a urinary catheter, and 41% of respondents said at times they use sterile gloves.

Up to 48% accepted they clean the periurethral mucosa from anterior to posterior, inner to outer, and one swipe per swab, 38% of the study population said they do that at times, while 6% said they don't do it at all.

Majority of the respondents proved that they do not encourage clients to drink at least 5 L of water per day before surgery, 56% said Yes they do and 44% of respondents do that at times.

From **Table 4**, up to 73% of respondents testify that they do not encourage patients to do regular exercises before surgery, only 27% do and 0% do that at times.

Up to 66% of study population testify that they shave clients' perineum to prepare them for surgery, 32% do that at times while 2% do not have clients at all.

Table 1. Distribution of participants according to health Institution.

Variable	Frequency	Percentage (%)
Health institutions of participants		
Yaoundé central hospital	56	56%
University teaching hospital	44	44%

Table 2. Distribution of participants with regards to Sociodemographic profile.

Variable	Frequency	Percentage (%)
Sex		
Male	18	18
Female	82	82
Age		
<30 years	6	6
30 to 39 years	25	25
40 to 49 years	59	59
50 - 59 years	10	10
Qualification		
SRN (State Registered Nurse)	23	23
Midwife	25	25
Nurse Assistant	52	52
Years of work experience		
0 - 10 years	31	31
11 - 20 years	43	43
21 - 30 years	26	26

Table 3. Distribution of participants' responses with regards to fistula prevalence.

Variable	Frequency	Percentage (%)
Most common type of fistula		
Vesico-vaginal fistula	100	100
Estimate the frequency of most common fistula		
6 in every 10 cases	87	87
4 in every 10 cases	12	21
1 in every 10 cases	1	1

A majority of respondents 66% check patient's urinary bags hourly before surgery, though 32% do check at times and 2% don't check at all as seen in **Table 4**.

Table 4. Distribution of participants' responses regarding fistula management strategies.

Variable	Frequency	Percentage (%)
Pre-Operative Care		
Use of 0.5% Chlorine for decontamination		
YES	62	62
ATIME	34	34
NO	4	4
Cleaning of mucosa		
YES	54	54
ATIMES	41	41
NO	9	9
Use of sterile gloves in inserting urinary catheter		
YES	48	48
ATIMES	38	38
NO	4	4
Health education to client to drink at least 5 L water daily		
YES	46	46
ATIMES	48	48
NO	6	6
Health education to client to do exercise		
YES	56	56
ATIMES	44	44
NO	0	0
Shave client's perineum before surgery		
YES	73	73
ATIMES	27	27
NO	0	0
Check urinary bag hourly before surgery		
YES	66	66
ATIMES	32	32
NO	2	2

Following **Table 5**, 61% of respondents check for bleeding 28 hours after surgery, 11% at times check for bleeding, while up to 28% don't check.

A majority of respondents 49% revealed that they encourage client to drink at least 5 L of water per day, 24 hours after surgery, 23% do encourage patients at times and 28% do not encourage the patients.

61% of respondents confirmed that they remove vaginal pack (if used) 24 hours after surgery, unless advised otherwise by physician, 14% said "At times", while 25% said "No" to the statement.

Majority of the respondents 83% accepted that they always ensure that client is dry, and all drainages are draining, 13% said they do that at times and 4% said they don't do it at all.

Up to 85% of respondents affirmed that they teach and encourage the client to do a Sitz bath at least twice a day, 9% of them do it not all the time, and 6% don't do it at all.

38% of study population accepted that they clean drainage bags daily with 0.5% chlorine solution, 27% do not clean and 25% clean drainage bags at times.

A greater proportion of the study population accepted that they administer medication following prescription order, 4% said "At times".

According to **Table 5**, a majority of the respondents 82%, proved that they usually stress on the importance of sexual abstinence during the healing period (usually six months), 17% do that atimes, and 1% don't.

According to **Table 5**, 54% of respondents take time to describe the signs of complications and side effects that may follow fistula repair surgery to patients, 39% do that atimes and 7% don't take time to do that.

