ORIGINAL ARTICLE
pISSN 0976 3325 | eISSN 2229 6816
Open Access Article
www.njcmindia.org

BEHAVIOURAL AND FERTILITY FACTORS ASSOCIATED WITH ACCEPTANCE OR NON-ACCEPTANCE OF TUBECTOMY

Devidas T Khedkar[1] , Sushil Dalal[2], Jitendra S Bhawalkar[3], Jyoti A Landge[2]

Financial Support: None declared
Conflict of interest: None declared

How to cite this article:
Khedkar DT, Dalal S, Bhawalkar JS, Landge JA. Behavioural and Fertility Factors Associated with Acceptance or Non-Acceptance of Tubectomy. Ntl J Community Med 2016; 7(4):325-330.

Author's Affiliation:
[1]Associate Professor; [2]Assistant Professor; [3]Professor and HOD, Department of Community Medicine, Dr D Y Patil Medical College, Pimpri, Pune

Correspondence:
Dr D T Khedkar
dkhedkar10@gmail.com

Date of Submission: 01-03-16
Date of Acceptance: 15-04-16
Date of Publication: 30-04-16

ABSTRACT

Background: Very rapidly growing current population is one of the major social problems in India. Tubectomy is the most commonly used contraceptive since its introduction in the National Family Planning Programme. Some eligible women accept this method and others do not, this study is trying to probe that.

Objective: The present study was conducted with an objective to study and compare the determinants of differential behaviour and some fertility factors in acceptors and non-acceptors of tubectomy.

Materials and Methods: It's an observational, analytical, case control study; for which data is collected through direct interviews with study subjects by trained staff in structured and pretested proforma. The statistical variables used were means and 'p' Value of Chi square test obtained by subjecting data to 'epi-info' software.

Results: The average number of total living children, sons and daughters per acceptor were found to be 2.29, 1.35 and 0.94 respectively and for non acceptors; they were 2.20, 0.85 and 1.35 respectively.

Conclusions: Highly significant associations were observed between the number of sons and acceptance of tubectomy and the number of daughters and non-acceptance of tubectomy.

Key words: Respondent, Acceptor, Non-acceptor, Eligible couple, Tubectomy.

INTRODUCTION

Very rapidly growing current population is one of the major social problems in India.[1] Its population which was 342 million at independence, has increased to 1210 million in 2011,[2,3] which has gone up to 1311 million contributing to 7.349 billion global population during 2015[4], and also projected to rise up to 1657 million by 2050.[5] India has experienced explosive population growth rate during 1971-2001 and slowly declining thereafter and currently it is about 1.64%. Declining is attributed to improved health status, social development, health services and utilisation of National Family Planning Programme (NFPP). [1,2,6]

The goal of National Population Policy (NPP) 2000 being population stabilisation, some of its objectives are: to reduce Net Reproduction Rate (NRR) to 1, Crude Birth Rate (CBR) to 21, Total Fertility Rate (TFR) to 2.1, which have not been achieved yet. Currently; NRR is 1.2, CBR is 21.8, and TFR is 2.5. [6,7,8,9] The current projection shows that, India will reach replacement level fertility (TFR 2.1) by 2021 and population stabilisation by 2056.[6]

To achieve these objectives, the NFPP provides Tubectomy, Vasectomy, Oral pills, Copper-T and Condoms as contraceptive methods in cafeteria approach for all eligible couples.[1,4] Out of these, tubectomy is unique by virtue of its outstanding

characteristics. It requires a more skilled technique, an authorised operation theatre, longer stay at service centre, longer distance to be travelled to have this facility and relatively more chances of serious complications as compared to vasectomy and other methods of contraception. In spite of these drawbacks, tubectomy is the most commonly used method of contraception,[1,6,9,10,11] because it is one time procedure, requires little follow up, needs no sustained motivation and above all, it is the most effective method of contraception ever known so far. Currently about 97-98% sterilisations are attributed to it. Because of the misconceptions attached to vasectomy amongst eligible people (impotence, decrease in virility), tubectomy overtakes it.[6]

The another important and striking aspect of this method is this that, though there are many eligible women from similar socio-economic strata in almost all communities, each having two or more children and fit for sterilisation operation, why only some are opting for tubectomy and others are not? With this question in mind, the authors decided to study some determinants of this differential behaviour amongst acceptors and non-acceptors of tubectomy and study was undertaken.

