"A community based study on Infertility and associated socio-demographic factors in West Bengal, India"

Dr Nirmalya Manna[1,] Dr Dipanwita Pandit[1,] Dr Raja Bhattacharya[2]
Dr Soumi Biswas[1]

[1]Department of Community Medicine, Medical College, Kolkata, India
[2]Department of General Medicine, Medical College, Kolkata, India

Abstract: *India the world's second most populous country, which has struggled to control its population so as to meet growth and development targets, now has to battle infertility, as the down-payment for economic uplift. The objectives of the present study were to know the prevalence of infertility in a rural community, to assess different risk factors associated with infertility and also to find out the health care seeking behaviour of the study population. This cross sectional study was done among 191 couples selected by systematic sampling. A pre-designed pre-tested proforma was used for collection of data. Statistically significant association of infertility with age, education, socio economic status, family type, prior family planning method, menstrual abnormalities, gynaecological abnormalities were found. Regarding health care seeking behaviour it was found that most of the study population preferred private sector for treatment of infertility.*
Key Words: *Infertility, rural community, health care seeking behaviour*

I.   Introduction

World Health Organization explains primary infertility as inefficiency to conceive after a year of unprotected sex and secondary if not conceived following previous pregnancy. Biological and social factors including stress due to economic status, religious attitudes, age of marriage, urbanization leading to modernization, higher literacy, contraceptive usage and nuclear families play a significant role in lowering fertility. [1]Parenthood is considered one of the most important life achievements in the Indian society. The value of fertility, and the ignorance about infertility, is such that it is not uncommon to find a male with multiple wives, simply because he has been unable to obtain child from the previous wife.[2] The importance of infertility as a public health problem affecting the individual and the family's mental and social wellbeing has resulted in its inclusion in the national program for reproductive and child health.[3]According to WHO, the national prevalence of primary and secondary infertility in India is 3 % and 8 % respectively.[4,5] .NFHS-II estimates that 3.8 % of women between the ages of 40 and 44 years have not had any children.[6]According to NFHS-III 2% of currently married women age 45-49 have never given birth. This suggests that primary infertility is low in India.[7] Keeping this background in mind the present study was undertaken in Sonarpur block with the following objectives:

1. To study the prevalence of infertility in a rural community in Sonarpur block South 24 Parganas of West Bengal.
2. To assess different risk factors associated with infertility.
3. To find out the health care seeking behaviour of the study population.

II.   Methodology

An observational cross sectional study was performed between September 2012 to August 2013 in Sonarpur block. From twenty three sub-centres of Sonarpur Block ≥50% was selected randomly (i.e. 12 Sub-centres). Again ≥50% villages (27 Villages) from those sub-centres were selected by simple random sampling. Study population was all eligible couple of those villages. After taking Administrative approval from respective authorities, infertile couples were interviewed by using predesigned- pretested semi structured-schedule. Couples were included in the study after taking informed verbal consent. List of eligible couple was made with help of the house hold list available at sub-centre. During house to house visit a list of infertile couple was prepared. During study total 8,865 eligible couples are found and interrogated for infertility. Data was collected by systematic consecutive sampling technique. Total 197 couples were interviewed. Due to incompleteness of response by 6 couples, finally 191 schedules were used for analysis. Data was tabulated in Microsoft Excel 2010 spread sheet & analysed by appropriate statistical methods in SPSS 16 software. Discrete data was analysed using Pearson's Chi-square test for normal distribution, values<0.05 were considered significant.

