

Socio-demographic Factors affecting Female Sterilization Operation among Couples of Ahmedabad City: A Record Based Study

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Abstract:


Introduction: Unplanned pregnancy may be the reason of many neonatal and maternal adverse effects. Many factors have been reported to be associated with acceptance of female sterilization. **Objective:** To identify various socio-demographic factors affecting the decision of choice of Tubal Ligation (TL). **Method:** A record based study was done using data from the register maintained at the Family Planning Unit of Obstetrics and Gynaecology department. Analysis of data of TL operations conducted between April 2018 to March 2019 were performed. **Results:** A total of 675 tubal ligation operations were conducted. The mean age of females undergoing TL was 28.8 ± 3.9 years and their husbands was 33.25 ± 4.38 years. Out of the total, 484(71.1%) couples were Muslims. Total 74(10.8%) females were illiterate and 39(5.8%) males were illiterate. Among 440 (65.1%) couples who had underwent TL had 3 living children. Majority i.e., 518 (76.7%) had the age of their last living child less than 1 month. Ninety one percent of couples had at least one male child. There was a significant relationship of female education with total number of living children. Relationship of total number of living children with religion was also significant statistically. **Conclusion:** The study concludes that female education as well as religious and cultural beliefs plays a major role in deciding the female sterilization.

Key words: Female education, Female sterilization, Religion, Tubal ligation.

Introduction:

Unplanned pregnancy may be a major social and public health issue with adverse effects on neonatal and developmental outcomes and also on maternal health and wellbeing.^[1] In India, the birth control program was implemented in 1952, as a national population policy to regulate the rapid rise of population and reduce poverty. Initially, variety of recent methods were focused and later shifted toward male sterilization, but female sterilization became the prime focus from late 1970. However, the persistent dominance of sterilization in the family

program is largely affected by the socioeconomic conditions.^[2] The use of contraceptive methods among Indian women is related to several factors such as personal, interpersonal, partner related, service related and/or method related.^[3] Various factors like age, education of both the parents, age of the last living child were reported to be associated with acceptance of female sterilization in the population of rural Ahmedabad, Gujarat.^[4] It was also seen that either lack of information or misinformation regarding temporary methods and less opportunity to prefer modern temporary

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methods due to affordability and accessibility issues also affect women's choice of selecting female sterilization in rural parts of India.^[5] One qualitative study from Mumbai showed that from a women perspective, the choice to undergo sterilization makes them effectively control their fertility leading to their improved sexual relationships and emotional health.^[6] However, a major determinant in sterilization was son preference, as it was found that many women preferred sterilization even with two sons than if they had two daughters, especially in states like Gujarat, Punjab, Rajasthan, Uttar Pradesh and Bihar.^[7] Due to scarce data on multiple factors affecting the selection of contraceptive, it is worth to analyse the record based data and use it to identify the various socio-demographic factors affecting the decision of choice of Tubal Ligation (TL).

Objectives:

- To study the socio-demographic profile of various couples undergoing Tubal Ligation
- To correlate the various socio-demographic factors affecting the decision of choice of Tubal Ligation.

Method:

A record based study carried out at the Family planning unit of Obstetrics and Gynaecology, at one of the tertiary care hospital of Ahmedabad city. Data of the Couples undergoing Tubal ligation (TL) operation at the above hospital during the one year period from April 2018 to March 2019 was collected with permission. The data included the variables like education of couple, their age, and number of children, occupation and age of last child, religion, and time of selection of TL.

Results:

A total of 675 couples had opted TL operations at the Family Planning Unit of Obstetrics and Gynaecology Department from April 2018 to March 2019. Out of the total, 486 (72%) couples were Muslim, one was Sikh and rest 188(27.9%) were Hindu. It may be due to majority of the population in the nearby area of the hospital is Muslim. Mean age of

females undergoing TL was 28.8 ± 3.9 years and their husband was 33.25 ± 4.38 years. Maximum age in females was found to be 41 years and in males it was 50 years, while the minimum age found in females was 20 years and in males was 23 years. Most common age group at the time of TL operation among female was of 21-30 years and among males was 31-40 years. Majority(75%) of the female and 65% of the male had completed education up to primary level. (Table 1)

Table 1: Socio-demographic information of couples selecting Tubal Ligation (n=675)

Age group (years)	No. of women (%)	No. of men (%)
11-20	1(0.1)	0(0)
21-30	502(74.4)	246(36.4)
31-40	171(25.3)	403(59.7)
41-50	1(0.1)	26(3.9)
Educational status	No. of women (%)	No. of men (%)
Illiterate	74(10.8)	39(5.8)
Primary education	509(75.5)	441(65.3)
Secondary education	88(13.05)	188(27.9)
Graduate	4(0.6)	7(1)
Religion of couple	No	Percent
Hindu	187	27.7
Muslim	484	71.7
Sikh	1	0.1
Not mentioned in record	3	0.4

The mean number of children in the family was 3.09 ± 0.72 . The mean number of female children was 1.53 ± 1 and the mean number of male children was 1.56 ± 0.8 . There were 92(13.6%) couples without any female child in the family and 59(8.7%) couples without any male child indicating 91% of the couple had at least one male child. Only 15% of the couples underwent permanent method of contraception after 2 living children while majority (65%) of the couples decided it after having 3 living children. Only 1 couple underwent TL operation even if they didn't have any child and the reason for the same was not mentioned in the records.