49% of study population revealed that they stress on the importance of delaying pregnancy for at least one year after repair surgery, 40% said "Atimes" and 11% said "No".

61% of respondents agreed that they discuss the importance of family planning once the client resumes sexual relations, and 33% said "Atimes"

83% of respondents acknowledged the fact that they caution the client about reproductive tract infections, including sexually transmitted infections, 13% of them do that at times while the remaining 4% don't do it at all.

A majority of the respondents 85% advise the client about healthy nutrition, 9% give advice at times and 6% don't at all.

38% of respondents take time to remind the client that she must receive antenatal care if she becomes pregnant again, 37% do that at times and the remaining 25% don't remind at all.

Up to 87% of the respondents confirmed that they encourage patient to respect her RDV 3 months after discharge as instructed by physician, 9% said "At times" and 4% of the respondents said "No".

A few of respondents 9% contact their clients regularly to know how they are doing, 37% of them are irregular while 54% of them don't contact their patients at all.

According to **Table 6**, there's a highly significant difference between the health facilities (university teaching hospital and Yaoundé central hospital) in pre-operative management of obstetric fistula. The p-value equals 0.000 and is much smaller than 0.05, thus supporting the accuracy of the Chi-square test for these data.

Following the relationship between health facilities and post-op care, the test is not significant with a p-value of 0.281 which is a lot higher than 0.05, showing that there is no relationship between the health facilities (CHU and YCH) and post-op care offered to patients suffering from obstetric fistula. They produce

approximately similar p-values thus supporting the accuracy of the Chi-square test for these data.

Table 5. Distribution of participants' responses regarding obstetric fistula management strategies.

Variable	Frequency	Percentage (%)
Post-operative care		
Monitoring of vital signs every 15 mins		
YES	82	82
ATIME	14	14
NO	4	4
Check bleeding		
YES	61	61
ATIMES	28	28
NO	11	11
Health education to client to drink atleast 5 L water daily		
YES	49	49
ATIMES	23	23
NO	28	28
Remove vaginal pack after 24 hours		
YES	61	61
ATIMES	14	14
NO	25	25
Ensure client is dry and all drainages are draining		
YES	83	83
ATIMES	13	13
NO	4	4
Teach and ensure client does sitz bath		
YES	85	85
ATIMES	9	9
NO	6	6
Clean drainage bags daily with 0.5% Chlorine		
YES	38	38
ATIMES	37	37
NO	25	25
Administer medication as prescribed		
YES	96	96
ATIMES	4	4
NO	0	0

Table 6. Distribution of respondents according to health facilities.

Variable	Frequency	Percentage (%)
On discharge		
Health education to client on sexual abstinence		
YES	82	82
At TIMES	17	17
NO	1	1
Health education to client on signs of complications		
YES	54	54
At TIMES	39	39
NO	7	7
Health education to client to delay pregnancy		
YES	49	49
At TIMES	40	40
NO	11	11
Health education to client on family planning		
YES	61	61
At TIMES	33	33
NO	6	6
Ensure client is dry and all drainages are draining		
YES	83	83
At TIMES	13	13
NO	4	4
Health education to client on STIs		
YES	85	85
At TIMES	9	9
NO	6	6
Health education to client on healthy nutrition		
YES	38	38
At TIMES	37	37
NO	25	25
Invite partner when counselling client		
YES	87	87
At TIMES	9	9
NO	4	4
Communicate with client regularly after discharge		
YES	9	9
At TIMES	37	37
NO	54	54

The Chi square of Pearson tests between pre-op and qualification (**Table 7(a)** and **Table 7(b)**), gives the following values:

Table 7. (a) Cross tabulation between qualification and pre-op care; (b) Chi-Square Tests result of pre-op care and qualification; (c) Cross tabulation between qualification of respondents and post-op care; (d) Chi-Square Tests result of qualification of respondents and post-op care; (e) Cross tabulation between qualification and post-discharge follow-up; (f) Frequency of pre-operative care with respect to qualification.

