ORIGINAL ARTICLE

Prevalence and Psychosocial Consequences of Infertility among Rural Residents of Vijayapur Area of Karnataka

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Abstract:

Background: Infertility is a public health problem affecting around 8-10% of the couple worldwide. It has an impact on their physical, mental and social well-being. *Aim and Objectives:* To determine the prevalence and to assess the psychosocial consequences of infertility among rural residents of Vijayapur area of Karnataka. *Material and Methods:* A cross sectional study was conducted in the rural field practice area between March 2015 - February 2016. Complete enumeration of all the houses was done to list all eligible couples and those who were exposed to risk of pregnancy and had infertility were identified. A validated "Fertility problem inventory scale" was used to assess the psychosocial consequences of infertility and impact was seen at four levels i.e., personal, sexual, social, marital. *Results:* A total of 106 participants were included. The prevalence of infertility was 7.6%. Conflict within the marriage was highest (mean scores 60.3), followed by decline in sexual relationship (mean scores 55.9), personal impact (mean scores 44.3) and social impact (mean scores 38.8).*Conclusion:* The results revealed that the couples have poor well-being on all the dimensions. There is need of awareness generation and counselling.

Keywords: Infertility, Prevalence, Psychosocial Consequences, Rural habitations

Introduction:

Infertility affects people worldwide from all the communities and it has an impact on their physical, mental and social well-being [1]. The epidemiological definition (for monitoring and surveillance) put forth by World Health Organisation is "women of reproductive age group (15-49 years) at risk of becoming pregnant (non-pregnant, sexually active, not using any contraception and not lactating) who report trying unsuccessfully for a pregnancy for two years or more" [2] whereas, clinical definition of infertility is after one year.

Being a global health issue, infertility affects 8-10% of the couples worldwide and is ranked the 5th highest global disability among the population under the age of 60. The prevalence among 25-49 years is 3.9% and age standardised to 15-49 years it is 16.8% A systematic analysis from 1990-2010 showed the prevalence of infertility in Karnataka to be 5.8%, Uttar Pradesh, Himachal Pradesh and Maharashtra to be 3.7% and Andhra Pradesh 5% [3].

The infertility pattern and trends indicate that there is increase in prevalence of infertility in India as reported in the 1981 census of India infertility prevalence ranged from 4-6%[4] and according to the WHO estimates the overall prevalence of primary infertility in India varied between 3.9 to 16.8% and secondary infertility around 8% [5]. NFHS 3, (2008) survey showed approximately 4% of the Indian women were infertile of which about 1.8% live in rural India

and most of the women belonged to a lower socio-economic status [6]. According to DLHS survey Karnataka, women who had primary and secondary infertility constituted 5.9% and 1.7 % respectively of ever married women between 15-49 years. Infertility in rural area was 6.1% as compared to urban area which was 5.5% [7].

Various psychosocial consequences affecting infertility are lowered self-esteem, decline in marital and sexual relationship, social conflict and depression [8]. Especially in developing countries like India it ranges from economic hardship to social isolation, violence and denial of proper death rites [9]. Couples stop attending family celebrations, such as baby showers, religious functions, where other family members may bring their children with them [10].

In India newly married girls are given blessings by the elderly to have children and infertile women feel highly stigmatised and even these women undergo domestic violence perpetrated by their husbands or in laws [11].

Another consequence of infertility is loss of physical health along with mental health. The couple may spend more time in the infertility clinic for tests and treatment. Although they are not really sick, they may begin to identify with the sick role and begin to feel that their physical health is compromised [12].

Infertility is thus an "ice berg" phenomenon where the majority of the couples are undiagnosed and they suffer from easily treatable conditions but most of them don't seek treatment. Various socio-cultural practices like believing infertility as a curse, seeking healing from super natural powers is still predominant in the community.