MATERIALS AND METHODS

It's a qualitative, observational, analytical, case control study. The headquarter town of Rural Health and Training Centre (RHTC) at Alandi (Devachi) with a population of about 40000, attached to a private medical college (Dr D Y Patil) in Pune district of Maharashtra (India), served as the locale for this study. **The study period** (August 2013-July 2015) was fixed to be two years (in order to have an adequate sample) prior to the **period of inquiry** and the information was collected in two rounds in August 2015 and January 2016. **Key words: Respondent** was a woman currently married, below the age of 45 years and having at least two living children at the time of interview. **The acceptor** was a respondent who had undergone tubectomy during study period. **The non-acceptor** was such a respondent who herself or her husband had not undergone sterilisation operation till the end of period of inquiry and currently not pregnant. **Eligible couple** is a currently married couple wherein the wife's age is between 15 - 45 years.

A list of 142 acceptors, who had undergone tubectomy during study period, was obtained from local government Rural Hospital (RH) and their information was collected in structured; pretested proforma by trained staff of RHTC as Auxiliary Nurse Midwives (ANMs), Medical Social Workers (MSWs) and Medical Interns through direct interviews at their residences or OPD at RHTC. In two rounds as mentioned above, only 130 subjects out of the list of 142 could be contacted and interviewed and they constituted the study group. Similarly, 130 non-acceptors as defined above were randomly selected and information collected in the same proforma, in the same way used for acceptors. This formed the control group. Before interviewing every respondent, the purpose of visit was briefed, co-operation solicited and the information was collected. Thus the information regarding all the factors incorporated in the proforma was collected and statistically analysed. The "P" values of 'Chi-square' test and the Means were obtained using 'epi-info' software to examine the association between various factors studied and acceptance or non-acceptance of tubectomy.

The institutional ethical committee approval was obtained before study and written consent from respondents while collecting data.

RESULTS

Amongst the variables studied, for the ease of presentation and discussion, the dichotomous variables are presented in a single table as below but discussed separately under their respective heads. Remaining variables, though could be dichotomised, are analysed with reference to acceptors and non-acceptors by further stratification.

Table 1 above reveals that, the only variable showing significant association with the acceptance of tubectomy is the joint families.

Table 1: Distribution of respondents according to following dichotomous variables

Variables	Acceptors (n=130)		Non-acceptors (130)		P Value
	Yes (%)	No (%)	Yes (%)	No (%)	
Family: Joint	20 (15.39)	110 (84.61)	8 (6.16)	122 (93.84)	0.028*
Respondents' education: Above Primary	96 (73.84)	34 (26.16)	90 (69.23)	40 (30.77)	0.492
Respondent's age: Above 27 yrs	87 (66.93)	43 (33.07)	75 (57.69)	55 (42.31)	0.159
Age at Marriage: < 18 yrs	57 (43.84)	73 (56.16)	41 (31.54)	89 (68.46)	0.055
Age at First delivery: < 20 yrs	73 (56.16)	57 (43.84)	57 (43.84)	73 (56.16)	0.0623
Total living children: >2	32 (24.62)	98 (75.38)	23 (17.69)	107 (82.31)	0.224

*Significant

Table 2: Distribution of respondents according to the number of sons

Number of sons	Acceptors (n=130) (%)	Non-acceptors (n=130) (%)
Zero	3 (02.31)	42 (32.31)
One	78 (60.00)	65 (50)
Two+	49 (37.69)	23 (17.69)

P <0.0001 Very highly Significant

Table 3: Distribution of respondents according to the number of daughters

Number of daughters	Acceptors (n=130) (%)	Non-acceptors (n=130) (%)
Zero	37 (28.46)	14 (10.77)
One	69 (53.08)	63 (48.46)
Two+	24 (18.46)	53 (40.07)

