

## Gynecology &amp; Reproductive Health

## Demographic Background &amp; Clinical Profile of Primary Subfertility Attending Infertility Clinic in a Developing Country

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**ABSTRACT**

**Background:** Worldwide more than 70 million couples suffer from infertility, the majority being residents of developing countries. Negative consequences of childlessness are experienced to a greater degree in developing countries when compared with Western societies. There are numerous factors such as anatomical, physiological and genetic factors that cause infertility. Bilateral tubal occlusion due to sexually transmitted diseases and pregnancy-related infections is the most common cause of infertility in developing countries, a condition that is potentially treatable with assisted reproductive technologies (ART).

**Objective:** To determine the demographic background, causes and the clinical pattern of primary subfertility among couples seeking treatment.

**Methodology:** A cross sectional study was carried out on 95 couples of primary subfertility attending in Infertility clinic of Dhaka Medical College Hospital by interview technique using in a structured questionnaire during January 2018 to December 2018.

**Results:** In this study, demographic profiles of primary subfertility were assessed on 95 couples with Mean age of female participants were  $26.9 \pm 5.2$ . Concerning the etiology of infertility, female factors were the major determinants followed by unexplained factors. Among the female factors, polycystic ovary was the major cause followed by hormonal imbalance, hypothyroidism and fallopian tube blockage respectively. For primary subfertility female factors (54%) were more responsible but the male factors (12%) were not negligible.

**Conclusion:** Subfertility treatment is sometimes placed at the back of the health agenda in developing countries. ART and other expensive treatment facilities should be available in Government sector to treat the underprivileged groups. Also, we can reduce the wastage of valuable time of treatment by timely referral of patients to infertility specialist. An appropriate guideline should be established for the developing countries to prevent inappropriate use of OI.

## Keywords

Primary subfertility, Developing country, Hormonal imbalance, ART.

## Introduction

Primary subfertility is a global concern [1]. Worldwide more than 70 million couples suffer from infertility, the majority being residents of developing countries. Negative consequences of childlessness are experienced to a greater degree in developing countries when compared with Western societies. Also, it is one of the major health problems and socially destabilizing condition for couples often causing marital disharmony. The problem of infertility has not given due attention because it is not a life-threatening condition with invisible losses, and its consequences are manifold [2]. There are numerous factors such as anatomical, physiological and genetic factors that cause infertility. Bilateral tubal occlusion due to sexually transmitted diseases and pregnancy-related infections is the most common cause of infertility in developing countries, a condition that is potentially treatable with assisted reproductive technologies (ART). New reproductive technologies are either unavailable or very costly in developing countries [3].

At current fertility levels, a woman in Bangladesh will have an average of 2.3 children in her lifetime. Approximately 167 million married women aged 15-49 years in developing countries were infertile [4]. Even though the exact prevalence of infertility in Bangladesh is difficult to ascertain, it affects 10 to 15% couples in the western world. Epidemiological data indicate that conception occurs in 84% of women within 12 months and 92% by second year of ceasing contraception [5].

Primary subfertility is defined as a couple that has never been able to conceive a pregnancy after a minimum of one year of regular unprotected sexual intercourse [6]. In South Asia, about 4–10% of couples are affected by subfertility, which appears to be a conservative figure suggesting those seeking treatment rather than those unable to conceive [7].

Though our country is overburden by its population, still subfertility is one of the major health problems. In developing countries, it is usually considered to be the woman's 'fault' when there fertility problems arise. Socially destabilizing condition for couples often causing marital disharmony, subjected to violence, breakup, ostracism and sometimes even being cast out of the family [8]. In our country, Treatment of subfertility is still luxurious and expensive. For 1<sup>st</sup> time in public government hospital in our country, we are dealing with subfertile couples. We offer screening & treatment up to IUI by trained manpower. The problem of infertility has not given attention considering the fact that it is not the life-threatening condition but it has substantial community health problems such as depression, anxiety, domestic violence and social isolation. Despite the fact, so far there has been no effective program implemented in Bangladesh to address to minimize the various causes of the infertility.

## Objective

To determine the demographic background, causes and the clinical pattern of primary subfertility among couples seeking treatment.

## Methodology

A cross sectional study was carried out on 95 couples attending in Infertility clinic of Dhaka Medical College Hospital by interview technique using in a structured questionnaire during January 2018 to December 2018. Before conducting research, ethical approval was taken from hospital administration & Verbal Informed Consent was taken from each respondent before collecting the information. Collected data were analyzed in SPSS version 16.0. The inclusion criteria included the couples seeking treatment for primary subfertility and the exclusion criteria included the unwillingness to participate in the study and couples with severe co-morbidity.