In south Asian regions and in other developing countries infertility has been neglected as a public health problem and the thrust areas in there search have been on the correlates of increased fertility and various methods to regulate it thus neglecting the concept of infertility [6]. Very few high quality community based studies are available and this being the main challenge in estimating the actual burden of infertility and also the varying definitions used in the studies available. Hence the present study was undertaken to know the prevalence of infertility in a rural field practice area of a tertiary care centre.

Material and Methods:

A cross sectional study was conducted in the rural field practice area of Shri B. M. Patil medical college, Hospital and research centre, Vijayapur from April 2015- march 2016.

Sample size:

Complete enumeration of all houses covered under RHTC was done to list all eligible couples residing in the area and those women at risk of pregnancy were identified so as to find out couples with either primary or secondary infertility. Couples without infertility were considered for the denominator to calculate the prevalence of infertility.

Inclusion criteria:

Couples who are residents of the locality (minimum 6 months duration) and all couples where wife is in the age group 15-49 and at risk of pregnancy.

Exclusion criteria:

Those who are seriously ill, not cooperative and not willing to participate in the study.
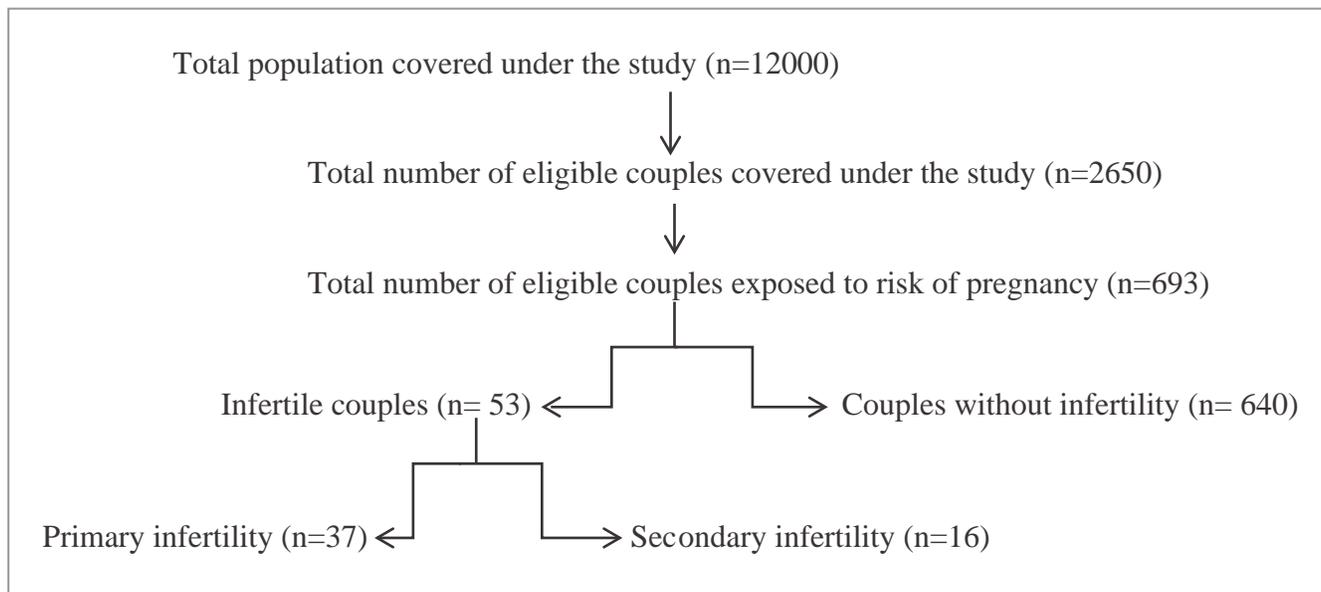
Methodology:

After obtaining ethical clearance from the Institutional Ethics Committee the study was conducted in rural field practice area of Shri B. M.

Patil Medical College, Hospital and Research centre. Medico social workers of RHTC and UHTC, Anganwadi workers and ASHA workers were involved in the study. Objectives were explained to them.