P <0.0001 Very highly Significant

Table 4: Distribution of respondents according to the duration of married life

Duration of married life	Acceptors (n=130) (%)	Non-acceptors (n=130) (%)
Up to 5 years	10 (7.69)	20 (15.38)
6-10 years	56 (43.08)	72 (55.38)
Above 10 years	64 (49.23)	38 (29.24)

P 0.003 Highly Significant

Illiteracy is found to be negligible (2% - 4.5%) in both the groups' respondents and their husbands. The mean age amongst acceptors being 28.82 years, it is 27.85 in non-acceptors. Average age of marriage amongst acceptors is 17.22 and 17.85 amongst non-acceptors. Mean age at first delivery in acceptors and non-acceptors is 19.17 and 19.93 respectively. Average number of total living children (The TFR) is 2.29 in acceptors, 2.20 in non-acceptors and it is 2.25 amongst the children of all respondents. The average number of sons is 1.35 per acceptor and 0.85 in non-acceptors.

The mean number of daughters per acceptor being 0.94, it is 1.35 in non-acceptors. The sex ratio of living children amongst acceptors is 693, that in non-acceptors; it is 1591 and combined for both the groups; it is 1038. It's the resultant behaviour of respondents towards the sex and number of children they had. A form of NRR amongst acceptors is 0.94, in non-acceptors; it is 1.35 and combined in both the groups; it is 1.15, the NPP objective is to bring it down to unity.

The average duration of married life amongst acceptors being 10.55, it is 8.92 in non-acceptors.

DISCUSSION

Type of Family: From the Table 1 above, it is observed that, the proportions of acceptors and non-acceptors from joint families are 15.39% and 6.16% respectively and remaining 84.61% and 93.84% of the acceptors and non-acceptors respectively belonged to nuclear families. It appears that prevalence of acceptors is more in joint family system than in nuclear families and as the X^2 =4.843 and P=0.028 (<0.05), this difference is statistically significant, suggesting that joint families in this study support acceptance of tubectomy.

Avisek Gupta et al[12] in their study had found that, among contraceptive users, 70% belonged to nuclear family, which is lesser than the present study finding of 84.61%, and could be because of different regions, cultures and study periods.

Respondents' Education: Education is a known determinant of fertility and contraceptive behaviour of the eligible couples. As the illiteracy is 3% in acceptors and 4.5% in non-acceptors, educational status for this study was dichotomised as 'up to primary' and 'above primary' and they were analysed. From the Table 1 above it is observed that, 73.84% of the acceptors and 69.23% of non-acceptors were educated to the level 'above primary' and remaining 26.16% of acceptors and 30.73% of non-acceptors were educated to the level 'primary or were illiterate.' However, this difference is statistically not significant as X^2=0.472 and P=0.492 (> 0.05).

Dutta PK et al[13] in their study conducted on 1123 women undergoing tubectomy during 1987 had found that 39.2% of them had education above primary, 46.7% had primary education and 14.1% were illiterate. In present study, the educational status of acceptors is far better and illiterates are only 3% as against 14.1% of reference study which could be due to region and study period differences. Avisek Gupta et al[11] in their study had found that, illiteracy was 7.5%

Age of Respondent: According to Table 1 above, the proportions of acceptors and non-acceptors with age 28 years and above are 66.93% and 57.69% respectively, whereas remaining 33.07% of acceptors and 42.31% of non-acceptors belong to age group below 28. However, as the X^2 = 2.358 and P=0.159 (> 0.05), this difference between two groups is statistically not significant.

Raj A et al[14] in their study based on National Family Health Survey (NFHS) 3 data, have found that the mean age amongst acceptors to be 38.65 years which is quite higher as compared to present study which is 28.82 years, which could be due to differences in region and study period. Dutta PK et al[12] in their above mentioned study found that, the mean age of acceptors of tubectomy to be 29.1 years which is almost similar to that of present study.

