

## Prevalence of Infertility at the Gambian Teaching Hospital

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### Abstract

**Background/objectives:** The aims of this study were to obtain the prevalence of infertility and to determine predominant type and cause of infertility at the Gambian tertiary hospital.

**Methods:** This was a prospective cross-sectional study of 328 consecutive infertile couples presenting for infertility management at the gynaecology clinic of Edward Francis Small Teaching Hospital Banjul, between 2006 and 2007. The outpatient register was assessed for total number of new patients seen. Infertility investigations were carried out on these couples using the diagnostic facilities available. Data analysis was descriptive.

**Result:** The mean age of the women was 28.6 years (range: 15-49). The total number of new patients seen was 2291 and 328 had infertility. The prevalence of infertility was estimated at 14.3%. Infertility was primary in 33.9% (n=111) and secondary in 59.1% (n=194) of the participants. Tubal factor was responsible for infertility in 17.4% and male factor infertility was seen in 8.9% (n=52). Ovulatory factor and unexplained infertility was estimated at 13.4% and 10% respectively. In those couples in a polygamous relationship, 31% of the husbands had a child with another wife, the last 2 years.

**Conclusion:** Prevalence of infertility is showing upward trend, the need to improve facilities for managing infertility should be emphasized.

**Keywords:** Infertility, Types, Prevalence

### Introduction

Infertility is an unwanted delay in conception after regular unprotected sexual intercourse and it is conventionally investigated after a year [1], although for some couples it may be appropriate to initiate investigations sooner. The previous study in the Gambia estimated prevalence of infertility at 9% [2]. However, in the UK it affects approximately one in six to seven couples [3].

The Gambia has a fertility rate of 5.8 births per woman [4]. This high fertility rate underpins the psychosocial and cultural implications for any couple who becomes a victim of infertility. Globally fertility rate has been projected to decline-from 5.0 in 1950, to 2.02 per woman by 2045-2050 [5].

Infertility in resource-poor settings is an overlooked global health problem. The scarce health care resources are deployed thoughtfully, in the maternal and child health care programs, leaving little to nothing for women and couples with involuntary childlessness. The negative psychosocial, sociocultural, and economic consequences in low-income countries are severe. In many sub-Saharan African settings, family inheritance and survival is strongly attached to the number of children one has. Also, childless women are frequently stigmatized, resulting in isolation, neglect, domestic violence and polygamy [6]. However, despite the local importance of infertility, few resources are committed to help advance infertility care in this region. The World Health Organization (WHO) recognizes infertility as a global health problem and established universal access to reproductive health care as one of the United Nation's Millennium Developmental Goals for 2015. Currently, access to infertility care varied and is usually only attainable by the very wealthy in low-income countries [7].

Natural conception is most likely to occur in the first month of trying (~30% conception rate), subsequently the chance falls steadily to reach 5% per cycle by the end of the first year. Cumulative conception rates represent 60% after 6 months, 85%

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after 1 year and 95% at 2 years [1]. Increasing maternal age has a profound negative effect on the likelihood of pregnancy, both in reference to natural conception and any fertility treatment options [8]. This is particularly true for women over 40 years of age. The more women delay motherhood, the incidence of infertility is likely to rise [9]. The desire to have a child is a very basic human need for most individuals, and infertility can cause enormous distress to those affected [10,11]. The age-related decline in female fecundity is primarily due to a steadily reducing ovarian reserve of normal eggs within the ovaries [12].

The proportion of each type of infertility varies in different studies and in different populations. Tubal infertility is more common in those with secondary infertility and in populations with a high prevalence of sexually acquired infections [11,13]. In a study conducted in North Western Nigeria, the prevalence of chlamydia trachomatis was high and unrecognized clinically as the majority of patients were asymptomatic but had secondary infertility as clinical presentation [13].

In sub-Saharan Africa, most epidemiological studies on infertility has tubal factor as the commonest cause of infertility [11,13].

The aims of this study were to obtain the prevalence of infertility, to determine predominant types of infertility and common causes of infertility in the Gambian teaching hospital.

## Methods

This was a prospective cross-sectional study of 328 consecutive infertile couples presenting for infertility management at the gynaecology clinic of Edward Francis Small Teaching Hospital Banjul the Gambia. The definition of infertility was the only inclusion criteria.

