



INFERTILITY AND ITS ASSOCIATED FACTORS IN MARRIED WOMEN OF URBAN AREA- A COMMUNITY BASED STUDY

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ABSTRACT

Introduction: Motherhood is a bliss in women's lives and thus infertility is considered as a social stigma. Infertility can be primary or secondary "Inability to conceive within two years of exposure to pregnancy (i.e.- sexually active, non-contracepting) among women 15 to 49 yr old and secondary infertility as the "Inability to conceive when at least one prior pregnancy has been achieved." As per NFHS-5, 2019-21 prevalence of infertility is 18.7 per 1000 women among those married and currently in union. **Materials And Methods:** A observational study was conducted at area under UHTC, Dr. PDMMC, Amravati, Maharashtra, India, in the married women of age group of 18yrs-45yrs, for the period of 6 months. Predesigned, pretested structured questionnaire and interview and previous clinical records were used as data collection tool. **Results:** In this study, prevalence of primary infertility was 10.88% and secondary infertility was 7.55%. The most common cause of infertility was PCOD 31(37.3%) followed by hypothyroidism 25(30.1%). Problems faced by the women were family and social pressure (73.5%), emotional stress (71.5%) and threat of second marriage (55.2%). **Recommendation:** Obese females were advised on weight reduction through regular exercise and a balanced diet. Both partners were advised to undergo a comprehensive medical investigation to identify any underlying factors contributing for infertility and referred to medical college for further management. The couples were counselled to abstain from substance use.

KEYWORDS : Primary infertility, Secondary infertility, Married women, Urban area, Overweight, PCOD

INTRODUCTION

Motherhood is a bliss in women's lives and thus infertility is considered as a social stigma.¹ Every human being has a right to the enjoyment of the highest attainable standard of physical and mental health. Individuals and couples have the right to decide the number, timing and spacing of their children.² One in six people globally affected by infertility. Infertility can be primary or secondary. Primary infertility is defined as "Inability to conceive within two years of exposure to pregnancy (i.e.- sexually active, non-contracepting) among women 15 to 49 yr old and secondary infertility as the "Inability to conceive when at least one prior pregnancy has been achieved."³ The prevalence of infertility is increasing rapidly, affecting almost one out of every six adult people of reproductive age. The socio-economic status of low- and middle-income countries makes the condition even more complicated.⁴ As per NFHS-5, 2019-21 prevalence of infertility is 18.7 per 1000 women among those married and currently in union.⁵ Furthermore, infertility not only is a medical challenge but also takes a major toll psychologically and financially on the couples.⁶ The WHO ranks infertility in the young population as the fifth highest serious global disability. According to the Maternal Health Task Force 2010, 50 million couples worldwide are infertile. Historically, the main causes of infertility were infections such as gonorrhoea and sexually transmitted diseases, but today, they have been replaced by stress, male factor, etc. and a sizable chunk still needs to be classified as unexplained infertility. Furthermore, the increasing prevalence of medical disorders such as diabetes, hypertension, and hypothyroidism and lifestyle diseases such as obesity and addictions in the young has also shown to contribute to the problem of infertility.⁷ Depressive and anxiety-related symptoms of infertile women are more prominent than those of fertile females.⁸

OBJECTIVES

- 1) To estimate prevalence of infertility among married women in reproductive age group (18-45yrs).
- 2) To study the various causes of infertility.
- 3) To associate various socio-demographic factors with causes of infertility.
- 4) To make them aware about various treatment modalities and facilities available at tertiary care centre for treatment of infertility.

MATERIALS AND METHODS

A observational study was conducted at area under UHTC, Dr. PDMMC, Amravati, Maharashtra, India, in the married women of age group of 18yrs-45yrs, for the period of 6 month from 1st Jan 2024 to 30th June 2024.

Sample size was calculated using Open Epi software version-3.

Considering prevalence of Infertility as 19% from previous study⁹, sample size at 99% C.I and 5% error and 80% power comes out to be 409. Considering the non response rate of 10% which comes out to be 41. The final sample size was 450.