Majority i.e., 518(76.7%) of the couples preferred the sterilization operation when the age of last living child was less than one month. Out of total 675 couples, the last living child was male in 375(55.6%) and female in 300(44.4%) couples. (Table 2)

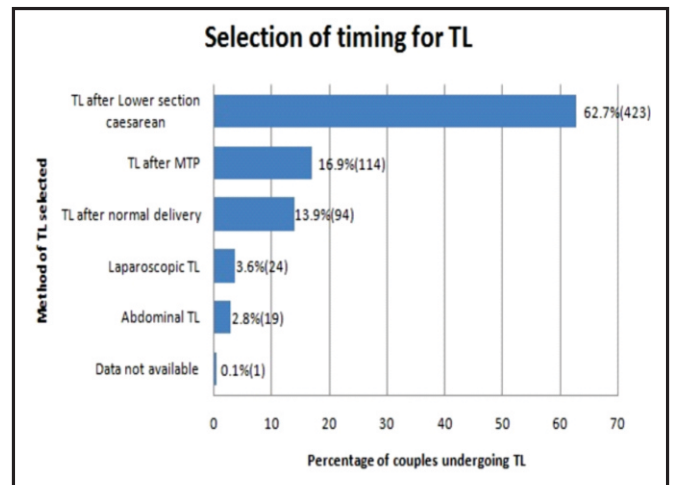
Table 2: Total number of living children, gender and age of last living child in couples at the time of doing Tubal Ligation (n=675)

Number of living children	No. of couples	percentage
0	1	0.1
1	1	0.1
2	101	15
3	440	65.1
More than 3	132	19.7
Number of children	No. of couples (male children)	No. of couples (female children)
0	59(8.7%)	92(13.6%)
1	275(40.7%)	261(38.7%)
2	253(37.5%)	215(31.9%)
More than 2	88(13.1%)	107(15.8%)
Age of last living child	No. of couples	percentage
< 1 month	518	76.7
1 month to 12 months	10	1.5
1 year to 5 years	97	14.4
5 years to 10 years	41	6.1
More than 10 years	9	1.3
Gender of the last living child	No.	percentage
Female	300	44.4
Male	375	55.6

Majority (62.7%) of couples selected TL along with Lower section caesarean, 94(13.9%) of couples preferred TL after normal vaginal delivery while 114(16.9%) females underwent sterilization after Medically Terminated Pregnancy (MTP) procedure. (Figure 1)

Out of 675, 74 (11%) were illiterate and among these 71(96%) had more than 2 children while among literate females, 501(83%) out of 601 had more than 2 children and this difference was also statistically significant(p value 0.003 and Odds Ratio (OR) 4.72). Out of 675 males, 39(5.8%) were illiterate

Figure 1: Selection of timing for TL



and among these couples, 95% were having more than 2 living children. However, male educational status was not significantly associated with the total number of living children in family(p value 0.1134 and Odds Ratio (OR) 3.49). Out of 484 Muslims couples, 429(88%) had more than 2 children while among Hindu couples 139(74%) out of 187 had more than 2 children and this difference was also highly significant(p value 0.0001 and Odds Ratio (OR) 2.69). Gender of last living child whether male or female, was not significantly related to the total number of living children(p value 0.9618 and Odds Ratio (OR) 0.98). Out of a total 675 couples, 59(8.7%) had no male child, and among these couples 53(90%) had more than two living children. However, this association was insignificant(p value 0.3428 and Odds Ratio (OR) 1.65). (Table 3)

Discussion:

The study was conducted at Vadilal Sarabhai General Hospital which is situated in the west zone of Ahmedabad city. The mean age of females undergoing TL was 28 years and their husband was 33 years. Puwar et al., had also reported 28 years as median age in females and 31 years as median age in males.^[4] This shows that couples are choosing permanent method of contraception at a younger age. 74.4% females who underwent TL in our study were in the age group of 21-30 years. While a study by Benjamin et al., reported that 40.1% of female who underwent sterilization operation were in the age group of 30-35

Table 3: Association between socio demographic variable and total living children (n=675)

