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Prevalence, Associated Factors and Knowledge on Nursing Management of Infertility in Women of Childbearing Age (21-49 Years) in Two Hospitals in Fako Division, Cameroon

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Keywords:

Prevalence, associated factors, female infertility; knowledge on practice; Nursing management; Nurses; Midwives; Buea and Limbe Regional Hospitals

1. Abstract

1.1. Background: Infertility in female is a disease of the female reproductive system. It is defined as a failure to achieve a clinical pregnancy after twelve months or more of consistent unprotected sexual intercourse. Literature demonstrates that in sub-Saharan Africa women are responsible for about 25%-37% of infertility. Factors associated with female infertility are pelvic surgeries, any other surgery, more than one sexual partners, and endometriosis among others.

1.2. Objective: This research sought to determine the prevalence of female infertility among women of childbearing age (21-49), investigate associated factors and knowledge on practice regarding nursing management of female infertility in Buea and Limbe Regional Hospitals.

1.3. Methods: A hospital based cross-sectional study was conducted from the 20th of October, 2021 to 30th of July, 2022. The clinical files and records of women of childbearing age (21-49years) were studied retrospectively from June 2017 to June, 2022. The files of all the women who made gynecologic visits to the Buea and Limbe Regional Hospitals and presented with symptoms of infertility were noted. A checklist was used to determine the prevalence and identify associated factors of infertility. In addition, a well- structured questionnaire was used to collect data from 92 nurses and midwives on knowledge regarding practice in the management of female infertility.

1.4. Results: Out of the 414 files and records reviewed, 110(26.5%) were infertile, where 20(4.83%) had primary infertility, 90(21.73%) had secondary infertility. Out of the 92 nurses and midwives that took part in the study, 58(63.0) had good knowledge on the practice regarding female infertility. Profession, body mass index and Reproductive Tract Infections had a statistically significant association with infertility ($p<0.05$).

1.5. Conclusion: The prevalence of female infertility in the Buea and Limbe Regional Hospitals was high, factors such as an-ovulation, endometriosis, and pelvic inflammatory diseases among others were found to be associated with female infertility. The management of female infertility by nurses and midwives was relatively good. However, seminars on female infertility should be organized in order to improve the knowledge regarding practice in the nursing management of infertility by the midwives and nurses.

2. Introduction

Infertility is a disease of the female reproductive system. It is as a failure to achieve a clinical pregnancy after 12 months or more of consistent unprotected sexual intercourse or as a result of an impairment of an individual's capability to reproduce [1]. It is classified into primary and secondary infertility; the primary infertile female is a woman who has never been diagnosed with a clinical pregnancy and meets the criteria for having infertility. On the other hand, secondary female infertility refers to a woman who is unable to establish a clinical pregnancy, but who has once been diagnosed with a clinical pregnancy [2]. Secondary infertility is the most frequently occurring form of infertility globally especially in sub-Saharan Africa characterized with greater rates of unsafe abortions, poor maternity care which result in post abortive and

postpartum infections [3]. Infertility is a major issue to women of childbearing age worldwide as it is a special reproductive health defect that is not life threatening, but has a significant, detrimental influence on women, their families and the society [4]. Infertility affects about 10%-30% of couples worldwide and in sub-Saharan Africa women were responsible for about 25%-37% of infertility [5]. The global prevalence of infertility is approximately 9%-12.5% [2]. The prevalence of couple infertility in 2020 in three hospitals in Douala, Cameroon was 19.2%; where one in every five couple was infertile [6]. In 2020 the prevalence of female infertility in the South West Region of Cameroon was 24% [7].

