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Original Research Article

## Study of biosocial factors affecting laparoscopic tubal ligation in rural Maharashtra, India

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### ABSTRACT

**Background:** As compared to vasectomy, Indian women prefer female sterilization as the best mode sterilization. Many socio-demographic factors and gender of living children affects women in deciding laparoscopic tubal ligation. Objective of the study was to assess the biosocial factors affecting of laparoscopic tubal ligation patients in rural area and also to assess average family size and preference for male child before laparoscopic tubal ligation.

**Methods:** A cross-sectional study was done during January to June 2016 in Indian Institute of Medical Science and Research medical College, Badnapur, Jalna, Maharashtra. A total of 549 patients from rural area, underwent laparoscopic tubal ligation were enrolled for the study. Data was analyzed by using percentage and proportion whenever necessary.

**Results:** In this study, mean age of patients undergoing tubal ligation was  $26.37 \pm 3.82$  year. Maximum patients were from 25-29 years age group and among them 45.54% were illiterates. Average family size was  $2.61 \pm 0.66$ . In 51.73% cases, couple themselves motivated for their sterilization. Education of both participant and their husband was significantly related to the total no. of living children. Only 9 patients underwent tubal ligation with only 1 male child, while all other couples had at least one male child in the family.

**Conclusions:** The study reveals that all couples had at least one male child. Education of both participant and their husband was an important factor in deciding the size of family.

**Keywords:** Biosocial factors, Laparoscopic tubal ligation, Rural India

### INTRODUCTION

Family planning allows couple to anticipate and attain their desired no. of children. India is the second most populated developing country in world.<sup>1</sup> The population was 1.23 billion people comprising 624 million males and 587 million females. India will become most populous country by 2025 and surpasses China by 2050.<sup>2</sup> The availability of resources will be depleted if the population rises continuously leading to poverty, environmental degradation etc.<sup>3</sup> Hence population control

is essential by controlling the reproduction, so that the quality of life of people will be improved. Increased uses of contraceptive have been reported in many parts of world mainly in Asia. Government of India has been taking various steps to overcome this problem of population. India was the first nation to formulate a National Family Program in Year 1952, As the population was grown from 361 millions in 1951 to 844 millions in 1991.<sup>4</sup> After implementation of family planning there was declining crude birth rate from 44 per 1000 population in 1951 to 30 in 1991. The crude birth

rate is 19.89%, death rate is 7.35%, and population growth rate was 1.25%. The population policy of Indian Government is implementing family planning and contraceptive service delivery.<sup>4</sup> Later Government recognized the link between population and development, so introduced small family norm and incentives to accepters and motivators. In 2005, Government introduced National Rural Health Mission (NRHM) for uniform implementation of services.<sup>5</sup> Family planning services are temporary methods for spacing of birth as well as limiting births. Knowing the fact that increased no. of male sterilization would provide a great hand in family planning, though it is not popular in any part of country. Two important reasons for this are the dominance of male in decision making of family planning and the social stigma in women which they will faced if there is failure of male sterilization and ending up in pregnancy. It would take many decades to bring this awareness in people. This has made tubal ligation as a permanent method of sterilization either mini laprotomy or laparoscopic sterilization. The complication rates with tubal ligation done with laparoscope are 2.1/100 and with mini laprotomy is 6.2/100.<sup>6</sup> There are many hindrances mainly in rural area. Various studies are done in rural areas to know various causes influencing tubal ligation in women but the factor differ from region to region. So this present study was undertaken to know the factors influencing tubal ligation in various villages in the area of Badnapur, Jalna, Maharashtra, India.

## METHODS

A cross-sectional study was undertaken from January 2016 to June 2016 in a Tertiary Care Center JIU'S Indian Institute of Medical Science and Reasearch Medical College, Badnapur, Jalna, Maharashtra, India. A total of 549 women got admitted during the study period from various villages of Maharashtra and willing for laparoscopic tubal ligation in the Department of Obstretic and Gyanecology constituted the sample study. Detailed information on socio-demographic profile, no. of children, motivators, education status of couple was taken after admission in the ward. The patients were mobilized by the social workers from various villages. This information was used to understand the factors influencing laparoscopic sterilization. All the patients after anesthetic fitness underwent laparoscopic tubal ligation under sedation with local anesthesia.

