

# A study on contraceptive prevalence rate and factors influencing it in a rural area of Coimbatore, South India

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## ABSTRACT

**Introduction:** India is the first country to implement National Family Program in 1952. Acceptance of contraceptive methods is influenced by various factors at the individual, family, and community level with their roots in the socioeconomic and cultural milieu of Indian society. This study was carried to find the contraceptive prevalence rate among eligible couples as well as to find the factors influencing it in a rural area of Coimbatore. **Methodology:** The study was carried out using the data extracted from the family health survey conducted by trained field staff for the purpose of furnishing details regarding people residing in the field practice area of Rural Health Training Centre (RHTC), Vedapatti located in Coimbatore district after obtaining Institutional Human Ethical clearance. All eligible couples were included for the study. Contraceptive prevalence is expressed in percentage with 95% Confidence interval. Univariate analysis (Chi-square test) was done to find the association between contraceptive acceptance and independent variables. Strength of association is determined by odds ratio with 95% Confidence Interval (CI).  $P < 0.05$  was considered statistically significant. **Results:** Contraceptive Prevalence Rate among eligible couples was found to be 75% (95% CI: 73.6–76.4). Most commonly used method among the study participants was tubectomy (81.6%), followed by condoms (11.4%), intrauterine devices (6.3%), and oral contraceptive pills (0.7%). Higher age of the women, religion, educational status of the women, socioeconomic status, working status of the women, number of living children, age at the time of marriage, and age at the time of first child birth were found to have statistical significant association with higher usage of contraception. **Conclusion:** The contraceptive prevalence rate was found to be higher in this study population and multiple factors were influencing the contraception usage among the eligible couples.

**Keywords:** Contraceptive prevalence, eligible couples, rural population

## Introduction

Population explosion has been the major problem of India since Independence.<sup>[1]</sup> Considering the consequences, population stabilization has been identified as an essential prerequisite for the economic development of the nation resulting in improved

quality of life.<sup>[2]</sup> India became the first country in the world to formulate National Family Planning Program in 1952, with the objective of “reducing birth rate to the extent necessary to stabilize the population at a level consistent with requirement of national economy.”<sup>[2,3]</sup> As per the projections by United Nations, India will become the most populous country by the year 2045. One of the important components of family planning program management is to assess the potential demand for contraceptive services so as to mitigate the adverse impact of population growth.<sup>[4]</sup> Family planning can reduce maternal mortality by reducing the number of pregnancies, abortions, and the proportion of births at high risk.<sup>[5]</sup>

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Many empirical studies have shown the acceptance of contraceptive methods is influenced by various factors operating at the individual, family, and community level with their roots in the socioeconomic and cultural milieu of Indian society.<sup>[6]</sup> The contraceptive prevalence rate is “the percentage of women of reproductive age (15–49 years) who are married or in a union: Who are currently using, or whose sexual partner is currently using, at least one contraceptive method, regardless of the method used”.<sup>[7,8]</sup> Contraceptive prevalence rate serves as a proxy measure of access to reproductive health services and is an indicator of health, population, development, and women’s empowerment<sup>[7,8]</sup> that are essential for meeting many of the Sustainable Development Goals (SDG), especially the child mortality and maternal health related goals.<sup>[8]</sup>

If the population has ready access to good quality services at affordable cost, it will be possible for them to meet all their needs, achieve the desired family size, and enable the country to achieve population stabilization rapidly.<sup>[1,9]</sup> Majority of India’s population (about 70%) live in the rural communities<sup>[9]</sup> but majority of the health facilities are concentrated in the urban localities leading to a disparity in access to health care. Contraceptive use is influenced by a wide range of factors including demographic, social, and economic characteristics.

There is paucity of community-based rural studies with regard to contraceptive usage. Identifying the prevalence of contraceptive usage and the local determinants could help to plan strategy and make necessary recommendations that would help improve utilization of family planning services. Hence, this study was carried out to determine the contraceptive prevalence rate among eligible couples as well as to study the association of selected social, economic and demographic factors with contraceptive usage in a rural area of Coimbatore.