Factors associated with female infertility were found to be history of reproductive tract infections and uterine fibroids, premature ovarian insufficiency, polycystic ovary syndrome, endometriosis and endometrial polyps among others [8]. In Fako Division of Cameroon, sexual risky behaviours were found among youths and about 40% of them practiced unsafe sexual intercourse which exposes them to sexually transmitted infections and other reproductive tract infections which are associated factors for female infertility [9]. Infertility is a universal barrier affecting people all over the world and the associated factors of infertility may vary with geographical location and influenced by socioeconomic, demographic and anthropometric factors. Other factors for infertility include smoking, obesity, alcohol consumption, advanced maternal age, sexually transmitted infection, ovarian factors, tubal and peritoneal factors, hormonal disorders, genetic factors [10]. Identification of the burden of infertility in each country has a crucial role in evidence-based decision making. Nurses and midwives are among the health care providers who are the first to receive the women and perform the initial assessment. By being involved in reproductive health, they can use the application of nursing theories and care plans to build rapport, assess the women and provide the necessary care [11]. A global survey of almost 17,500 women from 10 countries revealed that knowledge regarding fertility biology of reproduction was poor [12]. Increasing the level of knowledge of the associated factors may help to decrease the incidence of infertility by allowing women to avoid certain risk factors that might lead to infertility. This informed the objectives of this study; specifically, we estimated the prevalence of female infertility, the associated factors and knowledge on practice regarding the nursing management of infertility. Determining the prevalence of infertility, identifying its associated factors and nursing management is fundamental in understanding and demystifying this health problem. The findings of this study will be beneficial to healthcare providers and policy makers in establishing and instituting strategies to upgrade nursing management and preventive measures of infertility in females [13].

3. Materials and Methods

A hospital-based cross-sectional study was conducted from the 20th of October, 2021 to 30th of July, 2022. This study determined the prevalence of female infertility, associated factors and knowledge on practice regarding nursing management of infertility among women of childbearing age (21-49) in Buea and Limbe Regional Hospitals in Fako Division. The target population was made up of all women of childbearing age (21-49) who had visited the selected hospitals for the past five years for gynecologic reasons and presented with symptoms associated with infertility. In addition, the nurses and midwives working in the Maternity, Outpatient Department (OPD), Family Planning (FP) and Surgical Units in the Buea and Limbe Regional Hospitals who were present during the study period included in the study. A quantitative approach was employed to collect and process data. A well- structured questionnaire was used to collect data from nurses and midwives in the Maternity, OPD, Surgical and FP Units. Data was collected on the participants' knowledge regarding practice in the nursing management of infertility. Also, a checklist was used to collect data retrospectively from clinical files and records of women of childbearing age (21-49years) who visited the Buea and Limbe Regional Hospitals for obstetric reasons from June 2017 to July 2022. Information from files and records was used to determine the prevalence and associated factors of infertility among the women. All nurses and midwives who met the inclusion criteria and gave their consent to participate in the study were included; eligible participants were recruited from the Buea and Limbe Regional Hospitals in Fako Division of the South West Region of Cameroon. The people living in Fako Division are of diverse ethnic groups and cultures with most of the inhabitants being Bakwerians. Fako Division is located in the South West Region of Cameroon and covers a total surface area of 870 square km. It has an estimated population of more than 200 000 (demographic health survey) It has the Equatorial climate, and temperature ranges between 20-28 degree Celsius. The town experiences two major seasons; a rainy season that begins in March and ends in October. The Buea and Limbe Regional Hospitals serves as teaching and referral hospitals for the inhabitants of Buea, Limbe and its environs [14]. These hospitals were purposively selected because they recorded the most gynecologic visits, each recorded averagely 15 gynecological visits per day, and provided major gynecologic services in the South West Region. A sample of 97 participants who were nurses and midwives selected by purposive and consecutive convenient sampling participated in the study. Participants were purposively selected to participate in the study according to their availability. Data was collected on participants' knowledge on practice, regarding the management of infertility in females. Participants' knowledge on practice was evaluated using 14 questions each given a point, making a total of 14 points. A score of less than seven on 14 (00-43%) was referred to as poor knowledge (poor practice) while a score of 7-14(50-100%) was referred to as good knowledge (good practice).