(a)

Qualification of respondents	Pre-op care			Total
	Yes	At times	No	
SRN	31	12	9	52
Midwife	5	18	2	25
NA	4	14	5	23
Total	40	44	16	100

(b)

Chi-Square TESTS	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	23.086 ^a	4	0.000
Pearson Chi-Square Read from Chi-Square Table	9.49		

(c)

Qualification of respondents	Post-op care			Total
	Yes	At times	No	
SRN	24	7	21	52
Midwife	8	14	3	25
NA	7	10	6	23
Total	39	31	30	100

(d)

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	17.471 ^a	4	0.002
Pearson Chi-Square Read from Chi-Square Table	9.49		

(e)

Qualification of respondents	Post-discharge follow-up			Total
	Yes	At times	No	
SRN	42	4	6	52
Midwife	8	17	0	25
NA	9	13	1	23
Total	59	34	7	100

(f)

Variable	Frequency	Percentage (%)
PRE-OP CARE		
0 - 10 years		
YES	9	9
ATIMES	3	3
NO	19	19
11 - 20 years		
YES	21	21
ATIMES	13	13
NO	9	9
21 - 30 years		
YES	13	13
ATIMES	4	4
NO	9	9
POST-OP CARE		
0 - 10 years		
YES	19	19
ATIMES	5	5
NO	7	7
11 - 20 years		
YES	14	14
ATIMES	20	20
NO	9	9
21 - 3-years		
YES	6	6
ATIMES	6	6
NO	14	14
POST-DISCHARGE CARE		
0 - 10 years		
YES	27	27
ATIMES	3	3
NO	1	1
11 - 20 years		
YES	22	22
ATIMES	20	20
NO	1	1
21 - 30 years		
YES	10	10
ATIMES	11	11
NO	5	5

Degree of freedom $(3 - 1) \times (3 - 1) = 4$;

Calculated Chi Square value = 23.086;

Read Chi Square value = 9.49.

- Read Chi Square value is **less than** calculated Chi Square value ($9.49 < 23.086$).

$X^2_{(read)} < X^2_{(calculated)}$. Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.000** (Significant relationship).

The Chi square of Pearson tests between **qualification of respondents and post-op care** (Table 7(c) and Table 7(d)), gives the following values:

Degree of freedom $(3 - 1) \times (3 - 1) = 4$;

Calculated Chi Square value = 17.471;

Read Chi Square value = 9.49.

- Read Chi Square value is **less than** calculated Chi Square value ($9.49 < 17.471$).

$X^2_{(read)} < X^2_{(calculated)}$. Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.002** (Significant relationship).

The Chi square of Pearson tests between longevity of service and pre-op care (Table 8(a) and Table 8(b)), gives the following values:

Degree of freedom $(3 - 1) \times (3 - 1) = 4$;

Calculated Chi Square value = 14.208;

Read Chi Square value = 9.49.

- Read Chi Square value is **less than** calculated Chi Square value ($9.49 < 14.208$).

Table 8. (a) Cross tabulation between longevity of service and pre-op care offered; (b) Chi-Square Tests result of Years of work experience and pre-op care; (c) Cross tabulation between longevity of service and post-op care; (d) Chi-Square Tests result of post-discharge follow up and longevity of service.

(a)

Longevity of service	Pre-op care			Total
	Yes	At times	No	
0 - 10 years	9	3	19	31
11 - 20 years	21	13	9	43
21 - 30 years	13	4	9	26
Total	43	20	37	100

(b)

Chi-Square Tests	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	14.208 ^a	4	0.007
Pearson Chi-Square Read from Chi-Square Table	9.49		

(c)

Longevity of service	Post-op care			Total
	Yes	At times	No	
0 - 10 years	19	5	7	31
11 - 20 years	14	20	9	43
21 - 30 years	6	6	14	26
Total	39	31	30	100

(d)

Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	21.885 ^a	4	0.000
Pearson Chi-Square Read from Chi-Square Table	9.49		

$X^2_{(read)} < X^2_{(calculated)}$ Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.007** (Significant relationship).

A Significant relationship exists between longevity of service and pre-op care offered to patients.

