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Contraceptive behaviors and awareness in an urban slum community of south India

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ABSTRACT

Objective: To assess the factors associated with knowledge, attitude and behavior of contraception use among urban slum population in Chennai.

Methods: A cross-sectional study was conducted in the urban slum of Anakaputhur, Chennai. Married couples between ages of 19–49 years and living in slum areas were taken up for the study by simple random sampling. Pregnant women, postnatal and postmenopausal women were excluded from the study. Data collection was done using a pretested structured questionnaire focusing on details regarding contraception knowledge, attitude, and practices. Data analysis was done using IBM SPSS version 22. Analytical test like *Chi* square and odds ratio (*OR*) were used to identify association between knowledge, attitude, and behavior of contraception with the associated variables and enter method of logistic regression analysis was done.

Results: Out of the 360 respondents, 228 were females, with a mean age of (34±5) years. Approximately 43% demonstrated adequate knowledge of contraception use, and 91% were aware of at least one contraceptive method. Notably, 72% exhibited a positive attitude towards contraceptive use. Nevertheless, 43% (155 individuals) did not utilize any contraceptive method. Among contraceptive users, intrauterine devices were the most commonly adopted, followed by barrier methods and female sterilization. There was significant association between knowledge of contraception and education (*aOR* 7.29, 95% *CI* 2.93–18.10, *P*<0.05), age (*aOR* 2.04, 95% *CI* 1.19–3.50, *P*<0.05) and socioeconomic class (*aOR* 3.66, 95% *CI* 1.71–7.85, *P*<0.05; *aOR* 3.97, 95% *CI* 2.12–7.49, *P*<0.05). Regarding attitude towards contraception use, education (*aOR* 8.54, 95% *CI* 2.35–31.03, *P*<0.05), sex (*aOR* 0.15, 95% *CI* 0.06–0.37, *P*<0.05), age (*aOR* 0.53, 95% *CI* 0.28–0.99, *P*<0.05), socio-economic class (*aOR* 4.42, 95% *CI* 1.97–9.92, *P*<0.05; *aOR* 9.83, 95% *CI* 3.63–26.58, *P*<0.05) and number of children (*aOR* 10.04, 95% *CI* 4.26–23.66, *P*<0.05) were the variables that had a significant association.

Conclusions: These findings underscore the imperative for enhanced dissemination of health education pertaining to contraception use

within the slum population. The health sectors of the area and other stakeholders need to make sure to extend penetration of family planning related services to the urban slum population.

KEYWORDS: Family planning; Unmet need; Sterilization; Knowledge; Practice; Urban slum

Significance

While extensive research has explored the knowledge, attitudes, and behaviors regarding contraception within India's urban demographic, there remains a notable gap in understanding these factors within the slum population. This study highlights a significant disparity: despite a reported 67.6% (NFHS 5 data) current contraception usage rate among the broader urban population, this rate is considerably lower within the slum population as revealed from the current study, indicating a pronounced unmet need for contraception in this vulnerable population. Contraception in slum populations is vital for public health, lowering unintended pregnancies, maternal and infant mortality rates. Access empowers informed reproductive choices, improving family planning and socioeconomic conditions. Addressing this need can ease strain on healthcare systems, aiding community well-being and development.

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1. Introduction

India has a population of over one billion three hundred ninety two million people as of July 2023[1], followed by China[2]. National family planning measures in India are among the earliest launched acts since 1952[3]. According to the World Health Organization (WHO), family planning is the ability of individuals and couples to anticipate and attain their desired number of children, along with the spacing and timing of their births. This is achieved using contraceptive methods and also through the treatment of involuntary infertility[4]. Contraceptives are of two types namely, traditional and modern methods of contraception. Traditional methods include periodic abstinence, coitus interruptus and country specific traditional methods. All the other methods, including use of condoms, injectables, pills, sterilization and intra-uterine devices come under modern methods of contraception[5].