4. Ethical Approval

Before administering the questionnaire, it was pre-tested by admi-

nistering ten copies to ten participants who were not part of the study population. Their responses confirmed the clarity and validity of the questions. This study was authorised by the Department of Nursing, Faculty of Health Sciences, University of Buea, Cameroon. Administrative authorisation was first obtained from the Regional Delegation of Public Health and then from the heads of the various health facilities. Before responding to the questionnaire each respondent signed the consent form.

5. Data Collection and Analysis

Copies of the questionnaire were then administered to the study participants who completed the various sections of the questionnaire and the checklist was used to extract the necessary information from files and records. Data collected was input into an excel sheet and the analysis was done using the statistical package for the social sciences (SPSS) version 28.0. Categorically variables were presented as frequencies and proportions. Chi-Square ($\chi 2$) test of equality of proportion was used to compare proportions for significant difference as well as to measure the association between the study indicators and background information. Results were presented on tables and figures (pie charts, bar chart) to ease compression and organization.

6. Results

Out of the 420 files reviewed, 414 were finally used for the study since 16 files had incomplete data (they had some parts destroyed). Of the 414 files studied 276(66.7%) of the women were between the ages of 21-35 years while 138(33.3%) were in the age range of 36-49 years, 54(13.0%) had formal jobs and 105(25.4%) were unemployed. The result also showed that, 63(15.2%) were married while 45(10.9%) were cohabiting, 390(94.2%) were Christians, 30(7.2%) were underweight while 27(6.5%) were overweight and 12(2.9%) were obese (Table 1). Reproductive tract infections, polycystic ovarian syndrome, tubal abnormalities, and an-ovulation were the most common causes of infertility; 45(10.6%) had infertility due to uterine factors, 18(4.34%) were due to acquired defects, 27(6.52%) due to ovarian factors, 4(0.96%) were unexplained infertility, 11(2.66%) due to tubal factors, 3(0.72%) due to congenital defects and 2(0.48) were due to cervical factors. Also, 309 (74.6%) of the women had reproductive tract infections, 303(73.2%) had undergone a previous pelvic surgery, 18(4.3%) had other previous surgeries, 393(94.4%) had more than one sexual partner, 45(10.9%) had Poly Cystic Ovarian Syndrome, 399(96.4%) had an- ovulation, 285(68.8) had pelvic inflammatory diseases, 63(15.2) had tubal abnormalities and 285(68.6%) had endometriosis (Table 2). For the factors associated with female infertility, a Chi Square test was done to check for the association between socio-demographic data and the diagnosis of female infertility. Profession, body mass index and Reproductive Tract Infections (RTI) were associated with infertility ($p<0.05$) was considered statistically significant (Table 3). Reproductive characteristics such as pelvic surgery, other surgeries, more than one sexual partners, an- ovulation, endometriosis and pelvic inflammatory diseases were all associated with female infertility (Table 4). Regarding knowledge on practice in the nursing management of female infertility by nurses and midwives a scoring system was established based on the number of indicators or questions used. Participants who scored 00-43% were referred to as not knowledgeable (had poor practice) while those with 50-100% were referred to as knowledgeable (had good practice). It is worth noting that poor knowledge on practice corresponds to poor management of infertility and good knowledge on practice corresponds to good management. Of the 97 respondents enrolled, 92 participated in the study giving a response rate of 95%. Participants' responses with respect to knowledge on practice are as presented in (Table 5). Out of the 92 nurses and midwives who took part in the study overall, 58(63.0%) had good knowledge on practice regarding the management of female infertility while 34 (37.0) had poor knowledge on practice. Their knowledge and practice together provide us with their overall level of management, in aggregate, majority 63% had good knowledge on practice regarding the management of female infertility as shown in (Figure 2). There was no significant association between knowledge on practice and socio-demographic characteristics of the participants (Table 6).