Age at Marriage: The Child Marriage Restraint (Amendment) Act 1978[15] and The Prohibition of Child Marriage Act 2006[16] fix the minimum age of marriage as 18 years for girls and 21 years for boys. The mean age at marriage for girls in India according to Census 2011 was 19.3 years.[17] According to present study; the average ages at marriage amongst acceptors and non-acceptors are 17.22 and 17.85 respectively, which are below the legal age. There are many studies like Parveen A et al,[18] Yogita P Pandya et al,[19] NFHS 3[20] etc. which reveal that, significant number of marriages of girls occur before the legal age of 18. The Table 1 above depicts that, proportions of acceptors and non-acceptors marrying before 18 years of age are 43.84% and 31.54% respectively whereas, 56.16% and 68.46% acceptors and non-acceptors respectively had their marriages at 18 years or later. However this difference is statistically not significant as X^2= 3.685 and P= 0.055 (>0.05).

Raj A et al in their study based on NFHS 3 data, found that 67.2% marriages in rural areas occur before the age of 18 years in girls and this observation is quite higher as compared to present study which could be because of different study periods, cultures and geographical areas.

Parveen A et al[18] in their study based on NFHS 3 data (India and Jammu & Kashmir) have revealed that 44.5% of tubectomy acceptors had their marriages before 18 years of age, which is similar to present study finding. NFHS 4[21] (State Fact Sheet Maharashtra) conducted on 29460 women aged 15-45 during 2015-16 revealed that, the proportion of women aged 20-24, marrying before 18 years of age, which was 39% during NFHS 3 (2005-6) has come down to 25.1%. Present study findings are comparable with that of NFHS 3 but higher than that of NFHS 4.

Age at First Delivery: The minimum age for marriage in girls is fixed at 18 and it is expected that there should be a gap of at least two years between marriage and first delivery, so no first delivery should occur before the age of 20. In this study, the percentages of acceptors and non-acceptors for first delivery below

20 years of age were 56.16 and 43.84 respectively and those for 20 years and above were 43.84 and 56.16 respectively, however this difference is statistically non significant as X^2= 3.462 and P= 0.062 (>0.05).

Above mentioned study by Parveen et al has revealed that, median age at first delivery for India was 19.8 years which is comparable with present study finding of 19.17, but both are adverse from the legal age at marriage point of view. Against this, the median age at first delivery in Jammu and Kashmir is 21.4 years,[18] which is much better and favourable and could be due to cultural practices.

Total living children: According to Table 1 above, the proportions of acceptors and non-acceptors having three or more children were 24.62% and 17.69% respectively and remaining 75.38% and 82.31% acceptors and non-acceptors respectively had two children each (Two Child Norm), with X^2 = 1.867, P = 0.224 (>0.05), the difference between two groups is statistically not significant. Dutta PK et al[13] in their study revealed that, 31.4% of tubectomy acceptors had 2 children each and rest 68.6% had 3 or more. These findings are quite opposite of the present study findings and could be due to differences in regions, cultures and study periods.

The average number of total children per acceptor and non-acceptor in present study were 2.29 and 2.21 respectively. Raj A et al in their study have found that, the average number of children per tubectomy acceptor is 3.09 and according to Dutta et al it is 2.9, both being more than the present study finding. Sachin Mumbare et al[22] in their time series analysis have revealed that, the mean number of total living children per couple at the time of terminal contraception decreased from 3.42 in 1986 to 2.35 in 2012. Their current finding of 2.35 as mean number of total children per acceptor is comparable with the present study finding of 2.29.

Number of Sons: It is observed from Table 2 above that, except three, every acceptor is having at least one son whereas, about one-third (32.31%) of non-acceptors had no sons. Also, proportions of acceptors and non-acceptors with one son respectively were 61.53% and 50%, and having two or more sons were 37.70% and 17.69% respectively. This difference between two groups is statistically very highly significant as X^2_2 = 44.36, P=0.0001. This suggests strong preference for sons amongst the couples. The average number of sons per acceptor is 1.35 and it is 0.85 per non-acceptor.