The purpose and overview of the study was explained at the time of the interview, and interviewers were informed that their participation was entirely voluntary, their anonymity would be assured, they could withdraw from the study at any time and the information that they will be providing would be used solely for the purpose of the study. Confidentiality about data and findings were assured to the participants and their consent was taken.

Out of the 1962 houses a total of 1800(91.7%) of the houses were accessed in rural field practice area catering a population of 12000. House to house survey was done covering all the participants coming under the field practice area so as to completely enumerate the eligible couples. Among them, women who were exposed to the risk of pregnancy were considered (as denominator to calculate the prevalence) and couples' with inability to conceive despite cohabitation and exposure to the risk of pregnancy (in the absence of contraception) for two years or more (as per WHO Epidemiological definition) were included and considered to have primary infertility and those with inability to conceive despite cohabitation and exposure to risk of pregnancy (in the absence of contraception, post-partum amenorrhoea) following previous pregnancy for a period of two years or more were considered to have secondary infertility [2]. In depth interview was conducted separately for husband and wife with infertility and the average duration of interview was more than an hour for each participant. Prevalence of infertility was estimated by the WHO epidemiological definition of infertility [13].

Total population covered under the study (n=12000)

Total number of eligible couples covered under the study (n=2650)

Total number of eligible couples exposed to risk of pregnancy (n=693)

Infertile couples (n= 53)   Couples without infertility (n= 640)

Primary infertility (n=37)   Secondary infertility (n=16)

Number of women of reproductive age (15- 49) at risk of becoming pregnant

Who report trying unsuccessfully for a pregnancy for two years or more

——————————————————————————————— X 100

Total number of women of reproductive age **at risk of becoming pregnant**

Where, "at risk of becoming pregnant" is a women who is currently not using any contraceptive methods or non- pregnant or non- lactating.

Prevalence of Secondary Infertility [13]

Number of women of reproductive age (15- 49) at risk of becoming pregnant

Who report trying unsuccessfully for a pregnancy for two years or more

Following   a previous pregnancy

——————————————————————————————— X 100

Total number of women of reproductive age **at risk of becoming pregnant**

Evaluation of psychosocial factors:
Study tool:
A validated "Fertility Problem Inventory scale" [14] was used to assess the psychosocial consequences of the infertile study subjects after pretesting.

It assessed 4 impact areas like personal impact, sexual impact, marital impact and social impact. The original validated English version was translated into local language Kannada by language experts.

Statistical analysis:
Data were tabulated and analysed using the SPSS version 16. The results were expressed in terms of percentages, mean and SD of mean, t test and ANOVA were used to compare the mean scores.

Results:

Prevalence of infertility	= 53/693
	= 7.64%
Prevalence of primary infertility	= 37/693
	= 5.33%
Prevalence of secondary infertility	= 16/693
	= 2.3%

Table 1: Socio-demographic Variables				
Variables		**Males Frequency (%)**	**Females Frequency (%)**	**Total Frequency (%)**
Age	**20-29**	12(23)	35(66)	47(44)
	30-39	24(45)	12(23)	36(34)
	40-49	14(26)	06(11)	20(19)
	≥50	03(6)	0	03(3)
Educational Status	**Illiterate**	22(41)	16(30)	38(36)
	Primary School	07(13)	08(15)	15(14)
	High School	18(34)	15(28)	33(31)
	Pre University College/ Class 12th	03(5.6)	07(13)	10(9)
	Degree	03(5.6)	07(13)	10(9)
Occupation	**Professional**	06(11)	0	06(6)
	Semi-skilled	08(15)	02(4)	10(9)
	Skilled	19(36)	06(11)	25(24)
	Unskilled	20(38)	04(7)	24(23)
	Home-maker	0	41(78)	41(39)
Total		53(100)	53(100)	106(100)