Table 1: Socio-demographic Characteristics of the Women

Variable(n=414)	N(%)
Age	
21-29	276(66.7)
30-49	135(32.6)
Profession	
Formal	54(13.0)
Informal	255(61.6)
Unemployed	105(25.4)
Marital Status	
Married	63(15.2)
Single	306(73.9)
Cohabiting	45(10.9)
Religion	
Christian	390(94.2)
Muslim	21(5.1)
Others	3(0.7)
Body Mass Index	
Underweight	30(7.2)
Health	345(83.3)
Overweight	27(6.5)
Obese	12(2.9)

Table 2: Reproductive Health Characteristics of the Women

Variable	n(%)
Previous Pregnancies	
Yes	327(79.0)
No	87(21.0)
Number	
One	102(28.6)
Two	171(47.9)
Three and more	84(23.5)
Previous life	
births	
Yes	276(67.4)
No	32.6(32.6)
Occurrence of	
previous abortions	
Yes	384(92.8)
No	30(7.2)
Number of times	
One	174(45.3)
Two	180(46.9)
Three or more	30(7.8)
Reproductive Tract	
Infections	
Yes	309(74.6)
No	105(25.4)
Type	
Chlamydia	243(78.6)
Syphilis	21(6.8)
HPV	27(8.7)
Gonorrhea	18(5.8)
Pelvic Surgery	
Yes	303(73.2)
No	111(26.8)
Other surgeries	
Yes	18(4.3)
No	396(95.7)
Uterine Fibroids	
Yes	36(8.7)
No	378(91.3)
Painful menses or dysmenorrhea	
Yes	330(79.7)
No	84(20.3)
Pain during intercourse	
Yes	42(10.1)
No	372(89.9)
More than one sexual partners	
Yes	393(94.4)
No	21(5.1)

Poly cystic Ovarian	
Syndrome	
Yes	45(10.9)
No	369(89.1)
An-Ovulation	
Yes	399(96.4)
No	15(3.6)
Pelvic Inflammatory	
Disease	285(68.8)
Yes	129(31.2)
No	
Endometriosis	
Yes	285(68.8)
No	129(31.2)
Congenital Uterine	
Abnormalities	18(4.3)
Yes	398(95.7)
No	
Tubal Abnormalities	
Yes	63(15.2)
No	351(84.8)
Any physical Disability	
Yes	33(8.0)
No	381(92.0)
Diagnosis	
Primary	20(4.83)
Secondary	90(21.73)
Main cause of Infertility	
Cervical factor	2(0.48)
Uterine factor	45(10.6)
Congenital defect	3(0.72)
Acquired defect	18(4.34)
Ovarian factor	27(6.52)
Tubal Factor	11(2.66)
Unexplained Infertility	4(0.96)

Table 3: Relationship between Female Infertility and Socio-demographic Characteristics

Sociodemographic	p value
Factors	
Profession	0.001
Marital status	0.048
Body Mass Index	0.001
RTI	0.002

Table 4: Relationship between Female Infertility and Reproductive Health Characteristics

Reproductive Health Characteristics	p Value
Previous pregnancies	0.001
Pelvic Surgery	0.045
Other surgeries	0.017
Had more than one sexual partners	0.1
An-Ovulation	0.001
Pelvic Inflammatory Diseases	0.028
Endometriosis	0.028
Congenital Uterine Abnormalities	0.005
Tubal Abnormalities	0.001

Table 5: Knowledge on Practice regarding the Nursing Management of Female Infertility by Nurses and Midwives