Ruchi Kalra et al[23] in their qualitative study conducted during 2011-12, found that all of their tubectomy acceptors felt strongly the need of having at least one son for the family progression and care provider to them during the old age and for performing the last cultural rituals at the time of death.

Number of Daughters: Above Table 3 reveals that, proportions of acceptors and non-acceptors having no daughter are 28.46% and 10.77%, having one daughter each are 54.62% and 48.46% and those having two or more daughters each are16.93% and 40.07% respectively, and this difference between two groups is statistically very highly significant as X^2_2 = 21.58 and P = 0.0001, again suggesting prefer-

ence for sons and unlikeness, reluctance, indifference towards daughters.

The mean number of daughters per acceptor being 0.94, it is 1.35 amongst non-acceptors. Joshi V et al[24] in their study conducted in Maharashtra (India) found that, for a large majority, the number of male living children was the prime requirement, going beyond just desired family size. Also, for agrarian couples to have a sufficient number of sons to work in the fields, and for all couples for economic security in their old age, was the most important motivating factor,

Duration of Married Life: According to Table 4 above, the proportions of acceptors and non-acceptors with duration of married life up to 5 years are 7.69% and 15.38% respectively, those with 6-10 years are 43.08% and 55.38% respectively and those with duration above 10 years are 49.23% and 29.24% respectively; with $X^2_2 = 11.96$ and $P = 0.003$ (<0.01), the difference between two groups is statistically highly significant.

The average duration of married life amongst acceptors being 10.72, it is 9.09 in non-acceptors. This indicates that the duration of married life in present study is directly proportional to the degree of acceptance. Priyanka Chintaram Sahu et al[25] in their study at Nanded, Maharshtra (India) had found that, tubectomy being the method of choice for contraception, there was significant association between contraceptive practice and years of marriage and number of children of study subject. Joshi V et al mentioned earlier, in their study have showed clearly the association between increasing age and acceptance of tubectomy.

CONCLUSION

Son preference is still very strong. Usually, the couples opt for permanent contraception only when they have desired number of children with desired number of sons. Over the last few decades, it seems that, this rigid attitude is diluting but very slowly. This study revealed that, out of 130 acceptors, 3 underwent tubectomy without having sons but only daughters, two each. The authors are of the opinion that, with stronger means for behaviour change communication for people, this pace will be enhanced and population stabilisation will happen before 2050.

REFERANCES:

