



# **Etiological Factors and Clinical Patterns of Subfertility among the Couples Attending in a Tertiary Care Hospital in Bangladesh**

**Shabeen Afreen<sup>1</sup>, Tazeen Afreen<sup>2</sup>, Nasreen Afreen<sup>3</sup>, Asma Rumanaz<sup>4</sup>, Lubna Jahan<sup>5</sup>,  
Shahanaz Sigma<sup>6</sup>, Roksana Rahman<sup>7</sup>, Nilofer Yasmin<sup>8</sup>**

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## **Key words:**

Subfertility, PCOS, Endometriosis

## **Abstract**

*Subfertility, a global health issue is defined as the failure in pregnancy after one year of unprotected intercourse. It affects approximately 10%-15% of the couple in developed country<sup>1</sup>. It is not merely a health problem but also a matter causing social instability, marital disharmony and many disgraceful conditions. Regarding causes of subfertility, female factor, male factor, combined male and female factors and sometimes unexplained factors are responsible.*

**Objective:** *The aim of the study was to find out the etiological factors and the patterns of subfertility among the couples attending the infertility clinic and outpatient department (OPD) of Kurmitola General Hospital of Bangladesh.*

**Methods :** *This cross-sectional study was done at the OPD and infertility clinic of Kurmitola General Hospital during the period of January 2019 to- December 2019. Total 140 couples with necessary investigations were interviewed by structured questionnaire. Data analysis done under SPSS method.*

**Result :** *In this study total number of 140 couples were studied. The frequency of primary and secondary subfertility was 55% and 45% respectively. Among 140 couples mean age of female was 32.6 year and mean age of male was 36.4 year. The mean duration of the subfertility among the couples was 7 year. Concerning the contribution of male and female factor among 140 couples, female factor was responsible in 55% case and male factor was responsible in 20% cases, 10% had combined male and female factor and in 15% couple causes of subfertility was unexplained.*

*Regarding the etiology of subfertility among women, different factors included. Polycystic ovarian syndrome (PCOS) 46.15%, tubal factor 31.86%, endometriosis 8.79%, among hormonal disorder hypothyroidism was responsible in 5.49% and hyperprolactinemia in 2.19 % cases, and ovarian cause like poor ovarian reserve was responsible in 4.39% cases and uterine factor was responsible in 1.09% cases.*

*To detect the male factors of subfertility semen analysis report was done., among male partner 69.04% had oligospermia, 16.66% show asthenospermia, another 9.52% show teratospermia. Azoospermia was detected in 4.76% cases.*

**Conclusion:** *Bangladesh is a developing country where population burden is a big concern. On the other hand, reproduction is a basic human right. As the subfertility leads to physical, psychological and social problems so government needs to take care of this subfertility issue. This study gives us the idea of the needs and further demands of the services in our country to identify social cultural and economic factors associated with subfertility and interventions needed to overcome the current situation.*

1. Asst. Prof (obs & gynae), Kurmitola General Hospital
2. Asst. Prof (obs & gynae), Sir Salimullah Medical College.
3. Asst. Prof (obs & gynae), Mugda Medical College & Hospital.
4. Asst. Prof (obs & gynae), Kurmitola General Hospital.
5. Junior consultant (obs & gynae), Kurmitola General Hospital
6. Asst. Prof (obs & gynae), Kurmitola General Hospital
7. Asst. Prof (obs & gynae), Kurmitola General Hospital.
8. Associate prof (obs & gynae), Shahid sarowardi medical college and hospital

**Address of Correspondence:** Dr. Shabeen Afreen, Asst. Prof (obs & gynae), Kurmitola General Hospital

## Introduction

Subfertility is defined as the inability of couples to achieve conception after one year of unprotected coitus. It affects 1 in every 7 couples<sup>2</sup>. Subfertility is labeled as primary when a couple never conceived after one year of unprotected coitus and secondary when couple achieved pregnancy before, regardless of the outcome. The levels and patterns of subfertility apparently vary widely and also are different in developed countries compared to those in the developing region of the world<sup>3</sup>. Cultural, socioeconomic, health care practices, policies and environmental factors play a major role in the prevalence and etiology of subfertility<sup>4</sup>. Also, the proportion of causes of subfertility have changed over time<sup>5</sup>. There is need to increase public awareness and education regarding cost effective approaches to solve the problem of subfertility. In Bangladesh there are few studies on this topic. Therefore, determination of clinical pattern and review of major causes of subfertility in Kurmitola General Hospital was the main objective of this study.