Globally, 966 million women of reproductive age are using some methods of contraception. Among 1.9 billion women of reproductive age (15-49 years), an estimated 874 million women use a modern contraceptive method and 92 million use a traditional contraceptive method. The number of modern contraceptive users has nearly doubled worldwide since 1990 (from 467 million). Yet, there are still 164 million women who want to delay or avoid pregnancy and are not using any contraceptive method and thus are considered to have an unmet need for family planning[6].

According to the WHO, 214 million women in developing regions have an unmet need for contraception[4]. In India, according to National Family Health Survey-5 (NFHS 5) data, 69.3% of currently married women use contraception in urban areas[7]. However, modern methods are used by only 58.5% of urban married women. About 8.4% of married women currently have an unmet need for contraception. In Tamil Nadu, the percentage of married women who use any method of family planning is 67.6%. However, modern methods of contraception are only used by 64% of married women, and 55.6% of women have undergone sterilization. There is a stark contrast in male sterilization at only 0.1%. About 8.1% of married women have an unmet need for family planning[7].

According to the United Nations Population Fund (UNFPA), access to safe and voluntary family planning is a human right[8]. Although the country has implemented family planning measures for a while, few people are aware of the various options available[9]. Almost half of the Indian urban population lives in slums, which are densely populated areas with bad living conditions, high unemployment, lack of social structure and poverty. In slum areas, moreover, the practice of contraception use is lower[10]. Lack of awareness regarding contraception coupled with cost, availability, poor accessibility, perceived or real side effects are some of major factors for hindering adoption of family planning practices in urban slums[11]. With

the hastening rural-to-urban migration, which is only expected to increase in the future, it is important to address family planning awareness and the use of contraceptives among the urban slum population[12].

In the context of this problem, the present study was initiated to determine the knowledge, attitude and behavior of contraception use among urban slum population in Chennai and to identify the associated factors relating to knowledge, attitude and practice of contraception.

2. Subjects and methods

2.1. Study design

This was a community based cross-sectional study. The study population included married couples in urban slum population between age group of 19-49 years of age. This study was done in the urban field practice area of Anakaputhur, attached to a tertiary medical college, during the months of November and December 2023.

2.2. Sample size

According to NFHS 5 data, the prevalence of contraceptive use was found to be 67%[6]. Using this as prevalence (p) and applying the formula: $n = Z^2 pq / d^2$, with $q = 33\%$ ($100-p$) and absolute precision (d) = 5%, the sample size was calculated to be 339.75. Allowing for a 5% non-response rate, the final sample size was rounded to 360.

2.3. Sampling method

According to the 2023 Census, the Anakaputhur municipality has an estimated population of around 64000 with 8259 residing in urban slums[13]. According to data available in the urban health centre in Anakaputhur, there were four wards. Based on the population of the urban slum in each ward, eligible couples residing in the urban slums were shortlisted from the registers maintained in the health center. Around 11510198 and 46 eligible couples were selected randomly by probability proportionate to size (PPBS) from each of the four wards, respectively, to attain the required sample size.

2.4. Inclusion and exclusion criteria

The study included married couples aged 19-49 years of age. Only one member from the couple was interviewed (either husband or wife). Before the interview, the couples were explained the purpose of the study and informed consent was obtained. Refusal of consent, unmarried individuals, pregnant women, postnatal mothers and post-menopausal women were excluded from the study.

2.5. Data collection method

A predesigned pretested semi-structured questionnaire was used, and data was collected by face-to-face interviews. The questionnaire contained details about sociodemographic characteristics, questions related to their reproductive sociodemographic history and questions on knowledge, attitude and practice of contraception use. Cronbach's alpha was used to measure internal consistency and reliability of the instrument used. Cronbach's alpha for knowledge and attitude questions were 0.80 and 0.79, respectively.

2.6. Measurement of outcome variables

2.6.1. Adequate knowledge/inadequate knowledge

Ten questions were asked regarding the knowledge of contraception among the study participants. Weighted scores were given for each question. Based on a pilot study done in the neighboring area, among 30 eligible participants, the reliability (Cronbach's α) of the questions was found to be 0.80. These questions were then used to collect data in the present study. Weighted scores were given for each of the questions based on the importance and scientific evidence on the measure. Based on the scale which was developed, the minimum score a person could score was 3 and the maximum was 18. Since the data were normally distributed, mean score (13) was used as an arbitrary cut-off point and those who scored above 13 were categorized as having adequate knowledge and those who scored below 13 was categorized as having inadequate knowledge.

