

## A STUDY OF MENSTRUAL PROFILE OF INFERTILE WOMEN

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### ABSTRACT

**Background:** The term hormonal abnormalities of the female reproductive system refers to a wide range of issues brought on by the hypothalamic-pituitary-ovarian axis being dysfunctional. The care of females who appear with infertility and menstruation problems sometimes involves the measurement of reproductive hormones. The purpose of the current study was to identify the endocrinological disorder pattern in females who were being evaluated for infertility and oligo/amenorrhea.

**Aim and Objective:** To study of menstrual profile of infertile women

**Methodology:** All couples visiting the Obstetrics and Gynecology department's out-patient clinic at Santosh Medical College and Hospital, Ghaziabad, were included in the hospital-based prospective observational study. The research was done over the course of 18 months, from January 2019 to June 2020. 172 couples that met the inclusion criteria were enrolled in the study after a total of 193 couples were recruited and investigated, but 11 were lost to follow-up and 10 patients were not fully explored.

**Result:** The primary cause of female infertility among the several contributing factors, accounting for 54.54% of cases, was tubal causes. Tubal factors include a number of diseases such endometriosis, genital tuberculosis, and pelvic inflammatory disease.

**Conclusion:** When compared to secondary infertility, the proportion of primary infertility was higher in our study. Abortion, tubal factors, pelvic inflammatory diseases, and ovulatory dysfunction were the most prevalent causes of female infertility.

**Keywords:** Unexplained infertility, ultrasound, cyst formation, luteal phase defects, gonadotropins, sex steroids

## INTRODUCTION

The opportunity to reproduce is a gift from God to all living things. God made this earth so that all of his living creatures could populate it and flourish therein. A disorder of reproductive health known as infertility affects an estimated 80 million people globally and has a significant influence on their lives [1]. Infertility is the fifth-highest cause of disability among all people under 60 years old in the world, according to the World Health Organization [2]. Inability to conceive after 12 months or longer of regular, unprotected coitus is the clinical definition of infertility [1]. According to demographers, infertility is defined as the failure to conceive a live child after two years of continuous, unprotected sexual activity in a woman of reproductive age (15-49 years) [3]. There are two types of infertility: primary and secondary. Women who have never given birth are said to have primary infertility. There is at least one conception but no subsequent conceptions in secondary infertility.

Fertility is given due attention in all societies. The inability to have children has traditionally been a source of pain, anxiety and shame, flagging the worse consequences to infertile couples. [4] Infertility is one of the main gynecological problems and is defined as failure to conceive after 1 year of normal, unprotected marital relations. It is classified as primary infertility if no previous pregnancy has occurred and secondary infertility if it occurred after one or more pregnancies. 2 Approximately 15 % of couples attempting their first pregnancy face primary infertility and another 10% face secondary infertility. [5,6] Many causes of infertility have been established. Endocrinology studies on female infertility have brought to limelight problems of anovulatory cycle and hyperprolactinemia. Ovulation depends on a number of factors, including complex interactions among hormones secreted from the brain, the pituitary gland and the ovary after reproductive maturity. 1 During the menstrual cycle, the concentrations of hormones change dramatically resulting in ovulation and preparation of the uterus for implantation of the fertilized egg. If this highly orchestrated and tightly controlled sequence of events is interrupted, it may result into infertility or reduced fertility.[7] Measurement of peptide and steroid hormones in serum, play a key role in investigation and treatment of female reproductive problems. [8]5 Proper testing differs broadly according to the clinical picture, physical findings and results of other diagnostic procedures. Generally the most important hormones measured are LH, FSH, Prolactin and a variety of steroid hormones such as Estrogens, Progesterones and Androgens.

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one or more pregnancies. 2 Approximately 15 % of couples attempting their first pregnancy face primary infertility and another 10% face secondary infertility.[10-12] Many causes of infertility have been established.[15-16] Endocrinology studies on female infertility have brought to limelight problems of anovulatory cycle and hyperprolactinemia.

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## MATERIALS AND METHODS

All couples visiting the Obstetrics and Gynecology department's out-patient clinic at Santosh Medical College and Hospital, Ghaziabad, were included in the hospital-based prospective observational study. The research was done over the course of 18 months, from January 2019 to June 2020. 172 couples that met the inclusion criteria were enrolled in the study after a total of 193 couples were recruited and investigated, but 11 were lost to follow-up and 10 patients were not fully explored. A written informed consent was obtained from all the couples after explaining the purpose of the study and assuring them of the confidentiality before recruitment in the study. Approval from the Ethical Committee of the University was taken.

Both the partners were interrogated together. Demographic characteristics of eligible couples like age, religion, socioeconomic status, occupation, literacy level, residence, type of family were recorded on case information sheet. Relevant information regarding marital life of the couple like duration of married life, duration of infertility, history of cohabitation, coital frequency, history of any coital problem and their knowledge of fertile period was recorded.