Variable	Total number of living children		Total	Odds ratio and 95% Confidence Interval	p - value
	More than 2 (%)	Up to 2 (%)			
Female Education					
Illiterate	71(95.95)	3(4.05)	74	4.72 (1.46 to 5.301)	0.0030
Literate	501(83.36)	100(16.64)	601		
Total	572(84.7)	103(15.2)	675		
Male Education					
Illiterate	37(94.8)	2(5.1)	39	3.49 (0.82 to 14.72)	0.1134
Literate	535(84.1)	101(15.8)	636		
Total	572(84.7)	103(15.2)	675		
Religion					
Muslims	429(88.6)	55(11.3)	484	2.69 (1.74 to 4.14)	0.0001
Hindu	139(74.3)	48(25.6)	187		
Total	568(84.6)	103(15.3)	671		
Gender of last living child					
Female	254(84.6)	46(15.3)	300	0.98 (0.64 to 1.51)	0.9618
Male	318(84.8)	57(15.2)	375		
Total	572(84.7)	103(15.2)	675		
At least one male child					
No	53(89.8)	6(10.2)	59	1.65 (0.69 to 3.94)	0.3428
Yes	519(84.2)	97(15.7)	616		
Total	572(84.7)	103(15.2)	675		

years.^[8] We found in our study that 75% females and 65% of males had completed education up to primary level, whereas in a study by Athavale A et al., showed that 23% of women were illiterate, 11% were educated up to primary level and 66% had completed education beyond primary level.^[9] Amongst illiterate females, 96% had more than 2 children in our study. It was seen in an ICMR study by R Baveja et al., that illiterate women in their study had more children compared to literate women.^[10] A significant relationship was seen between female education with number of living children (Odds ratio 4.72 and P

value 0.003) in our study. Education of female was also found significantly related to the total number of children (chi square 22.4, p = 0.001) in a study by Puwar B et al.^[4] This shows that female education play a major role in limiting the family size. Male education had no significant relationship with the number of living children (p value 0.1134) in our study. A study by Palamuleni ME et al., showed that with higher women empowerment the use of long acting contraceptives has increased.^[11] While a study conducted from the data of National Family Health Survey (NFHS) in Uttar Pradesh in 1992– 1993 by

Dwivedi SN et al., showed that whose husband's were literate were more likely to adopt contraception (OR = 1.7, 95% CI : 1.4-2.1).^[12] Thus, improving the educational level may prove beneficial in controlling the population growth. The mean number of children in the family was 3 in our study. Similarly, Puwar B et al., reported 2.84 as the mean number of children.^[4] Out of all, 91% of the couple had at least one male child and 55% of total couples had the last living child as male indicating that having at least one male child in the family before undergoing permanent method of contraception does have an influence. Similarly, Athavale A et al., reported that 89% of the couples had at least one male child.^[9] Puwar B et al., also observed that 98.9% couples had at least one male child in the family before selecting permanent method.^[4] Edmeades J et al., also showed that 29% women did sterilization if they had at least one son.^[13] A good deal of documented research had shown the same results for sex preference.^[7,14-17]

When analyzed, the gender of last living child with the total number of living children, no significant relationship was seen ($P = 0.9618$). Instead, an equal distribution was noted. Also having at least one male child did not show a significant relationship in our study with total number of children ($P = 0.3428$). We also noted that 62% of the couples preferred TL soon after Lower section caesarean delivery and 76% couples preferred TL when the age of their last child was less than a month. Puwar et al., stated that 28% females preferred to undergo sterilization when the age of last living child was less than 1 month.^[4] TL after lower section caesarean delivery makes it a cost-effective strategy. It was also seen that about 16.9% couples did sterilization after undergoing Medically Terminated pregnancy, indicating an unmet need for contraception.

It was seen that out of Muslims couples, 88% had more than 2 children before selecting TL while in Hindus it was 74% of couples who had more than 2 children, this relationship was also found to be highly significant ($P = 0.0001$). A study done by Hayat H et al., in rural Kashmir valley particularly Muslim dominated also showed 17% of couples did not use

contraception due to religious reasons.^[18] In a study by Kansal A et al., they stated that the most common reason for not using contraception was the desire for more children in 21% couples or particularly male child (5.4%) followed by religious reasons also (5.8%).^[19] Similarly in a study by Patra S et al., in 2015, about 9% Muslim women in India do not use contraception due to religious reasons, and non-Muslim women were more likely to use a family planning method in the future than Muslim women,^[20] thus religious and cultural beliefs regarding the family size play a definite role in limiting the size of the family.

Limitations:

This was a record based study so, only the factors mentioned in the records could be studied. More such studies are required having a larger sample size and a population consisting of different ethnic groups and religion.

Conclusion:

In present study, women did sterilization at the age of 28 years after having approximately 3 children. Majority of the families had at least one male child. Education of mother was significantly related to the total number of children, indicating women's role in deciding the time of sterilization. Religion of the couple also showed a significant association with total number of children in the family. Most common time selected for TL was soon after Lower section caesarean delivery and majority of the couples preferred TL when the age of their last child was less than a month. So we would like to recommend to increase literacy among females.

Declaration:

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Conflicts of interest: Nil

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