## Methodology

The study was carried in accordance with the ethical standards of PSGIMSR Institutional Human Ethics Committee and Ethical Principles for Medical Research was followed. The Ethics committee approval was obtained prior to carrying out the study. Date of approval : 18/12/2019. The Institute permission was obtained prior to carrying out the study. In the current study, the data were extracted from the family health survey conducted by trained field staff for the purpose of furnishing details regarding people residing in the field practice area of Rural Health Training Centre (RHTC), Vedapatti, a rural area of Tamil Nadu located in Coimbatore district. The RHTC caters to 14 villages with a population of 25,886.

Sample size was calculated based on NFHS IV report- Contraceptive Prevalence Rate of rural Tamil Nadu was 52.3%.<sup>[10]</sup> Using the formula,  $n = 4 pq/d^2$  where  $P$  is 52,  $q$  is 100-52, that is,  $q = 48$  and  $d$  is the relative precision (5% of  $p$ ), the sample size required was estimated to be 1,477. Though the required sample size was only 1,477, all 4,438 eligible couples in

the field practice area were included for the current study and their data was analyzed.

Various demographic, social, and economic factors like age of women, number of children, age at marriage, age at first child birth, religion, caste, family type, educational status of husband and wife, working status of women, socioeconomic status classification (based on Modified Prasad classification - Class I –  $\geq$ Rs. 6,414; Class II – Rs. 3,207–6,413; Class III – Rs. 1,924–3,206; Class IV – Rs. 962–1,923, and Class V -  $\leq$ Rs. 961) were included in the study.

## Statistical analysis

Data was entered in Microsoft excel and analyzed in SPSS 20.0 version Univariate analysis (Chi-square test) was used to find out the association between the independent variables and the dependent variable. Odds ratio was calculated with 95% Confidence Interval (CI) to find the strength of association.  $P < 0.05$  was considered as statistically significant.

## Results

Total number of eligible couples enrolled in the study was 4,438.

The demographic profile of the participants is shown in the Table 1. Majority of the participants (41.3%) were in the age group of 35–49 years, 96.3% of women were Hindus. Majority of married women (70.4%) were living in nuclear families, 64% were

**Table 1: Demographic profile of the study population**

Variable	Number (n=4438)	Percentage
Age of Women (completed years)		
15-24	1196	27.0
25-34	1408	31.7
35-49	1834	41.3
Religion		
Hindu	4276	96.3
Christian	133	3
Muslim	29	0.7
Caste		
General	1389	31.3
OBC	2926	65.9
SC/ST	123	2.8
Family Type		
Nuclear	3125	70.4
Extended	1313	29.6
Number of Living Children		
No child	443	10
One child	777	17.5
Two child	2841	64
$\geq 3$ children	377	8.5
Age at the Time of Marriage		
<18 years	1152	26
$\geq 18$ years	3286	74
Age at the Time of First Child		
<18 years	957	21.6
$\geq 18$ years	3481	78.4

having two children, 26% of the women in the study population got married before completion of 18 years and 21.6% women delivered a baby before completion of 18 years.

Table 2 shows that most of the eligible couples were educated up to middle school. Female literacy rate was 84.8%, whereas male literacy rate was 87.3%. Higher proportion (37.4%) belonged to Class IV socioeconomic class and 31.4% women were employed with salary.

Out of 4,438 eligible couples studied, 3,328 were current users of contraception at the time of the survey. Hence, the Contraceptive Prevalence Rate was 75% (95% CI: 73.6–76.4%) in this study population. Table 3 shows the various family planning methods adopted by the eligible couples. Most common preferred method was tubectomy (81.6%), followed by condoms (11.4%), intrauterine devices (IUDs) (6.3%), and oral contraceptive pills (OCPs) (0.7%).