Parameters		N (%)
Actions taken when caring for a woman presenting with the risk factors of female infertility	Counselling	4(4.3
	Vital Signs	4(4.3)
	History Taking	21(22.8)
	All of the above	63(68.5)
Preoperative care rendered	Get informed consent, provide psychological, physiological and physical care	68(73.9)
	Provide Physical, physiological and psychological care	7(7.6)
	Provide physical care	17(18.5)
Actions taken when the client regains consciousness	Perform Bed bath, and ambulate immediately	21(22.8)
	Wound dressing	2(2.2)
	Perform bed bath, oral care, encourage to ambulate 12 hours after the surgery	55(59.8)
	Ambulate and provide bed bath 18 hours after surgery	14(15.2)
Care of clients recently diagnosed with female infertility	They are not our concern	2(2.2)
	I don't get to see them	2(2.2)
	Provide education and counsel the woman	23(25.0)
	Drug administration if any, education and counseling	65(70.7)
Your role in preventing female infertility	Counsel youths, adults and adolescents on infertility and risk factors	26(28.3)
	Inform the public about studies carried out on female infertility and findings	2(2.2)
	Make sure all the products of conception are expelled during delivery and abortions	2(2.2)
	By using aseptic techniques during delivery procedures	10(10.9)
	All of the above	52(56.5)
The role of the midwife in fertility treatments	Provide the right counselling	4(4.3)
	Administer the right drugs when necessary	8(8.7)
	Draw and execute treatment care plans	21(22.8)
	Provide adequate pre and post operative care	2(2.2)
	All of the above	57(62.0)
Providing care for a woman during her first pregnancy after being previously diagnosed of infertility	Offer good and professional counselling to the woman on her reproductive health and lifestyle changes	3(3.3)

Table 6: Relationship between Knowledge on Practice regarding Management and Socio-demographic Data of the Participants

