

Prevalence of Infertility and Its Socio-Economic Determinants among the Rural Women of Andaman Islands, India.

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Abstract: The study was conducted as an attempt to estimate the prevalence of infertility among the rural women of Andaman Islands. The study was carried out in the villages of three tehsils viz., Diglipur, Mayabunder and Rangat of Andaman Island during the period October 2011 to September 2012. The information on age, religion, occupation, monthly income, menstrual history, marital history and gynecological and medical history was collected by trained field staff using a pretested structured questionnaire. Out of the 8,192 ever-married women surveyed, 171 (2.1% 95%CI 1.8, 2.4) were infertile. The mean age of infertile women was 30.19 (SD±6.02) years and the mean age at menarche was 12.30 (SD±0.92) years. Menstrual problem was higher among the infertile group (57.8%) as compared to the fertile group (8.8%) and the difference was statistically significant ($X^2=455.39$, $p<0.0001$). There was a significant association between age, education, occupation, economic status and age at marriage with infertility. The prevalence of infertility among the rural women of Andaman Islands was found to be low, which could be attributed to a better socioeconomic status and easily accessible healthcare facilities available in these islands.

Keywords: India, Andaman Islands, rural, infertility, socio-economic factors

I. Introduction

Infertility is a global health problem. The World Health Organization (WHO) estimates that about 60 to 80 million couples worldwide currently suffer from infertility. [1] The prevalence of infertility was estimated to be in the range of 4%-6% by the 1981 census of India. [2] Researchers show that infertility in India has risen by 50 per cent since 1981 based on the census reports of India in 2001, 1991 and 1981. Among the Indian states, infertility varies widely from 5% in Andhra Pradesh [3], 6 percent in Maharashtra [4] and 15 per cent in Kashmir. [5] Moreover, the prevalence of infertility not only varies among regions but also across tribes and castes within the same region in India. [6] Infertility is divided into two categories viz., primary and secondary infertility. Definitions of primary infertility differ between studies but as per WHO the operational definition of primary infertility is the "Inability to conceive within two years of exposure to pregnancy in a sexually active, non-contracepting, and non-lactating women 15 to 49 yr old". [7] Secondary infertility refers to the inability to conceive following a previous pregnancy. Andaman and Nicobar islands (92° to 94° East and 6° to 14° North), a Union Territory of India is an archipelago of 555 islands/islets, stretching over 700 kms from north to south, in the Bay of Bengal. The total population of the islands is 3,81,000 (2011 census) including six aboriginal tribes and settlers from mainland India. [8] There is no data available on the prevalence of infertility in the Andaman and Nicobar islands. This study attempted to estimate the prevalence of infertility among the women of Andaman Islands.

The study was approved by the Institutional Ethics Committee of the Regional Medical Research Centre, Port Blair. The study was carried out in the villages of three tehsils of Andaman islands viz., Diglipur, Mayabunder and Rangat during the period October 2011 to September 2012. A cluster sampling method was used where a village was considered as a cluster. All households in the selected villages were surveyed by conducting house to house visit. All the ever married women of the age group 20-59 years were included in the study. All eligible women were informed about the nature and purpose of the study and their consent was sought. Women who consented to participate were interviewed. A total of 8192 ever-married women were thus interviewed. Information on age, religion, occupation, monthly income, menstrual history, marital history and gynecological and medical history was collected using a pretested structured questionnaire by trained field staff. Primary Infertility, in the present study was defined as the inability to conceive a child after two years of regular sexual intercourse, without contraception. Secondary infertility was defined as the inability to conceive a child following previous pregnancy after two years of regular sexual intercourse, without contraception, breastfeeding or postpartum amenorrhea. The proportions of primary and secondary infertility among the study population along with 95% confidence limits were calculated. Such proportions were calculated among various subgroups also. Statistical significance of difference in proportions was tested by X^2 test. Continuous variables were summarized by calculating means and medians. The strengths of association of infertility with potential risk

factors was assessed by calculating Odds Ratio with 95% confidence Interval. The statistical significance of the associations was tested by X^2 test.