The Chi square of Pearson tests between Method of post-discharge follow up and longevity of service (**Table 8(c)** and **Table 8(d)**), gives the following values:

Degree of freedom $(3 - 1) \times (3 - 1) = 4$;

Calculated Chi Square value = 21.885;

Read Chi Square value = 9.49.

➤ Read Chi Square value is **less than** calculated Chi Square value ($9.49 < 21.885$).

$X^2_{(read)} < X^2_{(calculated)}$ Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.000** (Significant relationship).

3.3. Successes in Obstetric Fistula Management

From **Table 9** below, we observe that only 29% of respondents confirmed that woman recovers with no complication after 6 months, up to 50% confirming no specific format of documentation and 23% not respecting available protocol.

Following **Table 10** below, the test is highly statistically significant with a p-value of 0.000 which is a lot smaller than 0.05. The conclusion is that there is a relationship in the qualification of health personnel (SRN, Midwives, Assistant Nurses) and general outcome in fistula management.

The Chi square of Pearson tests between General outcome of fistula management and qualification gives the following values:

Degree of freedom $(3 - 1) \times (4 - 1) = 6$;

Calculated Chi Square value = 41.264;

Read Chi Square value = 12.59.

➤ Read Chi Square value is **less than** calculated Chi Square value ($12.59 < 41.264$).

$X^2_{(read)} < X^2_{(calculated)}$. Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.000** (Significant relationship).

The test below is highly statistically significant with a p-value of 0.000 which is a lot smaller than 0.05. the conclusion is that there is a relationship in the longevity of service of the health personnel (0 - 10 years, 11 - 20 years, 21 - 30 years) and general outcome in the management of fistula (**Table 11(a)** and **Table 11(b)**).

The Chi square of Pearson tests between General outcome of fistula management and longevity of service, gives the following values:

Degree of freedom $(3 - 1) \times (4 - 1) = 6$;

Calculated Chi Square value = 44.725;

Read Chi Square value = 12.59.

Table 9. Distribution of participants' responses regarding their effectiveness in obstetric fistula management:

Variable	Frequency	Percentage (%)
Obstetric Fistula management successes (effectiveness)		
Effective in skills and equipment use	49	49
Effective in skills not equipment use	16	16
Fair in skills and equipment use	17	17
Poor in skills and equipment use	16	16
Can't tell	2	2
Outcome of Obstetric fistula Management		
Woman recovers with no complication after 6months	29	29
Woman recovers with incontinence at discharge	22	22
Woman ends up with fistula not closed at the end of surgery	16	16
Woman ends up with infections that may lead to secondary infertility	33	33
Documentation		
No specific format of documentation	50	50
All types are documented as fistula	25	25
Document the specific type with precise information	23	23
No idea if it is documented	2	2
Availability of protocol		
Yes, but not respected at all	23	23
Yes, respected some times	9	9
Yes, always respected	11	11
No idea if there is a protocol	23	23
None exist	5	5

Table 10. (a) Distribution of responses according to outcome versus qualification; (b) Chi-Square Tests result of General outcome of fistula management and qualification.

(a)			
Variable	Frequency	Percentage (%)	
Woman recovers with continence after 6 months			
SRN	32	32	
Midwife	11	11	
NA	4	4	
Woman recovers with incontinence on discharge			
SRN	11	11	
Midwife	4	4	
NA	3	3	
Woman ends up with fistula not closed at the end of surgery			
SRN	6	6	
Midwife	4	4	
NA	8	8	
Woman ends up with infection that may lead to secondary infertility			
SRN	3	3	
Midwife	6	6	
NA	8	8	
(b)			
Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	41.264 ^a	6	0.000
Pearson Chi-Square Read from Chi-Square Table	12.59		

➤ Read Chi Square value is **less than** calculated Chi Square value ($12.59 < 44.725$).

$X^2_{(read)} < X^2_{(calculated)}$ Conclusion; H_0 is rejected, hence H_1 verified (the two crossed variables are related).

P value = **0.000** (Significant relationship).