Variables	p Value
Age	0.007
Unit	0.013
Level of Education	0.042

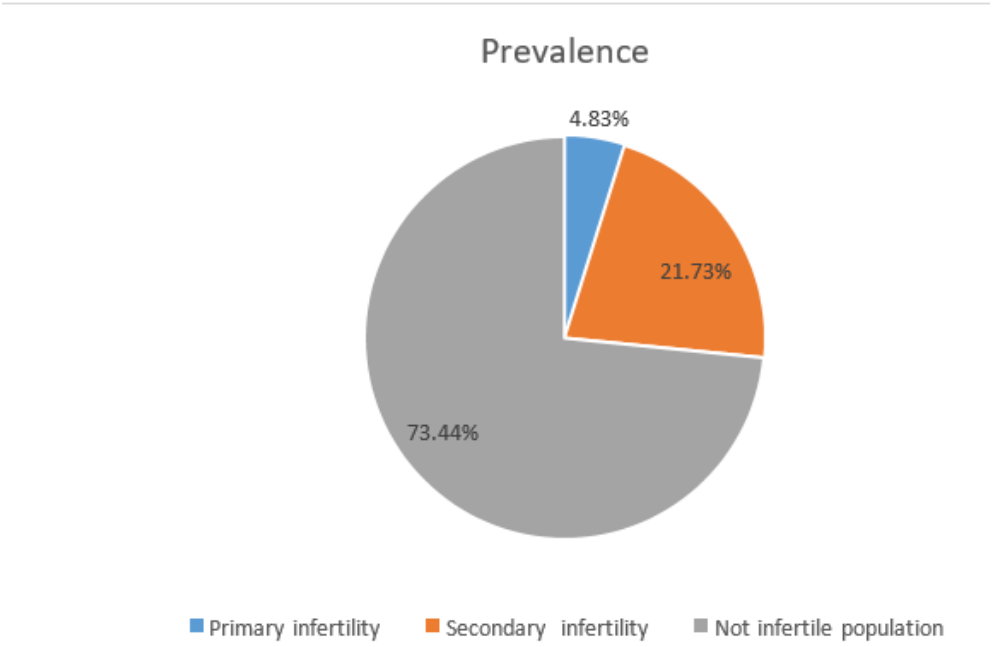

Figure 1: Prevalence of Female Infertility in Fako Division

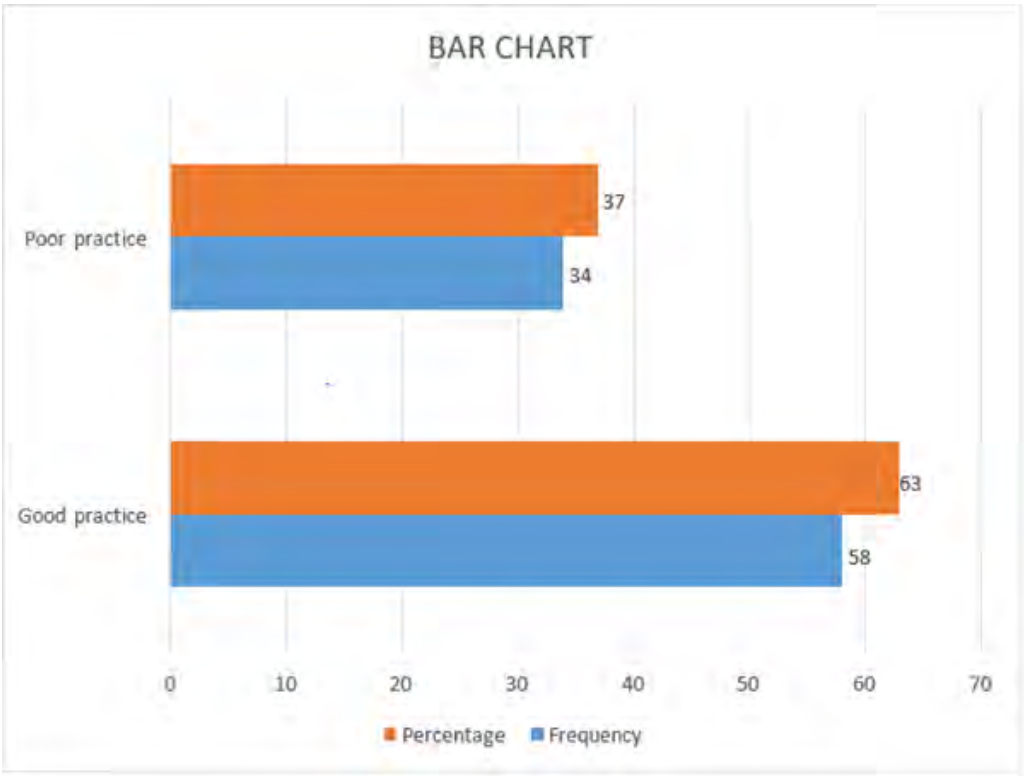

Figure 2: Overall Knowledge on Practice regarding the Management of Female Infertility by Nurses and Midwives