2.6.2. Positive attitude/negative attitude

Similar methodology was employed to assess favorable/unfavorable attitude towards contraception in which there were 6 questions with Cronbach's (α) of 0.79 with mean score 7 as a cut off point.

2.6.3. Using contraception

All those participants who were currently using any method of contraception were considered to have contraception use or practice.

2.7. Data analysis

Data were entered into Microsoft word and analyzed with IBM SPSS version 22. Descriptive data were presented as frequencies and percentages. Analytical statistics like *Chi* square and odds ratio (*OR*) were used to find association between predictor variables/risk factors and knowledge, attitude and practice of contraception use. All the variables that were found to be significant in bivariate analysis were taken into logistic regression model. Enter method of logistic regression analysis was done with a 95% confidence interval (*CI*). $P < 0.05$ was considered statistically significant.

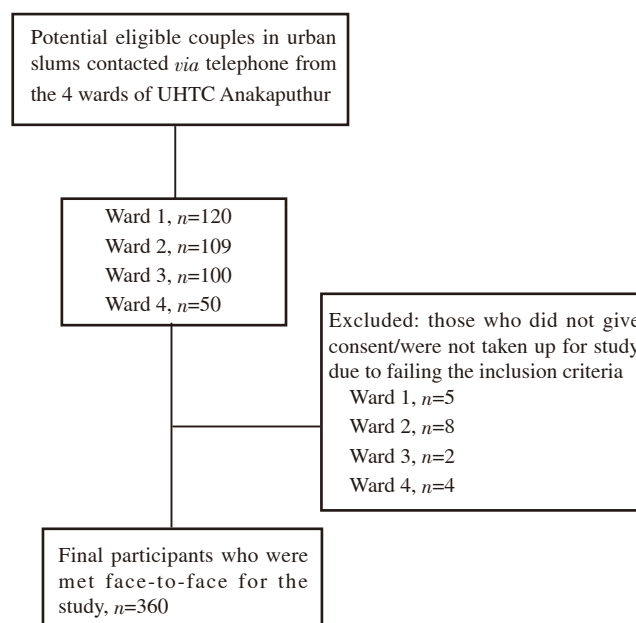


Figure 1. Flowchart of participant screening process.

2.8. Ethics statement

The protocol was approved by the Institutional Human Ethics Committee (Ref No. 022145/SBMCH/IHEC/2023/022145). Informed consent was obtained from the participants in their own regional language.

3. Results

3.1. Sociodemographic characteristics of study participants

The sociodemographic characteristics of study participants is given in Table 1. The total number of participants in the study was 360. The mean age of participants was (34±5) years. Two hundred and twenty-eight participants (63.3%) were females and 132 (36.7%) were males. More than half of the participants (60.3%) were less than 35 years old. The majority of the participants (63.6%) belonged to a nuclear family. Almost 78% of the participants studied up to school level of education while 21.9% were college graduates. More than half of the participants (65.6%) were employed in unskilled work. About 12% of the participants had no children of their own and 30% had a single child. About 76% of the participants were currently sexually active. Figure 1 provides a flowchart for screening of participants.

3.2. Knowledge of study participants regarding contraceptive use

The mean score for knowledge among participants was

Table 1. Sociodemographic details of the study participants (n=360).

Sociodemographic features	Number of participants	Percentage (%)
Age, years		
<35	217	60.3
≥35	143	39.7
Sex		
Male	132	36.7
Female	228	63.3
Type of family		
Nuclear family	229	63.6
Extended family	131	36.4
Number of children		
No children	43	11.9
Single child	108	30.0
Two children	122	33.9
>2 children	87	24.2
Education		
Middle school	81	22.5
Secondary school	84	23.3
Higher secondary school	116	32.2
Graduate	79	21.9
Occupation		
Unskilled	236	65.6
Semiskilled	30	8.3
Skilled	94	26.1
Socioeconomic status*		
Class I & II	119	33.1
Class III	116	32.2
Class IV & V	125	34.7

*Socioeconomic status was classified using the BG Prasad scale 2024. Classes I and II represent the upper and upper middle classes. Class III includes the middle class, while Classes IV and V correspond to the lower middle and lower classes, respectively.