For women, information regarding their pubertal changes, menstrual history, any symptoms related to endocrine disorders, any milk secretion from breast, infections, any history of instrumentation, history of addiction etc was collected and documented. They were then subjected to complete examination of genital organs. Based on the gravida status of the patient, the couples were grouped into primary infertility and secondary infertility. Primary infertility was defined as inability to achieve pregnancy ever after atleast one year of unprotected intercourse. Secondary infertility referred to cases who have experienced atleast one pregnancy, irrespective of outcome and then after a year of regular sexual life without using any contraceptive measure were unable to bear children.

The data was collected and entered in the Microsoft excel sheet. Tables were made and percentages (frequencies) of various parameters were calculated and subjected to statistical

test using chi-square test, T test wherever applicable. Statistical significance was taken as p value  $\leq 0.05$ .

## RESULTS

**Table 1: Socio-demographic data distribution of IUCD.**

Socio-demographic data distribution of Female		Number n=172 (%)
Age	$\leq 20$ years	11 (06.39%)
	21-30 years	84 (48.83%)
	31-40 years	69 (40.11%)
	$\geq 40$ years	08 (04.65%)
	MEAN $\pm$ SD	27.88 $\pm$ 5.18
Religion	Hindu	104 (60.46%)
	Muslim	58 (33.72%)
	Sikh	7 (04.06%)
	Christian	3 (01.74%)
SES	Lower SES	54 (31.39%)
	Middle SES	55 (31.97%)
	Upper SES	63 (36.62%)
Education	Illiterate	67 (38.95%)
	School	43 (25.00%)
	College	62 (36.04%)
Occupation	Unemployed	74 (43.02%)
	Employed	98 (56.98%)
Type of Family	Nuclear	87 (50.58%)
	Joint	85 (49.41%)
Residence	Urban	99 (57.55%)
	Rural	73 (42.44%)

In Table 1, Majority of the subjects fell in age group 21-30 years (n=84). Mean age was 27.88  $\pm$  5.18 years (range 18-39), 54.20% of patients with primary infertility were in the age group of 21-30 years and 47.69% of patients with secondary infertility were in the age group of 31-40 years. The results were statistically significant for age group  $>40$  years (p-Value=0.02) between the two groups. The majority in the primary infertility group were Hindus (70.09%). In the secondary infertility group the proportion of Hindu and Muslim patients were almost comparable. The association was statistically significant for Hindus and Muslims in primary and secondary infertility group with p Value of 0.001 and 0.002 respectively. The proportion of patients were almost equally distributed (in terms 1/3) in lower, middle and upper socioeconomic class in both the groups. There was no statistically

significant difference in distribution of socioeconomic status in couples with primary and secondary infertility. 42.05% of females with primary infertility had higher education and 55.38% of secondary infertility patients were uneducated. The results were statistically significant for illiterate and higher education class between primary infertility and secondary infertility with p Value of 0.0006 and 0.02 respectively. Majority of patients in primary infertility group (40.18%) and in secondary infertility group (47.69%) were housewives. The difference in the unskilled worker category between the two groups was statistically significant with p-value of 0.03. 71.02% of couples with primary infertility were living in urban areas whereas 64.61% of couples with secondary infertility were residing in rural areas. The p Value was highly significant with respect to residence in both the groups (p-Value = < 0.0001).

**Table 2: Types of infertility.**

Types of infertility	Number (%)
Female Infertility	64 (37.21%)
Male Infertility	56 (32.56%)
Combined Infertility	24 (13.95%)
Unexplained Infertility	28 (16.28%)

Infertility was observed to be 5.1% common in our study. The prevalence of primary infertility and secondary infertility among all cases of infertility was 62.21% and 37.79%, respectively. Female factors made up 37.21 percent of the total cases of infertility studied, male factors 32.56%, combined infertility 13.95%, and unexplained infertility 16.28%.

Unexplained infertility is when there is no known cause for the condition, whereas combined infertility occurs when both male and female factors are causal.