7. Discussion

This study aimed at estimating the prevalence of female infertility, associated factors and knowledge on practice regarding the management of female infertility by nurses and midwives in the Buea and Limbe Regional Hospitals in the Fako Division. Identifying, understanding and preventing the factors associated with female infertility is a major and essential intervention in obstetric care. This might create awareness, decrease the prevalence of female infertility and improve on the reproductive health of young girls and women of childbearing age. According to the findings of this study, the prevalence of female infertility was considerably high. It was relatively higher compared to the prevalence of a similar study conducted in the South West Region of Cameroon [15]. This difference could be due to the differences in sample size and study period. Also, our prevalence is higher than that of a related study carried out in Douala, Cameroon [6]. This could be explained by the fact that the two studies were conducted in different parts of Cameroon at different periods, and a large difference in sample size. Again, our study showed that the prevalence of primary and secondary infertility was 4.8% and 21.7% respectively. Our finding is contrary to that of the study conducted in South West Region, Cameroon [15] which found that 31% and 69% prevalence for primary and secondary infertility respectively. Our study revealed a much lower prevalence probably due to the differences in sample size and study period. In addition, this could be explained by the fact that there might have been improvement in the care of females of reproductive age. Also, our study found that the factors that were significantly associated with female infertility were previous pregnancies, an-ovulation, tubal abnormalities, Body Mass Index (BMI), reproductive tract infections and congenital uterine abnormalities. This finding is similar to that of the study carried out in Douala, Cameroon [6] which found that reproductive tract infection/STI, a history of uterine fibroids, dysmenorrhea and abortion were factors which independently increased the risk of couple infertility for the females. In line with the finding of our study, Thable et al states that high and low BMIs can impact overall fertility and should be documented during assessment [16]. Our finding disagrees with the finding of the study conducted in South West Region, Cameroon [15] which reported that age and employment were significantly associated with female infertility. Again, our study revealed that factors such as pelvic surgeries, other surgeries, pelvic inflammatory diseases, multiple sex partners, and endometriosis were not significantly associated with female infertility. This finding is contrary to that of a study conducted in Yaounde, Cameroon which found that age over 35 years, prolonged education levels, private sector of employment, STIs, pelvic surgery, genital Gardnerella vaginalis infection and pauciparity were factors associated with female infertility ($p<0.05$) [17]. Our study further showed that uterine factors, acquired defects and ovarian factors were the most frequent causes of female infertility. This finding is similar to the finding of a study conducted by Akah et al [7] in the South West Region of Cameroon and Egbe et al [6] in Douala, Cameroon. According to the findings of this study, the nurses and midwives had adequate (good) knowledge on the practice regarding the nursing management of female infertility; they knew the nursing process and what female infertility is all about. These findings are similar to that of a related study which reported that nursing students had good knowledge about infertility [18]. More than half of our participants reported that they rendered care to infertile females by performing basic nursing procedures and counselling. This is similar to a study conducted by Allan [19] where nurses and midwives played a great role in management of female infertility by counseling, providing pre-operative and post-operative care and doing routine follow up and evaluation of the clients. It is worth stating that nurses and midwives should be able to address and provide support to infertile women with emotional or psychological hurdles requiring counseling, coping strategies and couple-based interventions. According to Rich and Domer [20] social and emotional impact due to the inability to conceive can be distressing for women, resulting in high rates of anxiety and depression among infertile females. Our study revealed that up to 37% of the participants had poor knowledge on practice regarding the nursing management of female infertility, which is a cause for concern. The findings of a study by Uwajeneza et al suggest that limited pre-service education and lack of in-service training about family planning contributes to nurses' and midwives' limited knowledge of Natural Family Planning Methods, and impacts their attitudes and skill level toward counselling clients [21].

8. Conclusion

This study revealed that the prevalence of female infertility was higher compared to previous studies and that factors such as previous pregnancies, an-ovulation, tubal abnormalities, body mass index (BMI), reproductive tract infections and congenital uterine abnormalities were significantly associated with female infertility. Overall, nurses and midwives' knowledge on practice regarding the nursing management of female infertility in the Buea and Limbe Regional Hospitals was good. However, it was found that up to 37% of nurses and midwives had poor knowledge on practice regarding the nursing management of female infertility. Based on the findings of this study, it can be seen that there is need for these health care providers to update their knowledge in order to be current with the nursing management of infertility in women. This will in turn equip them with the necessary knowledge and skills to render adequate care and educate women on the prevention of infertility, which might curb the prevalence of female infertility.

9. Limitations of the Study

A retrospective study was conducted with data collected from patients' files therefore, there was a challenge of missing or incomplete data. However, the number of files missing was very small

and the information obtained gave the picture on the general trend on infertility in the Fako Division of Cameroon, which could direct or guide further studies. Also, it was a hospital-based survey which may have not given an accurate estimate of the prevalence of infertility in the general population since only women who sought care were counted. Thus, this study has set the basis for a more general study to be conducted.

10. Acknowledgements

The authors would like to thank all those who participated in this study.

11. Authors' Contribution

Both authors participated in all steps of the study from its commencement to writing. That is, conception and design, acquisition of data, analysis and interpretation of data as well as drafting and or revising and approving the final manuscript.

12. Conflicts of Interest

The authors declare that they have no conflicts of interest.

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