Burden of infertility and its associated factors: A cross sectional descriptive analysis of infertility cases reported at a tertiary level hospital of Rajasthan

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Abstract*—In many cultures in India, womanhood is defined through motherhood and infertile women usually carry the blame for the couple inability to conceive. A childless woman is stigmatized and sometimes not allowed to participate in various auspicious ceremonies, particularly those involving childbirth. The present study was undertaken in S.M.S. Medical College, Jaipur, Rajasthan to find out the factors contributing to infertility and the health seeking behavior of infertile women. A hospital based observational study was carried out in year 2017 on eligible women attending OPD of Obstetrics and Gynecology at Mahila Chikitsalaya, S.M.S. Medical College Jaipur. A total 1000 eligible women were recruited using systematic random sampling and interviewed using a predesigned and pretested questionnaire. A total of 119 women (11.9%) were found to be infertile. Age of women, caste, residence, education status of women, occupation, family size and socio-economic status were found to be significantly associated with infertility ($P<0.05$). Lower age of women, OBC caste, urban residence, less family size, lesser education status of women, housewives and middle socio-economic status were found to have significantly more infertile females than their counterparts. Age of women, type of family and religion were not found to be associated with infertility ($P >0.05$). Improving awareness about infertility and its management could help reduce the burden and its social implications.*

Keywords: Infertility, Infertile Women.

I. INTRODUCTION

Basic unit of Indian society is family. Parenthood is considered one of the most important life achievements in the Indian society.[1] It is widely accepted that human existence reaches completeness through a child and fulfills the individual's need for reproduction.[2] Infertility disrupts the basic social structure (Family-building) and there by the domestic and social economic well-being of a couple is not achieved.

Although good documentation of the prevalence of infertility is lacking, it is generally believed that more than 70 million couples suffer from infertility worldwide.[2,3] In India the prevalence of primary infertility was 12.6 percent.[4]

So it is of paramount importance to study this problem of infertility that's why this study was designed to know the burden of infertility in our setup and factors associated with infertility.

II. METHODOLOGY

This cross-sectional hospital based descriptive analysis was carried out in Mahila Chikitsalaya attached to SMS Medical College, Jaipur under Department of Community medicine, SMS Medical College, Jaipur (Rajasthan) India.

Sample size was calculated 682 subjects at 95% confident level and 20% relative allowable error and assuming proportion of infertility 12.6% as per reference article[4] among Gynecology OPD attendees. So for study purpose 1000 OPD patients were included in the study.

For infertile women definition given by WHO was accepted i.e. failure to conceive despite two year of cohabitation and exposure to pregnancy. If the couple has never conceived despite cohabitation and exposure to pregnancy (sexually active, not contraceptive using and non-lactating) for a period of two years called primary infertility.[5]

For this study, all married infertile 21-49 years women living with their spouse for more than one year, not using any contraceptive attending at Mahila Chikitsalaya were included in the study. Among these, women who had not given consent for the study were excluded from the study.

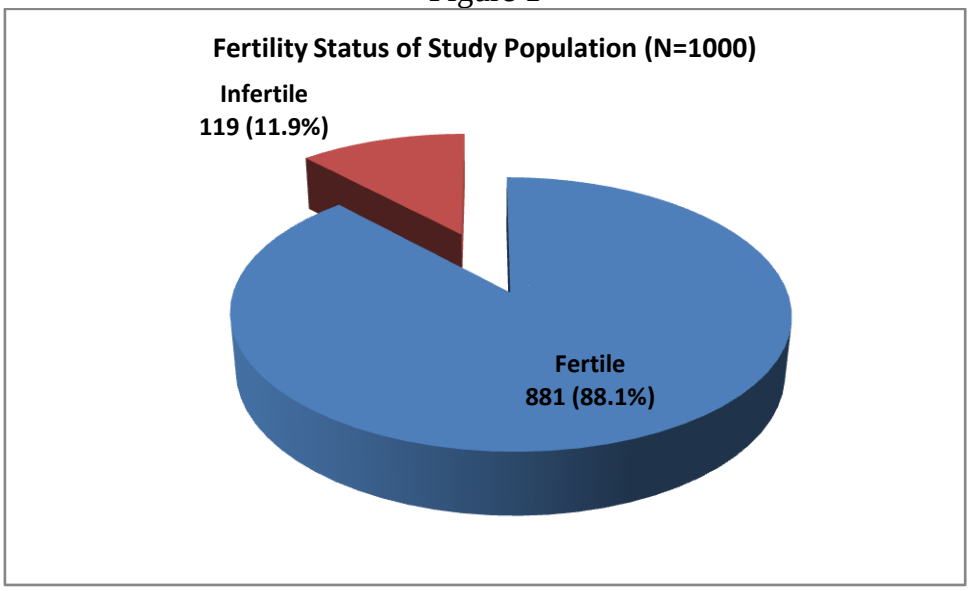
After taking written informed consent from all eligible study participants, detail history and socio-demographic information was taken. All the information thus collected was recorded on a Predesigned, semi-structured study Performa.