Inclusion Criteria

- All married women in reproductive age group 18-45yrs.
- Women who are willing to participate in the study and have given written consent.

Exclusion Criteria

- Women <18yrs and >45yrs.
- Widowed women.
- Divorced women.
- Women who have not given consent.

Total population served under UHTC was 22,500. Total eligible couples were found to be 950. Random female was interviewed using predesigned structured questionnaire. Old previous clinical records were seen. Complete socio-demographic data of questionnaire included age, caste, religion, education, occupation, socioeconomic status, family type and BMI. Second part of questionnaire included personal history such as age of female at time of marriage, systemic illness, gynaecological illness, addictions, sleep, menstrual history, clinical complaints. Third part of questionnaire included male partner health profile such as education, occupation, addictions, systemic illness. The proposal was approved by Institutional Ethical Committee. Informed written consent of all the participants was taken before the interview. After filling the proforma, all the women were given health education. Obese females were advised on weight reduction through regular exercise and a balanced diet. Both partners were advised to undergo a comprehensive medical investigations to identify any underlying factors contributing for infertility and referred to tertiary care center for further management. The couples were counselled to abstain from substance use.

Data Analysis

Data was entered in excel sheet and analysed by using SPSS software version 16. Percentages and proportions were calculated, Chi square test of significance was applied to show association between socio-demographic variables and infertility. P<0.05 was considered to be statistically significant.

RESULTS

Table No 1: Distribution Of Study Participants As Per Socio-Demographic Factors (n=83)

Socio-Demographic Factors	Frequency (n=83)	Percentage (%)
AGE		
18-22yrs	2	2.40%
23-26yrs	18	21.60%
27-30yrs	20	24%
31-34yrs	29	34.90%
35-38yrs	11	13.5%
39-42yrs	3	3.60%
CASTE		
SC	13	15.80%
ST	10	12%
OBC	51	61.40%
OPEN	9	10.80%
RELIGION		
HINDU	77	92.70%
MUSLIM	3	3.60%
CHRISTIAN	1	1.30%
BUDDHA	2	2.40%
EDUCATION		
PRIMARY	65	78.30%
SECONDARY	14	16.90%
POST-SECONDARY	4	4.80%
OCCUPATION		
HOMEMAKER	79	95.20%
UNSKILLED	2	2.40%
SKILLED	2	2.40%
SOCIO-ECONOMIC CLASS		
UPPER-MIDDLE	6	7.30%
LOWER-MIDDLE	33	39.70%
UPPER-LOWER	44	53%
FAMILY TYPE		
NUCLEAR FAMILY	22	26.50%
JOINT FAMILY	51	6.50%
3 GENERATION FAMILY	10	12%

Table No 1 shows the distribution of infertile women according to socio-demographic factors. Of 83 women, 29(34.9%) women were in the age group of 31-34yrs, 51(61.4%) were from Other Backward Caste (OBC), 77(92.7%) were from Hindu religion, 65(78.3%) were educated upto primary school, 79(95.2%) were homemaker. As per modified Kuppuswamy's socio-economic scale (SES), 44(53%) belong to Upper-Lower socioeconomic class and 51(61.5%) were from Joint family.

Prevalence of Infertility-

Total prevalence of infertility was 18.43% of which prevalence of primary infertility and secondary infertility was 10.88% and 7.55% respectively.