3.4. Challenges

From **Table 12** below, we observe that only 2% of the respondents confirmed the lack of skills/knowledge in fistula management as a challenge, whereas up to 32% validated limited equipment as the main challenge.

A majority of respondents, *i.e.* 33% proposed that an increase in the number of staff will help improve the management of obstetric fistula.

Table 11. (a) Distribution of responses according to outcome versus longevity of service; (b) Chi-Square Tests result of General outcome of fistula management and longevity of service.

(a)			
Variable	Frequency	Percentage (%)	
Woman recovers with continence after 6 months			
0 - 11 years	3	3	
11 - 20 years	11	11	
21 - 30 years	14	14	
Woman recovers with incontinence on discharge			
0 - 10 years	0	0	
11 - 20 years	14	14	
21 - 30 years	0	0	
Woman ends up with fistula not closed at the end of surgery			
0 - 10 years	8	8	
11 - 20 years	12	12	
21 - 30 years	2	2	
Woman ends up with infection that may lead to secondary infertility			
0 - 10 years	20	20	
11 - 20 years	6	6	
21 - 30 years	10	10	
(b)			
Chi-Square Tests	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square Calculated	44.725 ^a	6	0.000
Pearson Chi-Square Read from Chi-Square Table	12.59		

4. Discussions, Conclusions and Recommendations

4.1. Discussions

4.1.1. Socio-Demographic Data

In this study which was meant to assess the management strategies of obstetric fistula by nurses and midwives of Yaoundé central hospital and the university hospital, it was found that amongst the 100 respondents, 6 were less than 30 years old, 25 were within 30 - 39 years old, 59 were within 40 - 49 years old and 10 were within 50 - 59 years old [5].

A majority of the respondents *i.e.* 52 out of 100 were nurse assistants, 23 of them were state registered nurses while 25 of them were midwives.

Table 12. Distribution of participants' responses regarding their challenges in Obstetric Fistula management:

Variable	Frequency	Percentage (%)
General Service Challenge in obstetric fistula management		
Patient cannot afford for treatment	18	18
Limited equipment/instrument	32	32
Limited health Personnel	30	30
Unavailability of Standard protocol	18	18
Lack of skills/Knowledge in fistula management	2	2
Proposed solution		
Organize more seminars on fistula management	15	15
Provide equipment and instruments	10	10
Increase number of staff	33	33
Subsidize treatment cost for fistula management	24	24
Provide protocol guidelines	18	18

With respect to longevity of service, most of the respondents 43 out of 100 had worked within a period of 11 - 20 years, 31 of them had worked for less than 10 years and 26 of them had worked within a period of 21 - 30 years.

4.1.2. Prevalence of Fistula

In this study as shown in **Table 2**, the most common type of obstetric fistula is the vesico-vagina fistula at a frequency of 6 in every 10 cases and is in line with Almada's findings in 2014 who reported that 79.4% of obstetric fistula were vesico-vaginal the rest were both rectovaginal and combined [16].

4.1.3. Management of Obstetric Fistula

According to **Table 6**, we observe that pre- and post-operative care offered to patients is similar in both Yaoundé central and university teaching hospitals. This can explain the fact that health workers in Cameroon have common training backgrounds depending on the domain, and are indiscriminately sent to different hospitals to exercise their respective functions.

Following **Table 4**, we observe that:

31% of SRN, 5% of midwives, and 4% of NA offer pre-operative care as standards require;

24% of SRN, 8% of midwives, and 7% of NA offer post-operative care as standards require;

42% of SRN, 8% of midwives, and 9% of NA offer post-discharge follow-up as standards require.

The better management skills observed between nurses and midwives might reflect robust in-service trainings in obstetric fistula nursing care as well as prac-

tical exposure before and after graduation from school. This can also be explained by the 3 - 5 years of intensive and detailed training depending on the degree obtained, as compared to a 1 - 2 years as with the case of a nurse assistant.

Also in Cameroon, it is given that any state registered nurse or midwife would have had a mandatory formal training on management of obstetric fistula as included in curriculum [6] [16].