Table 2: Socio-demographic Profile of the Participating Couples				
Variables		**Primary Infertility**	**Secondary Infertility**	**Total**
		Frequency (%)	**Frequency (%)**	**Frequency (%)**
Religion	**Hindu**	34(92)	16(100)	50(94)
	Muslim	03(8)	0	03(6)
Type of Family	**Joint**	23(62)	03(19)	26(49)
	Nuclear	13(35)	09(56)	22(41)
	Three Generation Family	01(3)	04(25)	05(9)
SES	**Class I**	05(13)	01(6)	06(11)
	Class II	06(16)	04(25)	10(19)
	Class III	15(40)	08(50)	23(43)
	Class IV	07(19)	02(12)	09(17)
	Class V	04(11)	01(6)	05(9)
Duration of Infertility	**< 5years**	17(46)	01(6)	18(34)
	5-9 years	14(38)	05(31)	19(36)
	10-20 years	06(16)	09(56)	15(28)
	>20 years	0	01(6)	01(2)
	Total	37(100)	16(100)	53(100)

Table 3: Mean Score Comparison of Psychosocial Consequences between Male and Female Participants					
	Males	**Females**	**p**	**Confidence Interval**	
	Mean ± SD	**Mean ± SD**		**LL**	**UL**
Personal Impact	32.3 ±14.6	51.2 ± 25.4	0.001	-24.9	-12.8
Sexual Impact	46.7±20.3	61.4 ± 29.8	0.003	-22.2	-7.2
Marital Impact	54.6±22.2	67.0 ± 26.8	0.01	-19.6	-5.1
Social Impact	35.2±16.6	44.4 ±21.8	0.01	-14.9	-3.5

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Table 4: Mean Score Difference of Selected Variables using ANOVA test					
Variables		**Personal Impact**	**Sexual Impact**	**Marital Impact**	**Social Impact**
		Mean ± SD	**Mean ± SD**	**Mean ± SD**	**Mean ± SD**
Age Distribution	**20-24**	67.6±19.5	81.0±15.9	82.1±16.6	51.7±17.0
	25-34	43.2±17.7	58.8±24.7	64.8±22.6	39.1±19.2
	35-44	32.6±19.0	44.6±26.1	43.9±20.4	32.7±23.3
	>=45	34.3±22.7	26.3±25.2	41.4±15.0	28.8±18.5
	p	**<0.000**	**<0.000**	**<0.000**	**<0.003**
Type of Family	**Joint**	47.5±22.3	63.3±26.6	65.9±23.8	42.7±22.7
	Nuclear	41.5±23.4	48.8±29.5	56.2±24.7	34.2±18.4
	Three Generation Family	40.4±18.9	49.0±24.9	49.3±25.1	38.9±19.3
	p	0.36	**0.03**	**0.05**	0.14
SES	**Class I**	59.3±23.0	86.8±24.0	68.5±23.2	58.5±20.8
	Class II	44.2±25.7	44.3±29.7	58.0±26.6	34.5±21.9
	Class III	43.7±20.0	54.1±27.5	58.7±23.6	36.4±19.2
	Class IV	41.0±23.5	57.5±22.4	64.5±22.8	41.3±21.4
	Class V	36.8±21.3	50.5±24.2	55.7±33	32.7±16.3
	p	0.17	**<0.000**	0.66	**0.01**
Education	**Illiterate**	36.7±19.4	50.3±28.9	54.4±25.2	30±15.3
	Primary School	45.6±24.9	51.0±29.2	55.7±20.8	16.6±16.6
	High School	40.2±21.8	52.1±25.3	63.6±27.7	20.3±20.3
	PUC/Diploma	58.0±16.1	77.0±24.6	67.1±18.3	58.6±13.8
	Degree	71.2±10.5	76.0±24.7	71.4±20.4	68.4±14.7
	p	**<0.000**	**0.009**	0.2	**<0.000**
Duration of Infertility	**< 5 Years**	54.1±20.1	68.5±20.9	72.4±19.1	43.8±15.1
	5-9 Years	42.1±21.1	56.7±28.2	58.1±25.1	38.4±21.4
	10-20 Years	37.1±23.3	43.5±28.4	50.2±25.3	35.5±24.8
	>20 Years	18.0±14.1	0	33.9±22.5	8.8±3.4
	p	**0.004**	**<0.000**	**0.001**	0.073