Table No 2: Causes of Infertility (n=83)

	Primary Infertility	Secondary infertility	TOTAL	Chi square test	p value
SYSTEMIC CAUSES OF INFERTILITY					
DIABETES	4(8.30%)	2(5.90%)	6(7.30%)	0.43	0.94
HYPERTENSION	8(16.30%)	6(17.60%)	14(16.90%)		
HYPOTHYROIDISM	13(28.50%)	11(32.40%)	25(30.10%)		
UNAWARE ABOUT DISEASE STATUS	23(46.90%)	15(44.10%)	38(45.70%)		
TOTAL	49	34	83		
GYNAECOLOGICAL CAUSES OF INFERTILITY					
PCOD	24(48.97%)	7(20.80%)	31(37.34%)	17.14	0.0006
UTERINE FIBROIDS	9(18.36%)	1(2.90%)	10(12.10%)		
OTHER	7(14.28%)	7(20.50%)	14(16.86%)		
UNAWARE OF DISEASE STATUS	9(18.39%)	19(55.80%)	28(33.70%)		
TOTAL	49	34	83		

Table No 2 shows causes of Infertility. 25(30.1%) had hypothyroidism. Systemic causes were not found to be statistically significantly

associated with Infertility. 31(37.34%) of women had PCOD. Other gynaecological causes were endometriosis, hormonal disorder, PID, hydrosalpinx. Gynaecological causes were found to be statistically significantly associated with Infertility.

Table No 3: BMI Of Infertility Participants (n=83)

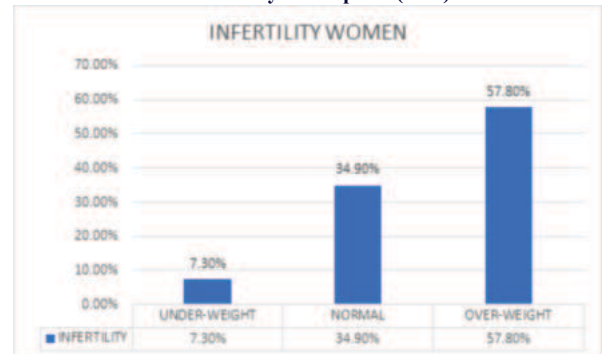


Table No 3 shows BMI of Infertility women. As per WHO classification 48(57.8%) were obese. BMI was not found to be statistically significantly associated with Infertility.

Table No 4: Problems Faced By Individuals Due To Infertility

	Infertility Affecting Quality Of Life	Primary Infertility (49)		Total	Secondary Infertility (34)		Total
		YES	NO		YES	NO	
1	Emotional or Psychological Stress	35 (71.5%)	14 (28.5%)	83	18 (53%)	16 (47%)	83
2	Declined Sexual Satisfaction	27 (55.1%)	22 (44.9%)	83	2 (5.8%)	32 (94.2%)	83
3	Conflicts with Partner	31 (63.2%)	18 (36.8%)	83	11 (32.3%)	23 (67.7%)	83
4	Threat of Second Marriage	27 (55.2%)	22 (44.8%)	83	2 (5.8%)	32 (94.2%)	83
5	Family and Social Pressure	36 (73.5%)	13 (26.5%)	83	18 (53%)	16 (47%)	83

Table No 4 shows problems faced by individuals due to Infertility. Psychological stress and social pressure were most commonly faced by the infertility women.

Table No 5: Systemic causes in Male partner

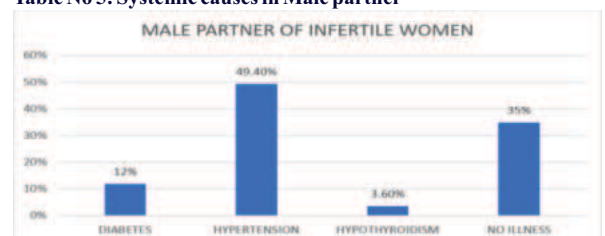


Table No 5 shows Systemic causes of Male partner. 41(49.4%) male partner of infertile women had Hypertension.

Semen analysis was done by 26(53%) of male partners of women diagnosed with primary infertility whereas 8(23.5%) of male partners diagnosed with secondary infertility. Most common causes were oligospermia, azospermia and disorder of motility.