III.   Results

In the study it was found that 191(2.15%) couple were infertile, out of them 9(0.11%) had been suffering from secondary infertility and 182(2.04%) were primarily infertile. Maximum number of infertile women i.e. 108(56.54%) were in the age group of 25-34 years whereas no infertile woman belongs to ≥45 years. Maximum number of infertile male i.e.85 (44.50%) belonged to the same age group and only 5.76 % belonged to ≥45 years. About 20% infertile couples were illiterate while 4.19% male and 2.62% female acquired graduate degree. About 75.39% women were house wives and 46.60% men were labour and 12.57% men had service. 82.20% couple were from Hindu community and rest 17.80% belonged to Muslim community. About 56% infertile couple had never used any kind of family planning method so far. Among FP users, OCP users were maximum (22%) followed by condom (18.85%) and natural methods were adopted by 3% couples. About1.05% presently infertile women are having child from their previous marriage. Majority of women (78.53%) do not have any kind of menstrual abnormality. Statistically significant relationship was found between medical problem and presence of family history, obesity and addiction. About 21.46% women had different kinds of menstrual abnormality, out of which a large proportion had oligomenorrhoea and hypomenorrhoea or both (14%). Maximum (64%) number of women suffered from PID followed by PCOD (19%). About 61% women have done USG followed by hormonal assay (26%) and HSG (11.80%). Out of 191 infertile couples 111 (58.12%) were evaluated for infertility. Among them, 89(46.60%) couples showed abnormality. 43% had PCOD, 29% had endocrinal abnormalities, 11% had tubal block, and 6% had tubo-ovarian mass. Maximum women (57%) received ovulation induction therapy and 24% received hormonal treatment for PCOD, it is also noticeable that 2% women have gone through IVF. 71.72 % of infertile men received treatment till date. Among them 60% infertile men received general treatment and 31% men had treated for hypogonadism. It is noted that none had gone for ART. 96.33% of infertile women have discussed their problem with friend or relative and 88.48% have visited healthcare facilities and only 59.68% were accompanied by their husband. Whereas 75.91% infertile men have discussed the matter with their friend or relative and 73.29% were ever visited any type of health facility and their presence during their partner's visit only 59.68%. 137 (71.73%) infertile male have gone through semen analysis and out of those 137 male 56 (40.87%) have shown some kind of abnormalities. About 32.85% having abnormal count,10.95% having abnormal volume, 5.11% abnormal morphology,6.57% having abnormal motility and1.46% having low fructose content. About 27.23% infertile women had followed up their treatment reasonably whereas only 18.32% men follow up the treatment.

IV.   Discussion

In the present study, an effort has been made to find out common factors responsible for infertility. Prevalence of infertility was 2.15 % of which 2.04% of study population were primarily infertile and 0.11% were secondarily infertile which has agreement with WHO report[5] but much lower than a study done at Kanyakumari District.[8]Itmay be due to difference in the study setting. A woman reaches her maximum fertility potential at the age of 30.[9] It has been observed that most infertile female (56.54%) as well as male (44.50%) are belong to age group of 25-34 years, which is quite young age and if proper services aimed to evaluation and management for infertility can be provided, a positive and fruitful result can be expected. Maximum women had 1- 5 years of infertility duration but Sumita and Ranjit reported that 57.5% were infertile for 2 - 5 years.[9] Mokhtar *et al* reported more infertility in rural areas.[10] In India, women with high school education and above have markedly higher infertility rate than the less educated.[11] In present study, it has also found that quite a high parentage of women (19.90%) and men(20.94%) are illiterate. The chance of association of any occupational hazard or strenuous work, need a further evaluation. It has found that 56% infertile couple had never used any kind of family planning method in their lifetime. Who used FP, OCP users are maximum (22%).Use of IUDs have consequences to subsequent infertility but in our study population IUD user is nil. Present study showed 21.46% women had different kinds of menstrual abnormality, out of which a large proportion having oligomenorrhoea & hypomenorrhoea or both (14%). According to current concept oligomenorrhoea & hypomenorrhoea have positive association with infertility. In a study at Kanyakumari, menstrual irregularity was reported among infertile females in the three study areas (40%, 44.85%, 44.11% respectively) and was positively correlated with female infertility ($P < 0.01$).[8] A large proportion women (45.02 %) have suffered from different kinds of gynaecological abnormalities. Out of those maximum (64%) number of women have suffered from PID, next is 19% from PCOD. It is known that the risk for infertility after a single bout of PID is surprisingly high and increases rapidly with subsequent episodes and in general tubal pathology constitute 30-40% causes of infertility according to Novak. Frank found that women with PCOD were concomitant with increased risk of infertility. [12] Which is true in the present study where PCOD was the major cause for infertility. PCOD is the most common cause of anovulation among infertile women. In present study total 83% female were suffer from these two conditions, which are quite possible to treat and with a good outcome. In present study, 7.85% of women have positive family history of infertility among first degree relatives on the other hand 4.18% infertile men have positive family history of infertility. The incidence of

infertility among women with a positive infertility family history among mothers and sisters was 24% and 32%, respectively. [10] The study shows 30.89% infertile women have overweight and 6.28% infertile women are underweight. There are several excellent reason for recommending weight loss among overweight infertile women. In a study of 67 overweight women who had a mean weight loss of 10.2 Kg/ Metre^2, spontaneous ovulation and pregnancy in 90% and 30% respectively (Novak).It is good to observe that 96.33% of infertile women have discussed their problem with friend or relative and 88.48% have visited health care facilities and only 59.68% were accompanied by their husband. Whereas 75.91% infertile men have discussed the matter with their friend or relative and 73.29% were ever visited any type of health facility and their presence during their partner's visit only 59.68%. Though the overall atmosphere is friendly, even then the utilisation of health care facility by male counterpart is less. Regarding the utilisation of health care facilities, 21.47% women and men have visited Govt Primary facility.54.45% women and 48.17% men have visited private allopath facility. Usage rate of quack are 17.28% and 7.85% in case of women and men respectively. It has reflected that the attendance at Government secondary and tertiary level is significantly less, due to many reasons like unawareness about continuous follow-up as well as prolonged waiting time and delay in service delivery in these set-ups.