## Results

In this study, demographic profiles of primary subfertility were assessed on 95 couples with Mean age of female participants were  $26.9 \pm 5.2$ . Concerning the etiology of infertility, female factors were the major determinants followed by unexplained factors. Among the female factors, polycystic ovary was the major cause followed by hormonal imbalance, hypothyroidism and fallopian tube blockage respectively. For primary subfertility female factors (54%) were more responsible but the male factors (12%) was not negligible. For the treatment of primary subfertility, only 14% couples went to Infertility specialist for the 1<sup>st</sup> time. For this issue, only 13.7% husbands were sympathetic to their wives and surprisingly 90.5% of other family members were not at all sympathetic.

Demographic characteristics	Frequency (N=95)	Percentage (%)
<b>Female respondents age</b>		
Mean $\pm$ SD	26.9 $\pm$ 5.2	
Range	18-40 years	
<b>Husbands age</b>		
Mean $\pm$ SD	34.1 $\pm$ 6.67	
Range	22-60 years	
<b>Socioeconomic condition</b>		
Lower class	18	18.9
Lower-middle class	17	17.8
Middle class	60	63.3
<b>BMI</b>		
Under weight	01	1.1
Normal	62	65.3
Over weight	30	31.5
Obese	02	2.1
<b>Menstrual cycle</b>		
Regular	43	45.3
Irregular	52	54.7
<b>Duration of Marriage (Years)</b>		
<5	33	34.7
6-10	49	51.6
>10	13	13.7
<b>Duration of Subfertility (Years)</b>		
1-3	32	33.7
3-5	42	44.2
>5	21	22.1

**Table 1:** Distribution of the study respondents by demographic characteristics (n=95).

Causes of Subfertility	Frequency (N=95)	Percentage (%)
Only Female factors		54
Only Male factors		12
Combined		12
Unexplained		22
<b>Analysis of Female factor</b>		
PCOS	26	
Hyperprolactenemia	11	
Hypothyroid	06	
Fibroid	04	
Tubal factor	04	
Endometriosis	03	
POF	06	
Bicornuate uterus	01	
<b>Analysis of Male factor</b>		
Normozospermia	72	75.8
Oligospermia	07	7.4
Asthenozospermia	04	4.2
Oligoasthenozospermia	04	4.2
Azoospermia	08	8.4

**Table 2:** Distribution of the study respondents by analysis of risk factors (n=95).

Treatment provider	1 <sup>st</sup> time	2 <sup>nd</sup> time	3 <sup>rd</sup> time
Homeopaths & Traditional treatment	17	00	00
General Practitioner	37	03	00
Gynae Specialist	28	18	00
Infertility Specialist	13	74	95

**Table 3:** Distribution of the study respondents by treatment seeking behavior (n=95).

Social Relationship	Frequency (N=95)	Percentage (%)
<b>With husband</b>		
Sympathetic	13	13.7
Normal behavior	62	65.3
Misbehave/ Assault/ Threat to divorce	20	21
<b>With other family members</b>		
Sympathetic	09	9.5
Normal behavior	57	60.0
Misbehave/ Assault/ Threat to divorce	29	30.5

**Table 4:** Distribution of the study respondents by Social response (n=95).

## Discussion

Subfertility can be defined as inability to conceive after one year of regular unprotected sexual intercourse. Although the World Health Organization manual for the investigation and diagnosis of infertile couples uses 12 months of waiting time until pregnancy and many studies use 24 months of waiting time until pregnancy [6,8].

These two definitions were used to calculate the infertility rate; 12-month infertility rate: a disease of the reproductive system defined by the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse and 24-month infertility rate: the percentage of women of reproductive age

(15–49 years) at risk of pregnancy (not pregnant, sexually active, not using contraception and non-lactating) who report attempting pregnancy for 2 years or more [6].

Primary Infertility is a global concern [1]. In our study, primary subfertility was assessed on 95 couples with Mean age of female participants were  $26.9 \pm 5.2$  with the range of 17–40 years. At current fertility levels, a woman in Bangladesh will have an average of 2.3 children in her lifetime [2]. Even though the exact prevalence of infertility in Bangladesh is difficult to ascertain, it affects 10 to 15% couples in the western world. Epidemiological data indicate that conception occurs in 84% of women within 12 months and 92% by second year of ceasing contraception [4]. Infertility rates exceed 30% in sub-Saharan Africa [5]. According to UN ranking, India is on 77th rank and fertility rate from 2005-2010 is 2.81. The present study showed that the higher proportion of infertile couples were of age group in 24-30 years. These findings are supported by a Reproductive morbidity report on clinical based survey in Nepal [9]. One third of the infertile couples in the study population were in their late thirty's. The study further stated, the infertility problems grows more with increasing age, peak rate of conception occurs at the age of 24 years for women and declines considerably after the age of 35 years [10]. The other studies have also revealed that the age group of 20-29 years as the most vulnerable age group for female infertility, and more than half of the total infertility problems in these studies were in this age group, accounting for more than half of the study population [9,11].

Majority of infertility problems is preventable using available techniques. The age effect on fertility is certainly clinically relevant. The effect of woman's age on fertility is well recognized [10]. Indeed, woman's age is one of the two most important factors influencing the probability of conceiving without medical intervention in cases of unexplained subfertility; the other is the duration of trying for pregnancy [11]. The effect of age of males on infertility on the other hand, remains uncertain [10]. In order to check and confirm other social and environmental factors responsible for decrease in fertility the people of the same kind of occupation are grouped together in our study.