The prevalence of infertility was estimated to be 7.6% where primary infertility was 5.3% and secondary infertility was 2.3%. The minimum age of male and female participants in our study was 25 and 20 years respectively and maximum age of male and female participants was 52 and 47 respectively. Majority of the male participants belonged to age group 30-39 and women to 20-29, illiterate men were around 41% and women around 30%, major proportion of the women were home-makers and majority of the men were unskilled workers. Participants belonging to Hindu religion were more in number and around 49% belonged to joint family (Table 1). Forty percent of the primary infertility and 50% of the secondary infertility couples belonged to class III SES according to modified B. G. Prasad classification. Less than 5 years of duration of infertility were among 46% of the primary infertile couple and 56% of the secondary infertile couple had 10- 20 years of infertility (Table 2). The mean scores of all the four impact scales were significantly higher for women when compared to men among which marital impact was highest for both men (54.6±22.2) and women (67± 26.8) followed by mean sexual impact scores (Table 3).

The mean scores were higher for the younger age group and it was found to be highly significant. All the scales showed higher mean scores among the couple belonging to joint family where it was found to be significant for sexual and marital scales. The scores found to be higher among the couples belonging to class I SES and the difference was statistically significant with respect to sexual and social impact scales. Higher mean scores were for couples with higher education and the difference was statistically significant. Couples with <5 years duration of infertility had higher mean scores in all the scales and the difference was found to be statistically significant (Table 4).

Discussion:
The prevalence of infertility in our study is in line with the DLHS 2008 Karnataka report, where it was 7.7% (Rural) [7]. In a study conducted by Mittal *et al.,* at Ambala, Haryana the prevalence of primary infertility was 6.1% and secondary infertility was 5.7% in the field practice area of a tertiary care hospital [15] which is higher compared to our results.

A descriptive study conducted among 500 infertile couple were marital disharmony was found among 28% of the couples which is followed by personal conflict among 27%, sexual conflict among 24% and social isolation was found among 13% of the couple[16] which is similar to our results. Higher marital dissatisfaction could be due to the strong belief among the population that having children stabilizes family and increases marital satisfaction and especially people think about the family status which can be fulfilled especially by childbearing and is considered very important and valuable. Women participants in our study showed higher mean scores in all the scales which is similar to a study done at Pondicherry where females showed increased dissatisfaction in marital and sexual scales compared to their husband [17]. Here childless women stand at a risk of disrespectful treatment and stigmatization especially from relatives of the husband. Hence stigma may be more common among women and also among participants with primary infertility leading to social isolation.

Subjects with primary infertility had higher impact levels when compared to subjects with secondary infertility. The scores were higher for females when compared to males and these results were consistent with the results of the earlier studies.

The scores were inversely proportional to the age group and duration of infertility the reason being

some might have taken some form of treatment or resorted to counselling resulting in decrease in the distress score among them or might have developed some coping mechanisms and might have got relief from the psychological impact of infertility.

The mean scores of different scales by educational level showed that participants with higher education tend to have higher scores and it was found to be statistically significant. Similarly increase in the socio-economic status was significantly associated with the increase in the mean impact scores of personal, sexual and social impact scales. Educated and higher socio economic status people might be more interactive which might have led to more social stigma, personal conflicts and marital disharmony.

Even the psychological distress among the participants in our study was as high as compared to study conducted by Alhassan *et al.* [18] and the mean scores were inversely proportional to the age group and duration of infertility which is similar to our results.

Conclusion:

Infertility affects the couple, not the individual hence the burden is on the family. The findings of the present study revealed that infertile couples have poor well-being on all the dimensions. They have negative feelings, low self-esteem, and low social support. Infertility is not mere medical problem of the affected couples alone but is highly influenced by the social and psychological conditions. It has profound effect on people's lives and psyche.