V.   Conclusion

Infertility is a medical as well social problem, the couple and the family suffer at the same time- silently. The matter is not discussed openly also there is no proper knowledge and awareness about it. Some people thing it is due to result of some past vices and some of them practice various unscientific methods and rituals to overcome the problem. In our present study, we found that knowledge about infertility is flimsy across communities as well as among health service provider. Only a few couple reached up-to tertiary level of health care. In our study population around 20% of both women & men are illiterate; therefore the first barrier towards motivating the couples accessing health care services is low general education. Evaluation procedures & treatment for infertility are mostly available at tertiary level of health care system. Private facilities for the same purpose are too costly. A significant percentage of male partners didn't go for treatment & follow-up, though they have abnormal semen analysis report. This may be a reflection of male dominated society trying to stigmatise the female. There is need of awareness generation among couples through grass root level health worker who themselves need training and sensitization. It is worth mentioning that during our study period we counselled the couples and guided them to attend gynaecological OPD at Kolkata Medical College. Some of them responded positively, which resulted in three pregnancies, carried successfully.

Acknowledgements

VII. Tables and Charts

Fig1: Pie diagram showing distribution of the study population according to type of infertility (n=191)
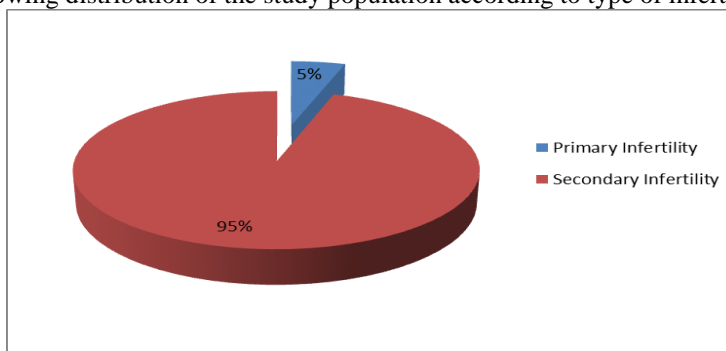

Table 1: Distribution of the study population according to socio demographic variables and infertility evaluation (n=191)

Socio demographic variables	Infertility evaluation done (n=111)	Infertility evaluation not done (n=80)	Significance
Age Male 15-24 25-34 35-44 ≥45	10 50 50 1	8 35 17 10	P< 0.001
Female 15-24 25-34 35-44	30 73 8	31 35 14	P<0.05
Education Male Literate Illiterate Female Literate Illiterate	98 13 70 41	41 39 27 53 59	P< 0.005 P< 0.001
Socio economic status APL(Rs>781) BPL(Rs≤781)	103 08	21	P< 0.001
Family Nuclear Joint	102 9	30 50	P< 0.001
Prior family planning method used Yes No	31 80	53 27	P< 0.001
Menstrual abnormality Present Absent	32 21	9 129	P< 0.001
Gynaecological abnormality Present Absent	62 49	24 56	P< 0.001

Table 2: Distribution of Infertile couples according to Health Care Seeking Behaviour (n=191)

		Male Number (%)	Female Number (%)
Government	Primary	41(21.47)	41(21.47)
	Secondary	5 (2.62)	8(4.19)
	Tertiary	7(3.66)	10(5.23)
Private	Allopath	92(48.17)	104(54.45)
	Super speciality	4(2.09)	5(2.62)
	AYUSH	7(3.66)	11(5.76)
	Quack	15(7.85)	33(17.28)

Table 3: Distribution of the study population according to morbidities (n=191)*

		Decreased libido	23(12.04)

		Erectile dysfunction	18(9.42)
Male	Urological history	Epididymis	16(8.38)
		Hydrocoele	5(2.62)
		Pelvic inflammatory disease	123(64.01)
Female	Gynaecological history	PCOD	37(19.02)
		Retroverted uterus	22(11.1)
		Vulval ulcer	6(3.02)

*Multiple responses

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