Nevertheless, the nurse assistants have contributed significantly to the provision of quality care to patients suffering from obstetric fistula and thus a reduction of maternal morbidities in Cameroon as a whole.

According to **Table 8**, 9% of health workers with 0 - 10 years of work experience, 21% of health workers with 11 - 20 years of work experience, and 13% of health workers with 21 - 30 years of work experience offer pre-operative care as standards require.

1% of health workers with 0 - 10 years of work experience, 14% of health workers with 11 - 20 years of work experience, and 6% of health workers with 21 -30 years of work experience offer post-operative care as standards require.

27% of health workers with 0 - 10 years of work experience, 22% of health workers with 11 - 20 years of work experience, and 10% of health workers with 21 - 30 years of work experience offer post-discharge follow-up as standards require.

Surprisingly longevity of service (*i.e.* years of practice) did not influence the quality of health care service towards patients suffering from obstetric fistula, that is even more experienced nurses and midwives do not properly manage due to very high nurse patient ratio in hospitals and thus overworking the personnel.

In the same line, though there is paucity of data on the current human resource for health in Cameroon today, according to Health sector strategy 2016-2027, and drawing from General Census of health Workforce (RGPS) in 2011, the total number of nurses was 18,954 thus giving a ratio of 1 nurse: 3157 inhabitants [6] [7] [8]. The few nurses/midwives are prone to high work load and so become overwhelmed with work and so errors can easily set in.

To add, poor resource management is the order of the day in most hospital settings thus leading to demotivation and a feeling of exploitation, according to Athar Institute of health and management, march 2021 [9].

Similar to management we also observe that, outcome of patients suffering from obstetric fistula is not very different in both Yaoundé central and university teaching hospitals. This can also be explained by the fact that health workers in Cameroon have common training backgrounds depending on the domain, and are indiscriminately sent to different hospitals to exercise their respective functions.

In our study, we observed following **Table 10**, which up to 32% of SRN, 11% of midwives and only 4% nurse assistants confirmed that woman recovers with continence after 6 months. This shows that the more educated the nurses and

midwives are, the better the management offered to patients and subsequently a better outcome. This is supported by Aiken and colleagues (2017) who proved that higher qualified staff positively affects the quality of care offered to patients [17].

Contrary to **Table 8**, where we observed that longevity of service did not influence the quality of health care service towards patients suffering from obstetric fistula, our findings according to table showed that longevity had a positive impact on the outcome of obstetric fistula management. That is, a greater proportion (14%) of the more experienced group of nurses and midwives (21 - 30 years) accepted that woman recovers with continence after 6 months.

In as much as there is demotivation in health human resource, some health workers because of the love for their job, could have developed coping behaviors which have helped to sustain their motivation and the consequent quality of healthcare service they provide to patients.

4.2. Conclusions

After discussing, the following conclusions were arrived at:

A majority of the nurses and midwives in charge of patients suffering from obstetric fistula in the Yaoundé central hospital and university teaching hospital have poor management strategies. The study also shows that there is a relationship between qualification of nurse/midwife, longevity of service and the quality of care offered to patients. There is therefore need for training and retraining of health workers to help update their management skills, likewise recruiting more workers to reduce work load thus permitting a better management.

4.3. Recommendations

At the level of the health worker

- Nurses and midwives should have a stronger will, personal commitment and self-discipline in the follow up of patients suffering from obstetric fistula.

At the level of the health institution

- An experienced-based management protocol should be established to help in better follow-up of patients suffering from obstetric fistula.

- Regular in-service training sessions on the management of obstetric fistula will help update the management skills of nurses and midwives and subsequently lead to better management.

At the level of the ministry

- More seminars on fistula management should be organised with provision of more fistula centres in Cameroon, which will help relieve the disease burden carried by women living with obstetric fistula in Cameroon and in Africa as a whole.

- Provide standard equipment and instruments used in the follow-up of patients suffering from obstetric fistula.

- National recruitment of more health staff to reduce work load.

- Subsidise treatment for obstetric fistula patients.