All identified cases of infertility during the period under review were recruited; therefore, no sample size was calculated. Infertility investigations were carried out on these couples using the conventional diagnostic facilities available. The male factor was assessed with seminal fluid analysis (SFA), interpreted with the World health organization (WHO) reference values. The tubal factor infertility was assessed with Hysterosalpingogram and the X-ray films were reported by the radiologist and respective consultants in the team as deemed appropriate to ensure consistent results. When clinical history suggests menstrual irregularities hormonal profile was assessed and test for ovulation using day 21 progesterone was performed.

The gynaecology clinic register was used to determine the total number of new patients that accessed the clinic for various gynaecological reasons during the study period.

Data analysis was descriptive. Approval for the study was obtained from the ethics committee of the Edward Francis Small Teaching Hospital Banjul.

## Results

The average age of the women was 28.6 (range: 15-49) years old.

During the study period, the total number of patients who attended a gynaecology clinic for the first time for various

	Frequency	Percentage (%)
Primary Infertility	111	33.9
Secondary	194	59.1
Unclassified	23	7.0
Total	328	100

Table 1: Types of Infertility.

	Positive for Disease	Negative For Disease	Total
Hysterosalpingogram	53 (17.8%)	245 (82.2%)	298
Semen analysis	26 (8.9%)	267 (91.1%)	293
Anovulation	31 (13.4%)	200 (86.6%)	231

Table 2: Factors responsible for infertility from conventional investigations.

Duration in years	Frequency	Percentage
<2	12	4.4
2-4	88	32.4
5-10	109	40.1
>10	63	23.1
Total	272	100

Table 3: Duration of Infertility.

gynaecological clinical consultations was 2291. In this cohort, 328 consecutive infertile couples presented for infertility management. Therefore, the prevalence of infertility was estimated at 14.3%.

## Types of Infertility

Table 1 highlights types of infertility. Secondary infertility (59%) was the commonest type of infertility in the study population and primary infertility represented 33.9%

## Factors responsible for infertility from conventional investigations

Table 2 shows factors responsible for infertility from conventional investigations.

In the study population 17.8% and 8.9% had tubal and male factor infertility respectively. The majority of the study population had regular menstrual period (88.7%), however about 11% had irregular menstrual cycles. Interestingly most female couple with regular menstrual period had hyperprolactinaemia which was performed when there is history and demonstrable galactorrhoea. Some of the female couples had day 21- progesterone assay which showed abnormal values in 13.4%. Due to resource constraints not all infertile couple had hormonal assay only those with irregular cycles were triage. Therefore, in the data we deduced that about 13.4% of those with menstrual disorder had anovulation and unexplained infertility estimated at 10%.

## The duration of infertility

Table 3 provides information on the duration of infertility in years. The majority of infertile couples (40%) had duration from 5 to 10 years.

## Polygamous relationship

A significant number n=161 (49.38%) had more than one wife. Whereas 165 (50.6%) of the study participants had monogamous relationship (Figure 1).

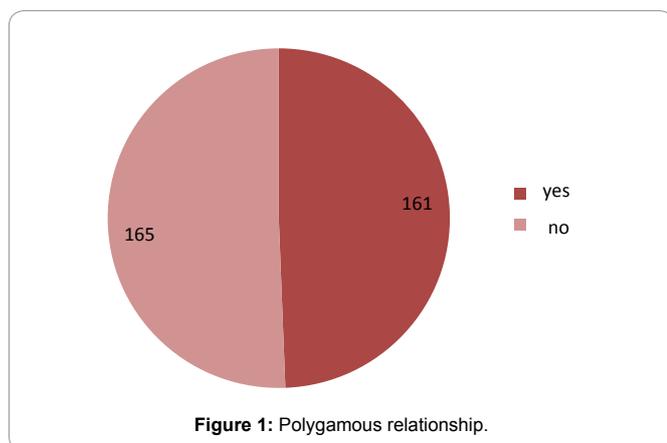


Figure 1: Polygamous relationship.