**Table 3: Menstrual history of female partner.**

Menstrual History	Number (%)			p value
	Primary Infertility (n=107)	Secondary Infertility (n=65)	Total (n=172)	
REGULAR	60 (56.7%)	28 (43.7%)	88 (51.16%)	0.09
OLIGOMENORRHEA	23 (21.49%)	06 (9.23%)	29 (16.86%)	0.03
POLYMENORRHEA	06 (5.60%)	07 (10.76%)	13 (7.55%)	0.21
HYPOMENORRHEA	06 (5.60%)	03 (4.61%)	09 (5.23%)	0.77
MENORRHAGIA	08 (7.47%)	13 (20.00%)	21 (12.20%)	0.01
DYSMENORRHEA	02 (1.86%)	03 (4.61%)	05 (2.90%)	0.29
MENOMETRORRHAGIA	02 (1.86%)	05 (7.69%)	07 (4.06%)	0.06

56.07% and 43.07% of couples with primary infertility and secondary infertility respectively had regular menstrual cycles. 21.4% and 7.47% of couples with primary infertility had oligomenorrhea and menorrhagia respectively. 20% and 10.76% of couples with secondary infertility had menorrhagia and polymenorrhea respectively. There was statistically significant association for Oligomenorrhoeic cycles and menorrhagia between the two groups with p Value of 0.03 and 0.01 respectively.

## DISCUSSION

Humans have a natural impulse to procreate. Infertility is a social stigma that can lead to terrible emotional experiences throughout life, including marital discord that ends in divorce. As there is a significant correlation between education and knowledge, the causes of infertility differ by geography, population, and education. Positive health behaviour change requires awareness of risk factors, thus the study was carried out to determine the sociodemographic trends and etiological reasons of infertility that are prevalent locally and to treat accordingly.

In our study, the prevalence of infertility was 5.1%. Improved health seeking behaviour and greater awareness that infertility is a treatable gynaecological problem can both be used to explain the rise in the number of infertile couples visiting infertility clinics. Primary infertility is the type of infertility that is frequently seen in our study. Additional research by Taimoora Al Subhi et al., Kalpana Singh et al., Seyedeh Zahra Masoumi et al., Ifeanyi E. Menuba et al., and Priyanka Sanjay Deshpande et al (27). The majority (62.21%, or 107 couples) of the 172 infertile couples who took part in the study had primary infertility, while the remaining 37.79%, or 65 couples, had secondary infertility. Our study's higher primary infertility prevalence can be attributed to the population's higher literacy rates and the fact that the majority of primary infertility cases are concentrated in urban areas.

Detailed history taken and physical examination of both male and female partner was conducted. Sociodemographic profile as well as history related to the marital life of all eligible couples was studied. Relevant history of female partner included menstrual history, clinical features of endocrine disorders like PCOS, hypothyroidism, hyperprolactinemia etc., features of PID, tuberculosis, history of addiction and any previous injury/ D & E/surgery. Male partner was questioned about any clinical features or previous history of infections, tuberculosis, addiction, coital problems and any history of surgery or trauma. All baseline investigations and special investigations like husband seminal fluid analysis, hormonal evaluation, endometrial biopsy, follicular monitoring and hysterosalpinography.

The mean duration of infertility is  $5.2 \pm 3.08$  years (range 1.2 –14.7). Primary infertility and secondary infertility patients had a mean infertility duration of  $4 \pm 2.12$  years (range) and  $6.4 \pm 3.64$  years (range) (p value <0.0001). Apart for mean duration of infertility, other factors related to marital life that were analysed included mean coital frequency in infertile couples of  $3.5 \pm 2.1$  years (primary infertility vs secondary infertility being  $4.5 \pm 1.9$  vs  $3.3 \pm 2.3$

times/ week) (p value 0.05), coital problems between the two groups (p value 0.02) and knowledge of ovulatory window between the two groups (p value 0.11).

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To conclude our study observed that primary infertility is more prevalent than secondary infertility. Female infertility contributes the most to the aetiology of infertility but there is increase in the prevalence male factor reflecting changing trends in the aetiology and changing attitude, better understanding and improved awareness of the society encouraging investigation of both the partners. Among women tubal factors and PCOS are the common causes while in men oligospermia is the commonest semen abnormality.

## CONCLUSION

Reproductive health is a global health issue which has a high prevalence. The inability to have children affects couples worldwide and causes emotional and psychosocial distress in both men and women. Many factors like physiological, genetic, environmental and social contribute to infertility. Global, regional and national estimates of prevalence of and trends in infertility are needed to target prevention and treatment efforts. According to WHO, infertility resulting from sexually transmitted diseases or reproductive tract infections are predominant cause in developing nations.

In our study the proportion of primary infertility was more as compared to the secondary infertility. The commonest causes of female infertility were pelvic inflammatory diseases, tubal factors, abortion, and ovulatory dysfunction. Most of them are all preventable causes. This indicates that the management of infections affecting the reproductive organs and abortion requires attention. Oligospermia were the commonest causes of male-related infertility.

Overall, infertility is not only a personal issue rather a matter of generation. Therefore, health policymakers and the governments should focus on the provision and advancement of infertility clinics and prevention and management of reproductive tract infection and abortion. Unexplained causes of infertility were also reported, this signals to advance our diagnostic modalities. Infertility perplexes the life of especially women, this could be at least vanquished via psychological support.

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