### Statistical analysis

The data was entered in MS Excel sheet and results were analyzed statistically using percentages, proportions and the chi-square test. Statistical significance was set at  $p < 0.05$ .

## RESULTS

It was seen from Table 1 that the most common age group of the patients in the study belongs to the age

group of 25-29 years constituting 55.74% followed by 20-24 years which constituted 30.60%. Mean age of participant was  $26.37 \pm 3.82$  years. It was observed that 50.27% of the participants had at least 2 children and 37.16% had three children. Mean number of children in the family was  $2.61 \pm 0.66$ . Majority (80.33%) of the woman belongs to the Hindu and 10.38% were Muslim by religion. It was observed that 61.20% of participants belong to joint family and 38.80% to nuclear family. It is seen 45.54% of the patients were illiterate and only 3.83% were educated up to higher secondary. On the contrary, only 18.21% of husbands were illiterate and 16.03% were educated up to higher secondary. 28.60 % of the participants belong to lower class socio economic status.

**Table 1: Biosocial characteristics of the study population.**

Biosocial characteristics	Frequency (n=549)	Percentage
Age in years		
20-24	168	30.60
25-29	306	55.74
30-34	60	10.93
≥35	15	2.73
No. of living children		
1	9	1.64
2	276	50.27
3	204	37.16
4	45	8.20
5 or more	15	2.73
Religion		
Hindu	441	80.33
Muslim	57	10.38
Others	51	9.29
Type of Family		
Joint family	336	61.20
Nuclear Family	213	38.80
Education of Participant		
Illiterate	250	45.54
Primary	105	19.13
Secondary	173	31.51
Higher Secondary	21	3.83
Graduate	0	0.00
Education of Participant's Husband		
Illiterate	100	18.21
Primary	85	15.48
Secondary	235	42.81
Higher Secondary	88	16.03
Graduate	41	7.47
Socio-Economic Status		
Lower Middle class	176	32.06
Upper lower class	216	39.34
Lower Class	157	28.60

It was seen from Table 2 that motivation and decision to undergo tubal ligation was by couple in 51.73% followed by 20.04% by husband. Self decision was taken in 7.65% of the cases. Mother in law motivated in 16.94% of the patients.

**Table 2: Distribution of motivators for laparoscopic tubal ligation.**

Motivation done by	No. of patients (n=549)	Percentage
Self	42	7.65
Husband	110	20.04
Couple	284	51.73
Mother in Law	93	16.94

Others	20	3.64
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As in Table 3, education of the patient was significantly related to with the total number of living children in the family with significant p-value.

As seen from Table 4 that education of husband was significantly related to the total number of living children in the family.

From Table 5, it was found that all the patients underwent tubal ligation after at least one male child and majority 37.7% of the patient had one male and one female child.

**Table 3: Correlation of education of patients and no. of living children.**

Education	≤2 children (n=290)	≥2 children (n=259)	Total (n=549)	Percentage	p-value
Illiterate	100	150	250	45.54	X <sup>2</sup> =30.9265 P<0.0000 Highly significant
Primary	65	40	105	19.13	
Secondary	110	63	173	31.51	
Higher Secondary	15	6	21	3.83	

**Table 4: Correlation of education of husband with no. of living children.**

Education	≤2 children (n=298)	≥2 children (n=251)	Total (n=549)	Percentage	P-value
Illiterate	35	65	100	18.21	X <sup>2</sup> =38.6024 P<0.0000 Highly significant
Primary	35	50	85	15.48	
Secondary	135	100	235	42.81	
Higher Secondary	62	26	88	16.03	
Graduate	31	10	41	7.47	

**Table 5: Distribution of male and female children amongst study population.**

No. of male children	No. of female children	No. of patients (n=549)	Percentage
1	0	9	1.63
0	1 or 2	0	0.00
1	1	207	37.70
2	0	69	12.56
2	1	48	8.74
1	2	156	28.41
≥ 2	≥2	60	10.92