Data thus generated was entered in Microsoft Excel 2010 spread sheet & was subjected for analysis.

III. RESULTS

In this study, out of total 1000 women studied, 119 were found to have infertile. So proportion of primary infertility was found 11.9% in total 1000 study subjects. (Figure 1)

Figure 1



Most of the infertile women (56.3%) belong to 20-24 years age group followed by 25-29years (23.5%), 30-34 years (15.1%), 35-39 years (5.1%). Whereas majority of the fertile women (43.6%) belongs to 25-29 years age group followed by 30-34 years (27.5%),20-24years(18.2%),35-39 years(6.9%) ,40 years

and above (3.8%). Mean age of fertile women was 28.19 years with standard deviation of 4.648, mean age of infertile women was 25.10 years with standard deviation of 4.25. This variation in age wise distribution in both the groups was found significant (P<0.001). (Table 1)

Table 1
Comparison of Fertility Status as per bio-socio-demographic variables (N=1000)

Bio-socio-demographic variables		Total		Infertile		Fertile		Chi-square
		No	%	No	%	No	%	P value (LS)
Age Groups (years)	20-24	227	100	67	29.5	160	70.5	88.714 at 4 DF P <0.001 (S)
	25-29	412	100	28	6.8	384	93.2	
	30-34	260	100	18	6.9	242	93.1	
	35-39	67	100	6	8.9	61	91.1	
	40 and above	34	100	0	0	34	100	
Religion	Hindu	517	100	62	12	455	88	1.924 at 2 DF P =0.382 (NS)
	Muslims	469	100	57	12.2	412	87.8	
	Sikhs	14	100	0	0	14	100	
Caste	General	406	100	30	25.2	376	42.7	25.026 at 3 DF P <0.001 (S)
	OBC	187	100	39	32.8	148	16.8	
	ST	93	100	16	13.4	77	8.7	
	SC	314	100	34	28.6	280	31.8	
Residence	Rural	244	100	19	7.8	225	92.2	6.097 at 2 DF P =0.047 (S)
	Urban	447	100	55	12.3	392	87.7	
	Urban slum	309	100	45	14.6	264	85.4	
Type of family	Nuclear	107	100	19	17.8	88	82.2	5.387 at 2 DF P =0.068 (NS)
	Joint	885	100	98	11.1	787	88.9	
	3 generation	8	100	2	25	6	75	
Family size	2-4 Persons	151	100	39	25.8	112	74.2	43.243 at 3 DF P <0.001 (S)
	5-7 Persons	510	100	34	6.7	476	93.3	
	8-10 Persons	237	100	35	14.8	202	85.2	
	> 10 Persons	102	100	11	10.8	91	89.2	
*Socio-economic status	Class I	15	100	4	3.4	11	1.2	40.415 at 4 DF P <0.001 (S)
	Class II	72	100	22	18.5	50	5.7	
	Class III	271	100	42	35.3	229	26	
	Class IV	597	100	46	38.6	551	62.6	
	Class V	45	100	5	4.2	40	4.5	