4.4. Proposal for Further Studies

The same study should be carried out in other hospitals in Cameroon.

Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Lewis, G. and de Bernis, L. (2006) *Obstetric Fistula. Guiding Principles for Clinical Management and Programme Development*. World Health Organization, Geneva.
- [2] Kelly, J. (2004) Outreach Programmes for Obstetric Fistulae. *Journal of Obstetrics and Gynaecology*, **24**, 117-118. <https://doi.org/10.1080/01443610410001645352>
- [3] Campbell, I.M. and Ian, S.A. (2021) Nursing Care for Women with Childbirth Injuries.
- [4] World Health Organization (2009) *Obstetric Fistula: Guiding Principles for Clinical Management and Programme Development*. WHO, Geneva.
- [5] Hilton, P. and Ward, A. (1998) Epidemiological and Surgical Aspects of Urogenital Fistulae: A Review of 25 Years' Experience in Southeast Nigeria. *International Urogynecology Journal*, **9**, 189-194. <https://doi.org/10.1007/BF01901602>
- [6] Minding the Gap: Ending Fistula. <http://cameroon.unfpa.org>
- [7] Nigeria Demographic Health Survey (NDHS) (2013) NDHS Final Report.
- [8] Ijaiya, M.A. and Aboyeji, P.A. (2004) Obstetric Urogenital Fistula: The Ilorin Experience, Nigeria. *West African Journal of Medicine*, **23**, 7-9. <https://doi.org/10.4314/wajm.v23i1.28071>
- [9] Banke-Thomas, A.O., Kouraogo, S.F., Siribie, A., *et al.* (2013) Knowledge of Obstetric Fistula Prevention amongst Young Women in Urban and Rural Burkina Faso: A Cross-Sectional Study. *PLOS ONE*, **8**, e85921. <https://doi.org/10.1371/journal.pone.0085921>
- [10] Mselle, L.T., Kohi, T.W., Mvungi, A., *et al.* (2011) Waiting for Attention and Care: Birthing Accounts of Women in Rural Tanzania Who Developed Obstetric Fistula as an Outcome of Labour. *BMC Pregnancy Childbirth*, **11**, Article No. 75. <https://doi.org/10.1186/1471-2393-11-75>
- [11] Mselle, L.T. and Kohi, T.W. (2015) Perceived Health System Causes of Obstetric Fistula from Accounts of Affected Women in Rural Tanzania: A Qualitative Study. *African Journal of Reproductive Health*, **19**, 124-132.
- [12] Ali, A. and Masakhwe, B.A. (2010) WHO Midwifery Education Module 3: Managing Prolonged and Obstructed Labour. Foundation for Medical Education and Research, Geneva.
- [13] Fistula Care (2013) Urinary Catheterization for Primary and Secondary Prevention of Obstetric Fistula: Report of a Consultative Meeting to Review and Standardize Current Guidelines and Practices, March 13-15 at the Sheraton Hotel, Abuja, Nigeria. Engender Health/Fistula Care, New York.
- [14] Waaldijk, K. (2004) The Immediate Management of Fresh Obstetric Fistulas. *American Journal of Obstetrics & Gynecology*, **191**, 795-799. <https://doi.org/10.1016/j.ajog.2004.02.020>
- [15] Waaldijk, K. (1994) The Immediate Surgical Management of Fresh Obstetric Fistu-

las with Catheter and/or Early Closure. *International Journal of Gynecology & Obstetrics*, **45**, 11-16. [https://doi.org/10.1016/0020-7292\(94\)90759-5](https://doi.org/10.1016/0020-7292(94)90759-5)

- [16] Kumar, S., Modi, P., Mishra, A., *et al.* (2021) Robot-Assisted Laparoscopic Repair of Injuries to Bladder and Ureter Following Gynecological Surgery and Obstetric Injury: A Single-Center Experience. *Urology Annals*, **13**, 405-411. https://doi.org/10.4103/UA.UA_69_20
- [17] Goh, J.W.T. and Krause, H.G. (2004) *Female Genital Tract Fistula*. University of Queensland Press, Brisbane.