**Table 2: Education status and socio-economic class of the study participants**

Variable	Number (n=4438)	Percentage
Educational status of Women		
Illiterate	675	15.2
Primary	698	15.7
Middle	1237	27.9
High school	688	15.5
Higher secondary	543	12.2
Graduate	597	13.5
Educational status of Husband		
Illiterate	565	12.7
Primary	682	15.4
Middle	1644	37.0
High school	566	12.8
Higher secondary	311	7.0
Graduate	670	15.1
Socio Economic Status (Modified Prasad Classification)		
Class I	309	7.0
Class II	798	18.0
Class III	1333	30.0
Class IV	1660	37.4
Class V	338	7.6
Working status of women		
Working	1394	31.4
Not working	3044	68.6

**Table 3: Various family planning methods adopted by eligible couples**

Family Planning Method Adopted	Number (Percentage)
Tubectomy	2717 (81.64)
Condom	378 (11.36)
Intra Uterine Device (IUD)	210 (6.31)
Oral Contraceptive Pill (OCP)	22 (0.66)
Vasectomy	1 (0.03)
Total	3328 (100)

The demographic factors influencing the contraception acceptance is shown in Table 4. The significant predictors for contraceptive acceptance are higher age of women, those who are having two living children, women who are married after 19 years of age, and those who had given birth to first child after 19 years of age.

The social and economic factors influencing the contraception acceptance is shown in Table 5. Factors like higher educational level of women, working women, and higher socioeconomic class are significantly associated with adoption of any of the contraceptive method.

## Discussion

Contraceptive use and unmet need for family planning are keys to understand profound changes in fertility pattern and also helps to improve reproductive health. By understanding the concept of unmet needs, the gap between women reproductive intentions and contraceptive behavior can be understood. In this study, Contraceptive Prevalence Rate among eligible couples was found to be 75%, which is higher than studies reported by NFHS IV (52.3%),<sup>[10]</sup> Patel AA (55.3%),<sup>[11]</sup> Singh *et al.* (68.4%),<sup>[1]</sup> Makade *et al.* (68.4%),<sup>[12]</sup> and Gupta *et al.* (71.1%).<sup>[13]</sup> The contraceptive acceptance is quite high among the study population.

Most common method followed by the eligible couples was permanent method, that is, tubectomy (81.6%) which is higher than other studies by Shree *et al.* (70.9%),<sup>[14]</sup> Patel AA, *et al.* (33.7%),<sup>[11]</sup> and Nanda *et al.* (30.5%).<sup>[15]</sup> In our study, 11.4% couples use condoms which is similar to study done by Chandra *et al.* (11.7%)<sup>[3]</sup> and higher than Nanda *et al.* (5.1%).<sup>[15]</sup> Usage of IUDs was 6.3% which is lower than study done by Nanda *et al.* (45.8%)<sup>[15]</sup> and Shree *et al.* (11.3%).<sup>[14]</sup> Another important finding as that only one male individual has undergone vasectomy. This clearly portrays that even though permanent sterilization method in male (i.e., vasectomy) is an easier procedure and has lesser postoperative symptoms the responsibility for birth control still traditionally rests with the woman since she has to undergo the physical and psychological burden of unplanned pregnancy.

In our study, contraception usage showed significant association with higher age of the women, religion, education of the women, higher socioeconomic class, working status of the women, presence of two living children, age at the time of marriage as well as first child birth more than 18 years of age. There was no significant association with type of family, educational status of husband and caste.

In this study, the usage of contraception was significantly higher among those who were aged 35–49 years. The contraceptive acceptance was three times higher than those of aged 15–24 years, probably these couples would have completed their family. Similar findings were reported by Patel AA,<sup>[11]</sup> Valekar SS, *et al.*,<sup>[16]</sup> and Prateek *et al.*<sup>[2]</sup> wherein women of age group 35–49 years are using better contraception. The