Modified B.G Prasad socio-economic classification

Maximum women were Hindus in both the group followed by Muslims. It also depict that religion was not found to be associated with fertility (P >0.05). (Table 1) (Table 1)

Majority of infertile women belongs to Other Backward Cast (32.8%) followed by Schedule Cast (28.6%), General (25.2%), schedule tribe (13.4%). Whereas majority of the fertile women (42.7%) belongs to general category followed by Schedule cast (31.8%), Other Backward Caste (16.8%) and Schedule Tribe (8.7%). It was also revealed that this difference in distribution in both the group as per caste was found significant (P<0.001). It was found that OBC had more infertile women than other castes. (Table 1)

Majority (46.2%) of the infertile women residing in urban area (44.5%) followed by urban slum (30.0%), rural residents were (25.5%). Same in fertile women (46.2%) belongs to urban area followed by urban slum (37.8%) and rural area (16%). It also depict that place of resident was found to associated with proportion of infertile women showing that majority of them belongs to urban slum 14.6% followed by urban residents 12.3% and 7.8% in rural area. This difference was found significant (P<0.05). (Table 1)

Most (82.3%) of infertile women belongs to joint family followed by nuclear family (16%), 1.7% were from three generation family. Whereas fertile women (89.3%) were from the joint family followed by nuclear family (10%), three generation family (0.7%). But this variation in both group as per type of family was not found significant (P>0.05%). (Table 1)

Majority (32.8%) of the infertile women had 2-4 members in their family followed by 8 -10 members (29.4%), 5 -7 members (28.6%) and more than 11 members in (9.2%) of infertile women. Fertile women had 5-7 persons (54%) in their family followed by 8-10 persons (23%), 2-4 family members (12.7%) and more than 11 members in (10.3%). It was revealed that this difference in variation of distribution as per family size was found significant (P<0.01). (Table 1)

Majority of infertile women (38.6%) belongs to class IV socioeconomic status followed by class III (35.3%), class II (18.5%), class V (4.2%) and class I (3.4%).Most of the fertile women (62.6%) belongs to class IV Socio-economic status followed by class III (26%), class II (5.7%), class V (4.5%) and class I (1.2%). Socioeconomic status significantly (P<0.001) associated with fertility, proportion of infertile women were found significantly more in middle class. (Table 1)

Education was found to be associated (p<0.001) with proportion of infertile women showing majority of infertile (18%) of the infertile women were illiterate followed by primary education 14.6%, higher secondary 12.4%, secondary 9.8%, middle 8.8%, graduate were 3.8%. (Table 2)

Most (86.6%) of infertile women were housewife and only 13.4% were working women. It depict that occupation was found associated with fertility of the study subjects. Proportion of infertile women were found significantly (P<0.001) more housewives i.e.15.5% and 4.7% were working women. (Table 2)

Table 2
Comparison of Fertility Status as per Education and Occupation status (N=1000)

Bio-socio-demographic variables		Total		Infertile		Fertile		Chi-square
		No	%	No	%	No	%	P value (LS)
Education status	Illiterate	100	100	18	18	82	82	22.577 at 6 DF P <0.001 (S)
	Primary	377	100	55	14.6	322	85.4	
	Middle	239	100	21	8.8	218	91.2	
	Secondary	82	100	8	9.8	74	90.2	
	Higher secondary	97	100	12	12.4	85	87.6	
	Graduate	104	100	4	3.8	100	96.2	
	Post-graduate	1	100	1	100	0	0	
Occupation	Housewife	663	100	103	15.5	560	84.5	23.783 at 1 DF P <0.001 (S)
	Working	337	100	16	4.7	321	95.3	

IV. DISCUSSION

In present study proportion of infertility among OPD attendee was 11.9%. which is well comparable to the WHO estimates on the overall prevalence of primary infertility in India to be between 3.9 and 16.8 per cent.[2] Estimates of infertility vary widely among the Indian states, Sanjitsarkar et al (2016)[6] conducted a study by using the data from the District Level Household and Facility Survey carried out through in India during 2007-08, reported State level prevalence of infertility high in West Bengal (13.9 percent) followed by Goa (13.1 percent), Bihar (12.3 percent), Haryana (11.4 percent), Chhattisgarh (11.3 percent) and low in Meghalaya (2.5 percent) followed by Arunachal Pradesh (3 percent), Himachal Pradesh (5 percent) and Assam (5 percent).