Concerning the etiology of infertility, female factors were the major determinants followed by unexplained factors. Among the female factors, polycystic ovary was the major cause followed by hormonal imbalance, hypothyroidism and fallopian tube blockage respectively. For primary subfertility female factors (54%) were more responsible but the male factor (12%) was not negligible. Infertility has multiple dimensions, ranging from biomedical to the social. A study in Iran in 2016 showed that the most common cause of female infertility was ovulation disorders (39.7%), which is consistent with the results of the current study [12]. PCOS is a hereditary condition, in which ovulation fails to occur in more than 90% of cases. In PCOS, levels of hormones including androgens and testosterone increase due to high levels of luteinizing hormone (LH) and low levels of the follicular-stimulating hormone (FSH), so follicles in these individuals are prevented from producing a mature egg. Furthermore, PCOS increases the risk of insulin

resistance, along with type 2 diabetes, which is one of the causes of infertility [13]. One woman out of seven in France will consult a doctor for an infertility problem during her reproductive life and the main causes of female infertility of that study were ovulation disorders (32%) and (26%) tubal damage [14].

A study analyzed that the proportion of different factors in males and females responsible for infertility i.e. ovulation problem, tubal factor, endometriosis, uterine problem in females and azoospermia, low sperm count, decrease motility and abnormal sperm morphology in males [13].

Obesity is one of the factors responsible of primary subfertility. Though obesity is only 2.1% in our study, it is associated with ovulatory and menstrual dysfunction, infertility, increased risk of miscarriage and decreased effectiveness of ART in woman. On the contrary, lower levels of fat lead to irregular menstrual cycles and anovulatory cycle due to inadequate estrogen production [15]. In our study, we observed 54.7% female had irregular menstruation.

The interactions of these factors with primary subfertility are very complex and difficult to understand. This is the reason even today in majority of cases for primary subfertility remains unexplained. In our study, we observed the cause of subfertility remained unexplained in 21(22%) cases out of 95 couples. In another study indicates that the reasons for infertility were unknown in 370 cases out of 1000 cases [16].

This study demonstrated abnormal semen quality (oligospermia and azospermia) in male partners, as the predominant causes for their inability to conceive. A study conducted in Nigeria, which showed oligospermia (25.6%), azospermia (6.2%), asthenozoospermia (11.5%) were the major causes of infertility in Nigerian couples [17]. There was also a regional variation in the prevalence of oligozoospermia and azoospermia in male partners of infertile couples. The similar causes of infertility in males were also identified among Indian couples [18].

The presence of underlying diseases including thyroid disorders (6.5%) was one of the risk factors for primary subfertility in this study. In hypothyroidism, serum thyroxine levels decrease, while serum levels of the thyrotropin-releasing hormone, thyroid stimulating hormone (TSH), and prolactin increase and the resultant hyperprolactinemia leads to ovulation failure [19].

Use of contraceptive for delaying child birth is more common among the professionals and other higher income groups, making this group more vulnerable to the infertility. Stress also is an important factor prevalent in professionals, responsible for infertility [20, 21]. Subfertility is not only a problem of affluent society but also for low socioeconomic group of people. In this study, we found 36.7% couples were within low socioeconomic group. In developing countries, that majority of couples are unable to afford treatment in private sectors. For the treatment of primary subfertility, in our study, only 14% couples went to

Infertility specialist for the 1<sup>st</sup> time. Our observations in this study were the wastage of the valuable time before reaching to Infertility specialist.

The negative consequences of childlessness are experienced to a greater degree in developing countries when compared with Western societies. Also it is one of the major health problems and socially destabilizing condition for couples often causing marital disharmony [22]. In our study, for this issue, only 13.7% husbands were sympathetic to their wives and surprisingly 90.5% of other family members were not at all sympathetic to the female participants.

The problem of infertility can be managed to some extent by avoiding late marriage, baby at right time, healthy life, good and healthy food, junk food avoidance, medication, stress free life, regular exercise. Furthermore, studies of donor insemination, donor oocyte and in vitro fertilization program have demonstrated the important role for the treatment of Infertility [20].

## Conclusion

Subfertility is a serious reproductive health problem for a society, but has a low priority on the political and health agenda of low-resource countries. There are implications for research about infertility, especially in areas like gamete donation and polycystic ovary syndrome, and the need to develop low-cost ART. Alongside, this is the need to increase public awareness of the issues surrounding fertility, for example, through features in magazines, television and radio shows that have significant numbers of Bangladeshi listeners. ART and other expensive treatment facilities should be available in Government sector to treat the underprivileged groups. We can reduce the wastage of valuable time of treatment by timely referral of patients to infertility specialist. An appropriate guideline should be established for the developing countries to prevent inappropriate use of OI.

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