**Table 4: Association of Demographic variables with adoption of family planning methods**

Variables	Adoption of Family Planning method		OR	95% CI	P
	Yes (n=3328) Total (%)	No (n=1110) Total (%)			
Age of women completed years					
15-24	742 (62)	454 (38)	1		
25-34	1048 (74.4)	360 (25.6)	1.78	1.5-2.11	<0.001
35-49	1538 (83.9)	296 (16.1)	3.18	2.67-3.78	<0.001
Religion					
Hindu	3220 (75.3)	1056 (24.7)	1		
Muslim	10 (34.5)	19 (65.5)	0.17	0.07-0.39	<0.001
Christian	98 (73.7)	35 (26.3)	0.92	0.61-1.39	0.67
Caste					
SC/ST	90 (73.2)	33 (26.8)	1		
OBC	2192 (74.9)	734 (25.1)	1.10	0.71-1.67	0.66
General	1046 (75.3)	343 (24.7)	1.12	0.72-1.73	0.59
Family Type					
Nuclear	2349 (75.2)	776 (24.8)	1		
Extended	979 (74.6)	334 (25.4)	0.97	0.83-1.13	0.67
Number of Living Children					
≥3 child	343 (91)	34 (9)	1		
2 child	2707 (95.3)	134 (4.7)	2.0	1.33-3.01	<0.001
1 child	275 (35.4)	502 (64.6)	0.05	0.04-0.08	<0.001
No child	3 (0.7)	440 (99.3)	0.0007	0.0002-0.0022	<0.001
Age at the Time of Marriage (Women)					
<18 years	2559 (77.9)	727 (22.1)	1		
≥18 years	769 (66.8)	383 (33.2)	0.57	0.49-0.66	<0.001
Age at the Time of First Child Birth (Women)					
<18 years	2854 (82)	627 (18)	1		
≥18 years	474 (49.5)	483 (50.5)	0.22	0.18-0.25	<0.001

contraceptive usage was significantly low (34.5%) among Muslims than Hindus (75.3%) but the proportion of Muslims was low in this study. This result was consistent with other studies like Singh AK, *et al.*<sup>[1]</sup> and Chandra *et al.*<sup>[3]</sup> The reason for lower usage of contraception among the Muslim couples could be because of religious and cultural beliefs on contraception. Hence, religion still plays a predictor role on deciding the choice of contraception.

Education of women leads to a greater awareness and a significant effect on family planning behavior and use of contraception. Our study revealed significantly higher usage of contraception among literates when compared with the illiterates. The literates will be able to understand the pros of contraceptive usage which could have brought the behavioral change. This result was consistent with studies done by Singh AK, *et al.*<sup>[1]</sup> Patel AA,<sup>[11]</sup> Gupta *et al.*,<sup>[13]</sup> Kumar N, *et al.*,<sup>[17]</sup> and Oppong FB, *et al.*<sup>[18]</sup> Improving education status can pave way to delay a women's marriage age, she will be able to seek a job and can help to change the attitude toward birth spacing and family size and empowers women to make a better decision.

In our study, contraceptive use was significantly higher among working women as they are more likely to be educated and their socioeconomic status is supposed to be better than the non-working women. Working women are likely to be more

knowledgeable; would have wide exposure to media and social contacts which can influence their contraceptive behavior. This finding was similar to study done by Mukherjee *et al.*<sup>[19]</sup>

In the present study, it was found that as the socioeconomic status decreases, the usage of contraception also decreases. Contraception usage is significantly higher among class I when compared to Class V. This may be due to the fact that the higher socioeconomic status individuals have better accessibility and availability of contraception and they have better awareness regarding contraception. Similar finding was reported by Prateek *et al.*<sup>[2]</sup>

Number of living children had a significant impact on contraceptive usage. Those women who had completed their family by getting at least two children (small family norm) are using contraception higher than others. This may be due to the fact that many couples decided to complete their family with two children and also female sterilization (after institutional deliveries) was emphasized for women after they bear two children. Government policies and advisory of two child norm and benefits announced could have favored contraception acceptance by these couples. This finding was consistent with study done by Singh *et al.*<sup>[1]</sup> Shree *et al.*<sup>[14]</sup> Valekar SS, *et al.*,<sup>[16]</sup> and Gothwal M, *et al.*<sup>[20]</sup> Contrastingly, it was also found contraceptive usage was higher among those having two children compared with couples having three or more