## Materials and Methods

This cross-sectional study was carried out in Kurmitola General Hospital for a period of 1 year from January 2019 to December 2019. All subfertile patients were given comprehensive explanation about the study and there after consent was taken. A structured questionnaire encompassing all clinical information including investigations to detect the causes of subfertility was prepared. A detailed history was taken and data was collected from 140 couples attending the OPD of Kurmitola General Hospital. Complete physical examination was done. the specific examination for female partners included test for documentation for ovulation (gonadotrophins and steroid assay and ultrasonography of the lower abdomen with trans vaginal sonography). Test for tubal patency and laparoscopy (when needed). Tubal patency was diagnosed by Hystero Salpingography, (HSG), laparoscopy was performed in some cases to study tubo peritoneal diseases and to look for endometriosis. For male factor identification reports of semen analysis were

studied, scrotal ultrasonography and color flow Doppler study of the testis and post coital urine sample for semen analysis was also done in some case.

Collected data were analyzed using Statistical package for the social science (SPSS) program software

## Result

In this study total number of 140 couples were assessed. Among them the mean age of female was 32.6(range from 18-42 years), mean age of male was 36.4(range from 20-45 years) [Table 1]. The mean duration of subfertility at the time of presentation was 7 years [Table I]. Regarding the type of subfertility, the frequency of primary and secondary subfertility was identified in 77 (55%) cases and 63 (45%) cases respectively [Table 2]. Concerning the contribution of male and female factor to subfertility, [Table III] Female factor alone accommodated for 55%, male alone for 20%, and in 10% cases both male and female factors were responsible. Remaining 15% were unexplained subfertility. Among women, different subfertility factors were included [Table IV]. The most common cause of female subfertility was ovulation disorder, represented by polycystic ovarian syndrome in 42(46.15%) cases, diagnosed by ultrasonography hormonal assay and clinical feature. Second common factor was tubal factor identified in 29 cases (31.86%), diagnosed by laparoscopy and Hystero Salpingography (HSG). Among hormonal disturbance, hypothyroidism identified in 5 women (5.49%) and hyperprolactinemia in 2 cases (2.19%). Endometriosis was diagnosed as the sole cause of subfertility in 8 cases (8.79%). That was diagnosed by laparoscopy as chocolate cyst in 6 cases and obliteration of pouch of Douglas in 2 cases. Uterine factor was recognized in 1 woman (1.09%) as fibroid uterus. Poor ovarian reserve responsible in 4(4.39%) cases as a cause of subfertility.

To detect the male factors of subfertility [Table 5] semen analysis was done. 69.04% of men had oligospermia, 16.66% had asthenospermia, another 9.52% show teratospermia. Azoospermia was detected in 4.76% cases

**Table I**  
*Sociodemographic characteristic [N=140]*

Variable Agein Year	Number	Percentage	Variable age in year	Number	Percentage	Year	Number
18-22	7	5 %	21-25	9	6.43 %	1-5 years	52
23-27	23	16.43 %	26-30	12	8.57 %	6-10 years	50
28-32	33	23.57 %	31-35	42	30 %	11-15 years	25
33-37	45	32.14 %	36-40	30	21.43 %	>15 years	13
38-42	32	22.86 %	41-45	47	33.57 %		

**Table-II**  
*Type of fertility [in year] [N=140]*

Type	Frequency	Percentage
Primary	77	55%
Secondary	63	45%

**Table-III**  
*Contribution of male & female factor to subfertility*

Factor	Frequency	Percentage
Female alone	77	55 %
Male alone	28	20 %
Combined	14	10 %
Unexplained	21	15 %

**Table-IV**  
*Abnormality contributing to female factor subfertility [N=91]*

Abnormality	Frequency	Percentage
PCOS	42	46.15 %
Tubal factor	29	31.86 %
Endometriosis	8	8.79 %
Hypothyroidism	5	5.49 %
Hyperprolactinemia	2	2.19 %
Poor ovarian reserve	4	4.39 %
Uterine factor	1	1.09 %

**Table-V**  
*Abnormality contributing to male factor subfertility by semen analysis N=42*

Abnormality	Frequency	Percentage
Oligospermia	29	69.04%
Azoospermia	2	4.76%
Asthenospermia	7	16.66%
Teratospermia	4	9.52%

## Discussion

This study was undertaken to give insight into the problems of subfertility in our population. Our study explores the etiological factor and clinical patterns of subfertility in our population.