## DISCUSSION

Female sterilization is most common method of contraception in India. As per DLHS-IV (2012-13) Maharashtra State follows 59.4% as female sterilization compared to 1.4% as male sterilization in rural area.<sup>7</sup>

In our study, 55.7% of patients were from age group of 25-29 years comparable to the study in which 44.3% in Vaishav et al and 58.9% in study by Prayag et al and 56%

were in the age group of 30-35 years in study done by Puwar B et al.<sup>8-10</sup> Mean age of patients was 26.37±3.82 years comparable to the study of 24.14 years by Palli et al and 25.9±2.89 years in Prayag et al.<sup>8,11</sup> This shows that Indian rural woman get married at a mean age of at 19.3 years and choose permanent method of contraception at younger age.<sup>7</sup>

In our study, 80.33% were Hindus comparable to the study of Puwar B et al.<sup>10</sup> As per their religious reason Muslim community do not prefer sterilization as they think it is a sin.

Our study revealed that 61.2% were from Joint family indicating in the involvement of family members in favoring permanent method of sterilization as study by Prayag et al which showed elders in the family motivated in 40.7% of patients for permanent sterilization.<sup>9</sup>

Our study revealed that 45.5% of patients were illiterate and 3.8% were studied upto higher secondary which was comparable to study by Puwar B et al which showed 45% illiterate and 5% upto higher secondary respectively and study by Athavale AV et al which mentioned 23% were

illiterate and 66% were educated beyond primary.<sup>10,12</sup> Contrast to the patient's education, only 18.21% of husbands were illiterate and 42.8% were educated up to higher secondary school as comparable to study done by Puwar B et al.<sup>10</sup>

Our study showed 67.94% belonged to lower and upper lower class comparable to the study by Puwar B et al which showed 77% were daily wage workers and 81% belongs to below poverty line study by Prayag et al.<sup>9,10</sup>

On contrast to the study by Rajendra Singh et al showing 85% having three children and our study showed 50.27% were having two living children.<sup>13</sup> Only 2.7% had more than four children comparable to 52.5% and 3.5% in Prayag et al study and 52.2% and 4.14% in Vaishnav et al study respectively.<sup>8,9</sup>

Motivating woman to undergo tubal ligation was influenced by family members, health personals, traditions and customs. In our study, 51.7% of the patient who underwent laparoscopic tubal ligation was motivated by couple themselves and 16.9% by her mother in law which was comparable to study by Prayag et al, which showed 49.4% were motivated by couple themselves.<sup>9</sup>

Thakur N et al study also demonstrates that demographers and programme managers have also found that involvement of couple is necessary than the individual involvement of women or men in achieving the goal.<sup>14</sup> In contrast to our study a study by Geethan Lakshmi et al showed husband decided the sterilization in majority of the patients.<sup>15</sup>

In our study, we observed that education of the patient and their husband was significantly associated with the total no. of living children indicating education place important factor in population control. These results were similar to a study done by Prayag et al.<sup>9</sup>

Son preference in India is a well-documented phenomenon and its implication leads difference sex ratio and female feticide. International center for research on woman (ICRW) analyzed a rural sample of 50136 ever married woman and their surviving children younger than 5 years from a national family health survey in 1992-1993 concluded that mothers gender preference for son for their complete family composition.<sup>16</sup> Our study also showed that all the patients had at least one male child before tubal ligation. Majority of patients had one girl and one male child. Study by Puwar B et al showed 97.24% had one or more male child.<sup>10</sup> Study by Abhishek Singh et al suggests that woman who had only daughters were more likely to regret than woman who had only sons after undergoing sterilization. So many women procreate many children for a male child.<sup>17</sup>

## CONCLUSION

A couple educations are the significant factor in increasing tubal ligation. Mother's education along with the family support is the significant factor in reducing the son preference and increasing the tubal ligation after an average family size. Mass media and health education plays role in spreading the knowledge, awareness of the safety, easiness of surgical procedure and removing myths to enhance vasectomy.

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