## Discussion

The prevalence of infertility was estimated at 14.3%, which demonstrated an increase from 9% of the previous study in the Gambia [2]. The previous study population was from a region in the country and not a tertiary or teaching hospital. In our study, the gynaecology clinic of the hospital received couples from different regions of the country and many of them did not meet the inclusion criteria for the study and were thus excluded.

In sub-Saharan Africa, previous studies on the prevalence of infertility differ widely from 9% in the Gambia [2], and 11.8% in Ghana [14] compared with 21.2% in northwestern Ethiopia [15] and from 20 to 30% in Nigeria [16-18]. However, a current study in the sub-region on prevalence of infertility, including our study suggests a range of 11% to 15%, thereby closing the wide variation [11,13].

In Asia and Latin America, less data were available but a report compiled by the World Health Organization (WHO) indicated that the prevalence of infertility in these regions fell within the globally expected range of 8-12% of couples of reproductive age and thus was lower when compared with African countries [19]. However, in the United Kingdom, infertility affects 1 in 7 couples that attend gynaecology clinic [1] which can be estimated at 14.2%, similar to the findings in this study.

In our study, secondary infertility (59.1%) is the predominant type of infertility which is the same in most studies in Sub Saharan Africa. In a study conducted in Nigeria, secondary infertility accounted for 71.5% of the cases [11].

In this study tubal and male factor infertility were assessed primarily with a Hysterosalpingography and semen analysis, respectively. Tubal factor (17.4%) was found to be more common than male factor (8.9%) infertility. A study of 5800 couples in 33 World Health Organization centers in 25 countries showed that almost 50% of the African couples and 11-15% of couples in other parts of the world had infectious tubal disease [20]. Individual studies from Nigeria, South Africa and Egypt have reported prevalence rates of tubal factor infertility ranging from 42 to 77% [21-23]. It has been estimated that ~70% of pelvic infections are caused by Sexually transmitted diseases, while the other 30% are attributable to pregnancy-related sepsis [24].

Similarly, most cases of male factor infertility are caused by previous infections of the male genitourinary tract [25]. In our study, male factor was seen in 8.9% of the screened partners,

which was lower than what was reported in previous studies in the country and in the sub-region. Nigerian studies have shown a prevalence of male infertility in 26-43% of cases [18,26]. The results of the sub-Saharan African studies are consistent with our study as tubal and male factor predominated the terrain, however we did not evaluate the prevalence of sexually transmitted infections in these couples with both tubal factor and male factor infertility. The available data has always implicated infective morbidity as the cause of tubal damage. Our study showed a high prevalence of tubal factor infertility.

Regarding ovarian factor infertility in the study population, the findings were not comparable to studies done elsewhere as the methodology of assessment differs. However, it represents lower aetiological significance to tubal factor infertility at the tertiary Gambian hospital. In about 10% of the study population no aetiological factor was found, which defines unexplained infertility rate.

This is similar to many other studies conducted elsewhere [18,26].

In our study approximately half (49.3%) of the couples were in polygamous families. Polygamy may modulate women's reproductive health, including vulnerability to sexually transmitted infections (STI) with partner/s [27]. An STI is a well-established precursor of chronic pelvic inflammatory disease, tubal damage and infertility if not recognized or completely treated. In 31% of these couples, their husbands had a child with another wife in the last 2 years.

The majority of infertile couples (40%) had duration of infertility from 5 to 10 years. The longer a couple has to try to conceive, the smaller the chance of spontaneous conception. If the duration of subfertility is less than three years, a couple is 1.7 times more likely to conceive than couples who have been trying for longer [28].

## Conclusion

The prevalence of infertility in The Gambia is 14.3%. This is an increase from a previous study in The Gambia. Secondary infertility is more prevalent in The Gambia and tubal factor is the most common cause of infertility.

## Limitation of the Study

The objective assessment of Ovulatory factor was not universal to all due to resource constraint and we instituted selective assessment using clinical history of menstrual cycle. This may have affected the interpretation of the results.

## Authors' Contributions

MA, PI conceived the idea of the study and participated in its design. MA administered the questionnaires and entered the data into a dedicated database. PI took part in data cleaning and analysis. MA wrote the first draft of the manuscript. Both authors read and approved the final manuscript.

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## Disclosure of Interests

The authors declare no conflicts of interest.

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