**Table 5: Association of Social and Economic variables with adoption of family planning methods**

Variables	Adoption of Family Planning method		OR	95% CI	P
	Yes (n=3328) Total (%)	No (n=1110) Total (%)			
Educational status of Women					
Illiterate	445 (65.9)	230 (34.1)	1		
Primary	529 (75.8)	169 (24.2)	1.62	1.27-2.06	<0.01
Middle	966 (78.1)	271 (21.9)	1.84	1.49-2.28	<0.01
High school	569 (82.7)	119 (17.3)	2.47	1.9-3.21	<0.01
Higher secondary	405 (74.6)	138 (25.4)	1.52	1.17-1.96	<0.01
Graduate	414 (69.3)	183 (30.7)	1.17	0.92-1.49	0.19
Educational status of Men					
Illiterate	434 (76.8)	131 (23.2)	1		
Primary	501 (73.5)	181 (26.5)	0.84	0.64-1.09	0.17
Middle	1241 (75.5)	403 (24.5)	0.93	0.74-1.17	0.5
High school	431 (76.1)	135 (23.9)	0.96	0.73-1.28	0.79
Higher secondary	225 (72.3)	86 (27.7)	0.79	0.57-1.10	0.14
Graduate	496 (74)	174 (26)	0.86	0.66-1.13	0.26
Socio Economic Status					
Class I	247 (79.9)	62 (20.1)	1		
Class II	608 (76.2)	190 (23.8)	0.80	0.57-1.12	0.18
Class III	998 (74.9)	335 (25.1)	0.75	0.54-1.02	0.06
Class IV	1261 (76)	399 (24)	0.79	0.58-1.08	0.13
Class V	214 (63.3)	124 (36.7)	0.43	0.30-0.63	<0.001
Working status of women					
Not Working	2190 (71.9)	854 (20.1)	1		
Working	1138 (81.6)	256 (18.4)	1.73	1.48-2.03	<0.01

children. This could be due to the fact the need for contraception is not well appreciated by these couples.

Age at the time of marriage and age at time of first child birth also showed significant association with contraceptive usage. Those women who got married or gave birth before the age of 18 years used less contraception when compared with those who got married or gave birth to child after the age of 18 years. This may be because the former individuals are less aware of the contraceptive methods and their maturity levels are not favorable. Hence delaying the age of marriage of women as well as delaying the age of first child birth more than 18 years could have a positive impact on contraceptive acceptance. But studies by Prateek *et al.*<sup>[2]</sup> and Valekar SS, *et al.*<sup>[16]</sup> did not show significant association between contraception usage and age at marriage or age at first child birth.

Our study did not reveal association of contraception use and educational status of husband. This result is consistent with study done by Valekar SS, *et al.*<sup>[16]</sup> But studies by Prateek *et al.*<sup>[2]</sup> and Shree *et al.*<sup>[4]</sup> has shown association between educational status of husband and contraception usage. The current study did not show significant association of contraception use with caste and type of family, but a study by Nanda *et al.*<sup>[15]</sup> has shown significant association of contraception with caste and studies conducted by Singh *et al.*<sup>[1]</sup> and Valekar SS, *et al.*<sup>[16]</sup> has shown individuals in nuclear family are accepting the family planning methods higher than those in extended family.

This study has few limitations because other confounders which can influence the contraceptive prevalence like knowledge about contraception, sex preference, female autonomy, and unmet needs of contraception were not studied. Despite the data being retrieved from the routine family health survey, the reliability of the data is not a major concern as it was collected by trained field workers for purpose of family health survey.

## Conclusion and Recommendation

From our study, it is obvious that the contraceptive prevalence was high among the study population and epidemiological factors like higher age of the women, religion, education of the women, higher socioeconomic class, working status of the women, presence of two living children, age at the time of marriage, as well as first child birth more than 18 years of age are influencing the contraception acceptance. Measures to sustain the gains of the family planning program should be given priority to sustain population stabilization and to achieve Net Reproductive Rate of one. Hence, on the first-hand targeted health awareness among those who are not using contraception could help to bring about a behavioral change so contraception usage can be maximized. Secondly, outreach contraceptive services should be intensified and expanded for easy access without fear of stigma by the society. Thirdly, reproductive health programs and policies should adequately involve men, by encouraging and motivation to adopt vasectomy as an easy method of family planning.

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## Conflicts of interest

There are no conflicts of interest.

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