1. K Park. Park's Textbook of Preventive and Social Medicine, 22nd ed. Jabalpur: Bhanot Publishers; 2013. p 441-79.
2. Census India 2011, Population distribution in India by states. Available at: Census_ AffairsCloud.xls [Compatibility Model] Micrsoft Excel. Accessed on February 7, 2016
3. Provisional Population Totals: India: Census 2011. Available at: http://censusindia.gov.in/2011-prov- results/indiaatglance.html. Accessed on February 7, 2016
4. United Nations. Factsheet, Population Division, Department of Economic and Social Affairs, World Population Prospects: The 2015 Revision. Suggested citation: United Nations, Department of Economic and Social Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, DVD Edition. Accessed on February 20, 2016
5. US Census Bureau, Demographic Internet Staff. "International Programs - Information Gateway - U.S. Census Bureau". Census.gov. Retrieved 2011-09-24. Accessed on: February 20, 2016
6. Sunder Lal, Adarsh, Pankaj. Text Book of Community Medicine (Preventive and Social Medicine), 4th ed. New Delhi: CBS Publishers and Distributors Pvt Ltd; 2014. P 73-111.
7. National Population Policy 2000. National Commission on Population, Ministry of Health and Family Welfare, New Delhi. Available at: http://populationcommission.nic.in/PublicationDetails/11_984_1.aspx. Accessed on: March 3, 2016
8. National Family Health Survey (NFHS 3) 2005-06. Key findings. Ministry of Health and Family welfare, Government of India, New Delhi. Suggested citation: International Institute for Population Sciences (IIPS) and Macro International. 2007. *National Family Health Survey (NFHS-3), 2005-06,India: Key Findings*. Mumbai: IIPS. Accessed on: March 3, 2016
9. Demographics of India. From Wikipedia, the free encyclopedia (Redirected from Indian census). Available at: file:///D:/Downloads/Demographics%20of%20India%20 . Accessed on: March 4, 2016
10. Annual Report 2014-15. Chapter 9, Family Planning. Department of Health & Family Welfare, Ministry of Health & Family Welfare Government of India. Available at: www.mohfw.nic.in. Accessed on: March 4, 2016
11. Sujata K. Murarkar, S. G. Soundale, R.N. Lakade. Study of contraceptive practices and reasons for not accepting contraceptives in rural India: Chanai village as a case study. Indian Journal of Science and Technology 2011; 4 (8):915-16
12. Avisek Gupta et al. Determinants of Contraceptive Practices Among Eligible Couples of Urban Slum in Bankura District, West Bengal. J Family Med Prim Care 2014;3(4): 388–92
13. Dutta PK, Vaz LS, Singh H. Socio-demographic profile of tubectomy acceptors -- an Army experience. Journal of Family Welfare 1990;36(1):56-60.
14. Raj A, Saggurti N, Balaia D, Silverman JG. Prevalence of child marriage and its effect on fertility and fertility-control outcomes of young women in India: A cross-sectional, observational study. Lancet 2009;373(9678):1883-9.
15. K Park. Park's Textbook of Preventive and Social Medicine, 22nd ed. Jabalpur: Bhanot Publishers; 2013. p 544.
16. The Prohibition of Child Marriage Act, 2006. Ministry of Law and Justice (Legislative Department), The Gazette of India 2007. Government of India, New Delhi. Avaailable at: http://ncw.nic.in/acts/pcma2006.pdf. Accessed on: March 10, 2016
17. Census 2011. Data on Marital Status & Fertility & Head of Household Released. Available at: http://pib.nic.in/newsite/PrintRelease.aspx?relid=119871. Accessed on: March 10, 2016

18. Parveen A, Gaash B, Ahmad D. Changes in Health Status of Women: A Comparative Analysis of NFHS Data. Indian Journal for the Practising Doctor; Vol. 5, No. 1 (2008-03 - 2008-04) http://www.indmedica.com/journals.php? journalid=3&issueid=124&articleid=1645&action=article

19. Yogita P Pandya, Dinesh J Bhanderi. Epidemiological study of child marriages in a rural community of Gujarat. Indian journal of community Medicine 2015;40(4):246-251 http://www.ijcm.org.in/article.asp?issn=0970-

20. National Family Health Survey-3 (2005-06). Fact sheet for India and J&K: IIPS, Mumbai. Available At: www.nfhsindia.org. Accessed on: March 7, 2016

21. National Family Health Survey-4, 2015-16. Fact sheet Maharashtra: IIPS, Mumbai. Ministry of Health and Family Welfare, Government of India. Available at: http://rchiips .org /nfhs/pdf/NFHS4/Maharashtra.pdf. Accessed on: March 7, 2016

22. Sachin Mumbare, Shriram Gosavi, Balaji Almale, Aruna Patil, Supriya Dhakane, Aniruddha Kadu. Trends in average living children at the time of terminal contraception: A time series analysis over 27 years using ARIMA (p, d, q) non seasonal model 2014;39(4):223-228.

23. Ruchi Kalra, Sameer Phadnis, Ankur Joshi. Perceptual analysis of women on tubectomy and other family planning services: a qualitative study. International Journal of Reproduction, Contraception, Obstetrics and Gynecology 2015;4(1):94-99.

24. Joshi V, Saroja K. Fertility and adoption of tubectomy among rural women. Journal of Family Welfare 1988;34(3):57-63.

25. Priyanka Chintaram Sahu, Ismail ali Farukh ali Inamdar, Mohan K. Doibale. Contraceptive practices: an experience from ever married women in a city of Maharashtra, India. International Journal of Reproduction, Contraception, Obstetrics and Gynecology 2015;4(2):349-54.