The matter is not discussed openly, stigma is high and there is no proper knowledge about infertility and fertile period.

Recommendation:

Infertility has emerged as a serious health problem in India. Field based study should be encouraged to know the burden of infertility and its consequences. The provision of health education as an integral part of infertility management into reproductive health care programmes is needed. Female literacy and counselling helps them to overcome the psychological negative feeling towards infertility and brings confidence and it may help them to overcome the stigma. Legal adoptions should be made popular.

References

1. Gillespie Rosemary. Voluntary childlessness in United Kingdom. *Reproductive Health Matters* 1999; 7(13): 43-53.
2. World health Organization. Program on maternal and child health and family planning. Division of family health infertility: a tabulation of available data on prevalence of primary and secondary infertility. Geneva.1991.
3. Mascarenhas MN, Flaxman SR, Boerman T, Vanderpoel S, Stevens GA. National regional and global trends in infertility prevalence since 1990: A systematic analysis of 277 health surveys. *PLoS Med* 2012; 9(12):e1001356.
4. Kumar D. Prevalence of female infertility and its socio economic factors in tribal communities of central India. *Rural and Remote Health* 2007; 7(2): 456.
5. Rutstein SO, Iqbal HS. Infecundity, Infertility and Childlessness in Developing Countries. DHS Comparative Reports No. 9. Calverton, Maryland, USA: ORC Macro and the World Health Organization; 2004.
6. Ganguly S, Unisa S. Trends of Infertility and Childlessness in India: Findings from NFHS Data. *Facts Views Vis Obgyn* 2010; 2(2):131-38.
7. International Institute for Population Sciences (IIPS), 2010. District Level Household and Facility Survey (DLHS-3), 2007-08: India. Karnataka: Mumbai: IIPS.

8. Pasi AL, Hanchate MS, Pasha MA. Fertility and domestic violence: causes, consequence and management in Indian Scenario. *Indmedica Biomed Res* 2006; 22(2): 11-16.

9. Jeejbhoy SJ. Infertility in India-levels, patterns and consequences: Priorities for social science research. *Journal of Family Welfare* 1998; 44(2):15-24.

10. Klock SC. Psychological issues related to infertility. The Global Library of women's medicine. Illinois, Chicago USA. June 2011. Available from. www.glowm.com/section_view/heading.

11. Ram U. Childlessness and its consequences in India: Levels, patterns and differentials. Department of public health and mortality studies. International Institute for Population Sciences.2006 September.

12. Hasanpoor SB. The emotional psychological consequences of infertility among infertile women seeking treatment: Results of a qualitative study. *Iran J Reprod Med* 2014; 12(2):131-138.

13. Reproductive Health Indicators. Guidelines for their generation, interpretation and analysis for global monitoring WHO. Geneva. 2006; Chapter 14: 49-50.

14. Smith JF, Walsh TS, Shindel AW, Turek PS, Wing H, Pasch L *et al.*, Sexual, Marital and social impact of men's perceived infertility diagnosis. *J Sex Med* 2009; 6(9):2505-2515.

15. Mittal A, Yadav S, Yadav Singh S, Bharadwaj A, Kaur R, Singh P *et al.* An epidemiological study of infertility among urban population of Ambala, Haryana. *IJIMS* 2015; 2(4):124-30.

16. Sudha G, Reddy KSN, Reddy KN, Reddy BKC. Emotional distress in infertile couples: A cross cultural study. *Asia-Pacific Journal of Social Sciences* 201; 3(1):90-101.

17. Baraniganth D, Thiyagarajan SN. Role of infertility, emotional intelligence and resilience on marital satisfaction among Indian couples. *IJAP* 2013; 3(3): 31-37.

18. Alhassan A, Ziblim AR, Muntaka S. A survey on depression among infertile women in Ghana. *Bio Med Central Women's Health* 2014; 14:42.

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