Out of the 8,192 ever-married women surveyed, 171(2.1% 95%CI 1.8, 2.4) were infertile. The prevalence of infertility was higher among the women under 30 years than the older age group while majority of the fertile women were above the age of 30 years. Primary infertility was reported by 85(0.6%)and secondary infertility by 86(1.25%) women. The mean age of infertile women was 30.19 (SD±6.02) years and the mean age at menarche was 12.30 (SD±0.92) years. The median duration of infertility was 5 years (range 2 to 30 years).Menstrual problems were the most prevalent gynecological symptomsin both fertile and infertile women. But it was higher among the infertile group (57.8%) as compared to the fertile group (8.8%) and the difference was statistically significant ($X^2=455.39$, $p<0.0001$). Oligomenorrhea was the most common menstrual abnormality reported and it was present in 16.3% of the infertile women and 2.8% of the fertile women. The difference was statistically significant ($X^2=103.0$, $p<0.0001$). Among the women with primary infertility menstrual problems like oligomenorrheawas the most prevalent gynecological symptoms while among secondary infertility persistent vaginal discharge was the most common gynecological symptom present.Only 10% were illiterate among the infertile women and 56% infertile women had a monthly income of more than 5000 per month while 6% of the fertile women were illiterate and 70% fertile women had a monthly income of more than 5000 per month.

Table1 shows the results of bivariate analysis with fertility status as the dependent variable and socio-demographic characteristics as independent variables. Among the socio-demographic variable studied, illiteracy, poor socio-economic status (below poverty line family) and formal employment were found to be risk factors while marriage before 30 years of age was found to be a protective factor.

This is the first report on the prevalence of infertility among the rural women of Andaman Islands and the estimated prevalence (2.1%;95% CI1.8, 2.4)is lower than thenational prevalence estimate of 8% in India[9]and among the population of India 5-15% [4-6] from the studies done in different parts of India. But similar to a study done in West Bengal where prevalence of infertility was 2.15 %.[10]

Good educational status of the women and aneffectivehealth system of the islands might have contributed to better healthcare and hence low infertility rates. We found significant associations between age below 30 years, age at marriage, education,occupation and economic status with infertility. The prevalence of infertility was found to be significantly high among women who were employed.The common method adopted for delaying the pregnancy among these women is the use of oral contraceptives. There is a possibility that prolonged use of oral contraceptives might have contributed to the higher risk of infertility among them. The other common method of contraception practiced by women of the islands is barrier methods. Morbidities associated with oral contraceptives and barrier methods might also have played a role in increasing the risk of infertility in women who delay their first pregnancythrough the use of contraception. Women marrying at early age may have more chances of pregnancy and hence a lower risk of infertility. Women, who are in jobs, generally tend to opt for pregnancyat a later age than unemployed women and this as such might also have contributed to their higher risk of infertility.

This is the first community based study addressing theproblem of infertility among the rural women of Andaman Islands.There was a significant association between age, education,occupation, economic statusand age at marriage with infertility.

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Table 1- SOCIO DEMOGRAPHIC FACTORS RELATED TO FEMALE INFERTILITY (N=8192)

Socio-demographic factors	Fertility status		Odds Ratio (95% CI)	p
	Infertile (n=171)	Fertile (n=8021)		
Age below 30 years	94(54.9%)	3187(39.7%)	1.85(1.4-2.5)	0.000*
Illiterate	17(9.9%)	468(5.8%)	1.78(1.1-2.9)	0.024*
Hindu	112(65.4%)	5733(71.4%)	0.75(0.6-1.0)	0.087
Below poverty line	75(43.8%)	2412(30.0%)	1.81(1.3-2.5)	0.000*
Employed	30(17.5%)	856(10.6%)	1.7(1.2-2.7)	0.004*
Age at menarche < 13 yrs	109(63.7%)	5474(68.2%)	0.81(0.6-1.1)	0.211
Age of marriage <30 yrs	159(92.9%)	7982(99.5%)	0.06(0.03-0.12)	0.000*

*Significant at 5% level.