In present study proportion of primary infertility among infertile women was 56.3% in 20-24 years age, followed by 23.5% in 25-29 years age and 15.1% in 30-34 years age which is similar to the findings of Dr. Nitin Lodha et a (2015),[7] Chethana R **(**2016),[8] Paul C. Adamson1 et. al (2011),[4] N Sherrin Sophia et el (2017)[9] study on Couples who were seeking treatment for infertility at Janet Nursing Home. Kalpana Singh et al (2017)[10] conducted a hospital based observational study on 750 women in reproductive age group attending out-patient clinic of Reproductive Biology Department of Indira Gandhi Institute of Medical Sciences (IGIMS) at Patna during April 2013 to March 2017 and reported 68% women had primary infertility and rest had secondary infertility.

In present study among infertile women majority of them belongs to Hindu religion (52.1%), followed by Muslim (47.9%) which is almost similar to the observations made by Paul C. Adamson1 et al[4] Chethana R,[9] Dr Nirmalya Manna et al,[1] Sanjitsarkar et al,[7] DLHS-3 Rajasthan -Muslim (3.9%) than the Hindu (3.8%).[11] N Sherrin Sophia et el (2017)[10] found that 65 % were Hindus.

Among infertile women majority of them belongs to backward cast (32.8%) followed by Schedule caste (28.6%),General (25.2%) and Scheduled Tribe (13.4%) while in DLHS 3 Rajasthan[11] most of the primary infertile women belongs to Schedule tribe(6%) followed by Other backward caste(4.8%), Schedule caste(4.6%) and others(4.5%). Among women belonging to different castes, those belonging to scheduled tribes have a higher infertility rate in both surveys of NFHS-2 and NFHS-3 i.e. 2.56 and 2.25% respectively, compared to those belonging to scheduled caste and others category.[12,13]

In the present study among infertile women most of them lived in urban area 46.2% followed by urban slum 37.8% and 16% in rural area. NFHS 2 and 3 also reported that the infertility rate is higher among women in urban areas compared to women in rural areas. [12,13]

In the present study on infertile women 38.6% of the them belong to class 4 socio economic status followed by class 3 (35.3%), class 2 (18.5%),class 5 (4.2%) and only 3.4% belongs to class 1,as per modified B G Prasad socioeconomic classification. Women belonging to low standard of living have high infertility compared to women belonging to medium and high standard of living. It is 2.28, 1.86 and 1.93% respectively in NFHS-2[12] and 2.17, 1.71 and 1.63% respectively in NFHS-3[13].,DLHS-3 Rajasthan childless women from household in the lowest wealth quintile (4.8 percent).[11] Pranabika Mahanta(2016)[14] reported that Primary infertility was most prevalent in middle income group (37.12%), which also support the observations of present study.

In infertile women most of them (46.2%) studies up to primary class followed by middle standard (17.7%), illiterate (15.1%), higher secondary (10.1%), secondary class (6.7%), graduate (3.4%), post graduate (0.8%) in present study found with significant variation. In contrast to this DLHS-3 Rajasthan reported - less than 5 years of education (5.1 percent).[11]

In the present study among infertile women most of them 86.6% were housewife and 13.4% were working women. Similar results found in study done by Paul C. Adamson1 at al (2011)[4] reported that primary occupation of the infertile women was to be housewife (74.9%).

V. CONCLUSION

It can be concluded that proportion of infertile women were 11.9%. Age of women, caste, residence, education status of women, occupation, family size and socio-economic status were found to be significantly associated with infertility. Lower age of women, OBC caste, urban residence, less family

size, lesser education status of women, housewives and middle socio-economic status were found to have significantly more infertile females than their counterparts. Age of women, type of family and religion were not found to be associated with infertility. Improving awareness about infertility and its management could help reduce the burden and its social implications.

CONFLICT OF INTEREST

None declared till now.

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