Commonest type of subfertility in this study was primary subfertility in 55% couple. While secondary subfertility found among 45% of couple. These are comparable with the study of Rokeya Anwar in (2004-2005) at BSMMU. where she found relatively higher frequency of primary subfertility in 56% than secondary in 44%<sup>6</sup>. this was also comparable with the study of Shayela and Banu at BSMMU in 1989 and 1993 respectively <sup>7, 8</sup>. the most comprehensive study of infertility a WHO study of 5800 sub fertile couples seeking help in 33 medical centers of 22 developed and developing country found that most sub fertile couple around the world suffer from primary subfertility<sup>9</sup>. Sub-Saharan Africa is an exception where most couple (52%) suffer from secondary subfertility<sup>9</sup>. The cause is attributed to high prevalence of sexually transmitted disease, inadequate treatment of infection and complication of unsafe abortion and sepsis. <sup>9,10</sup>

In this study the mean age of subfertility among female was 32.57year and that of male was 36.4 year which are almost similar to some other study <sup>10, 11</sup>

The mean duration of subfertility in my study was 7 year. This is comparable with a study by Ikechebelu Ji<sup>11</sup>and Nwajiaku LA<sup>12</sup> who both found mean duration of subfertility of 5 years. Infertile couples do not usually present in time to the infertility clinics due to inadequate knowledge about subfertility and the inadequate information about the presence of special center in the country.

Early attendance of couple in young age with lower duration of subfertility will be helpful for early assessment. So that they can be able to take the better treatment options in their most fertile period.

The causes of subfertility can be divided into 4 major categories. The female factor, the male factor, combined male and female factor and unexplained infertility. In this study contribution regarding male and female factor revealed 55% and 20% respectively, combined factor was 10% and unexplained 15% (Table III). It had similarity with study of infertility by MlekShah<sup>13</sup> who showed male factor responsible in 38.9% and female factor in 34.7%, 14.6% cases both the couple responsible and in 11.8% cases no cause was identified.

In my study female factor was responsible in 55% cases (Table 4). In a field study in central part of Iran (YAZD Province), Aflatoon et al 2009 reported female factor was the main cause of subfertility in 57% cases<sup>15</sup>

In my study among the female causes ovulatory dysfunction manifested by polycystic ovarian syndrome was responsible in 42 cases (46.15%) second most common cause was tubal factor in 29 cases (31.86%). Endometriosis and poor ovarian reserve responsible in 8 cases (8.78%) and 4 cases (4.39%) respectively.

Among hormonal imbalance hypothyroidism 5 cases (5.49%) and hyperprolactinemia in 2 case (2.19%). Among last female cause uterine factor, fibroid uterus was responsible in 1 case (1.09%). These findings are comparable with Begum RA (BSMMU, 2004-2005 study<sup>6</sup> where tubal factor was cause of subfertility in 33% cases, ovarian factor in 12% cases, endometriosis and uterine factor in 11% and 2.44% cases respectively. Hypothyroidism was responsible in 24.39% cases.

Where as in Africa, tubal factor was very high 85%<sup>16</sup>. Tubal occlusion more prevalent in African countries because frequency of poorly treated STD is high. A survey of infertility in royal institute by Kamali showed that most common cause of female infertility was ovarian factor responsible in 20.36% cases<sup>14</sup>. In Bangladesh risk of infertility is poverty, malnutrition, obesity, smoking, age bar, mental stress, hormonal imbalance, etc. In south Asian region STD, reproductive tract infection,

unhygienic delivery, puerperal sepsis and pelvic infection are the cause of infertility.

In my study, male factors were also important subfertility factor, responsible in 42 cases (Table 5)., Azoospermia detected in 2 cases (4.76%), oligospermia in 69.04% cases. Number of teratospermia and asthenospermia was 4 (9.52%) and 7 (16.66%) respectively. In his study, Nwajiaku LA<sup>12</sup> showed oligospermia is 60.9% azoospermia in 9% and asthenospermia and teratospermia in 17.4% and 8.7% cases respectively. Kamali et al in his study<sup>14</sup> showed that sperm disturbance such as oligospermia and asthenospermia and teratospermia was responsible in 40.3% cases. There is need for public education on contribution of male factors to subfertility. This will reduce the burden of gender discrimination in subfertility field. It will also make the male partner to subject themselves for evaluation and treatment.

## Conclusion

Bangladesh being a developing country, subfertility is a major public health issue, leading to physical, mental and social problems among couples. There is need to improve the referral system, fertility health education and implementation of infertility prevention programs. New reproductive technology must be available in government sector to assure prompt, proper and adequate treatment. We suggest performance of similar researches with big sample size in different institution to evaluate most common causes of subfertility in Bangladesh

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