Table No 6: Substance Abuse In The Couples With Infertility

PRIMARY INFERTILITY					
Substance Abuse	YES	NO	TOTAL	Chi square test	P value
FEMALE	15(30.40%)	34(69.60%)	49	52.06	<0.0001
MALE	49(100%)	-	49		
TOTAL	64	34	98		
SECONDARY INFERTILITY					
Substance Abuse	YES	NO	TOTAL	Chi square test	P value
FEMALE	9(26.50%)	25(73.50%)	34	24.05	<0.0001
MALE	30(88.30%)	4(11.70%)	34		
TOTAL	39	29	68		

Table No 6 shows problem of substance abuse in the couple. Substance abuse include chewing tobacco, drinking alcohol and smoking. 15(30.4%) of primary infertile women had substance abuse whereas 49(100%) of male partner of primary infertile women had substance abuse. 9(26.5%) of secondary infertile women had substance abuse whereas 30(88.3%) of male partner of secondary infertile women had substance abuse. Substance abuse was found to be statistically significant with infertility.

DISCUSSION

In this study total prevalence of infertility was found to be 18.43%. As per NFHS-5 (2019-2021) prevalence of infertility was 18.7%.⁵ As per World Health Organization Lifetime prevalence of infertility is estimated to be 17.5%.⁹ In this study the prevalence for primary infertility was 10.88% which was more than the study conducted by Katole A et al. which states the prevalence of primary infertility was 8.9%.¹⁰

In this study 31(37.3%) women had PCOD which was less than the study done by *Deshpande PS et al.* in which 46% of women had PCOD.⁷ In another study conducted by *Bhadkari S et al.* 18.66% of women had PCOD.¹¹

In this study prevalence of Obesity was 48(57.8%) and wasn't significantly associated with infertility. In another similar study conducted by *Katole A et al.* prevalence of obesity came to be 58.8%.¹⁰ and was statistically significantly associated with infertility. In another study conducted by *Kamboj N et al.* prevalence of obesity was found to be lesser than this study which was 46.7%.¹² and was found to be statistically significantly associated with infertility.

In this study psychological stress, conflicts with partner and social pressure were found to be more common in the infertile couple which was similar to a study conducted by *Patel A et al.* which says low spousal support predicts infertility stress. Such women experienced four times greater distress in comparison to women whose husbands supported them in their fertility-related struggles.⁶ In another study conducted by *Katole A et al.* which says Depression and stress were the psychological factors significantly associated with infertility.¹⁰

In this study 25(30.1%) infertile women had Hypothyroidism which was more as compared to a study conducted by *Verma I et al.* in this study 23.9% women had hypothyroidism.¹³ In another study conducted by *Priya DM et al.* 53.7% women had hypothyroidism.¹⁴

No significant association was found between religion, education, occupation, socio-economic status, clinical complaints of women, age of female at the time of marriage, sleep, age of menarche, days of flow, menstrual cycle, BMI.

Main strength of this study is , this is community-based study which fosters easy interaction with women on a personal level. Thinking that infertility isn't openly discussed, it makes comfortable space to discuss. It allows for effective guidance on weight reduction, importance of proper diet and regular exercise which is essential for overall health and wellbeing. Both partners were advised to undergo a comprehensive medical investigation to identify any underlying factor contributing to infertility and referred to tertiary care center for further management. The couples were counselled to abstain from substance use.

CONCLUSION

Total prevalence of infertility was 18.43% of which primary infertility was 10.88% and secondary infertility was 7.55%. Main causes of infertility were obesity 48(54.2%) followed by PCOD 31(37.3%) and hypothyroidism 25(30.1%). Psychological problems faced by the women were family and social pressure (73.5%), emotional stress (71.5%) and threat of second marriage (55.2%). Main cause of infertility in male partner were Hypertension 41(49.4%) and substance use (100% male partner of primary infertile female; 30.4% of primary infertility female, 88.3% male partner of secondary infertile female; 26.5% of secondary infertility female).

This study provides valuable insights of female infertility among the study participants. Both partners were advised to undergo a comprehensive medical investigation to identify any underlying factors contributing for infertility and referred to tertiary care center for further management. The couples were counselled to abstain from substance use.

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Conflicts of Interest: There is No conflicts of interest.

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