(12.46±3.60). Out of the total participants 56.7% had inadequate knowledge while the remaining 156 (43.3%) participants had adequate knowledge. Majority of the participants (91%) knew about at least one method of contraception. A significant number of participants were aware about natural methods of contraception, condoms, female sterilization and intra uterine devices (IUDs). However, only 24% were aware of injectable contraceptives. Most of the participants (n=193, 53.6%) received information about contraceptives from media. Fifty participants (13.8%) said their main source of information was from friends and relatives, while 117 (32.5%) got their information mainly through healthcare workers. About 61% knew about the subsidized and free distribution of contraceptives. Thirty-six participants said that their knowledge regarding matters pertaining to contraception were poor. All the participants were aware that using contraceptives prevented unwanted pregnancies but only about 40% knew that sexually transmitted infections can be prevented by using a condom. Nearly half of the participants were not aware of government scheme on sterilization and the incentives received on choosing to undergo sterilization. Awareness of participants about vasectomy/male sterilization was at 42%. Only 42.5% were aware of the side effects of contraceptives.

Association between knowledge regarding contraception and its associated variables are given in Table 2. Analytical statistics revealed a significant association with inadequate knowledge and lower levels of education. Other variables found to have significant

Table 2. Association between knowledge regarding contraception and related variables.

Variables	Inadequate knowledge		Adequate knowledge		Odds ratio (95% CI)	P value [#]
	Frequency (n)	Percentage (%)	Frequency (n)	Percentage (%)		
Education						
Middle school	52	64.2	29	35.8	4.10 (2.12-7.95)	<0.001
Secondary school	65	77.4	19	22.6	7.83 (3.88-15.80)	<0.001
Higher secondary	63	54.3	53	45.7	2.72 (1.49-4.90)	0.001
Graduate (Ref)	24	30.4	55	69.6	-	-
Occupation						
Unskilled	134	56.8	102	43.2	1.31 (0.81-2.12)	0.320
Semiskilled	23	76.7	7	23.3	3.28 (1.28-8.39)	0.001
Skilled (Ref)	47	56.7	47	43.3	-	-
Age, years						
<35	134	61.8	83	38.2	1.68 (1.10-2.50)	0.016
≥35 (Ref)	70	49.0	73	51.0	-	-
Sex						
Male	74	52.9	66	47.1	0.77 (0.50-1.18)	0.244
Female (Ref)	130	59.1	90	40.9	-	-
Socio economic status						
Class IV and V	90	72.0	35	28.0	2.44 (1.43-4.15)	0.001
Class III	53	45.7	63	54.3	0.79 (0.47-1.33)	0.460
Class I and II (Ref)	61	51.3	58	48.7	-	-
Number of children						
No children	16	41.0	23	59.0	0.34 (0.16-0.70)	0.005
Single child	72	66.7	36	33.3	0.61 (0.29-1.26)	0.180
2 children	65	53.3	57	46.7	0.54 (0.26-1.16)	0.110
>2 children (Ref)	51	56.0	40	44.0	-	-
Type of family						
Nuclear family	136	58.4	97	41.6	1.22 (0.78-1.88)	0.377
Extended family	68	53.5	59	46.5	-	-

[#]Chi square test and odds ratio (OR) are used to test the association at 95% confidence interval (CI).

Table 3. Association between attitude regarding contraception and related variables.

Variables	Negative attitude		Positive attitude		Odds ratio (95% CI)	P value
	Frequency	Percentage	Frequency	Percentage		
Education						
Middle school	27	33.3	54	66.7	2.98 (1.61-5.49)	<0.001
Secondary school	47	56.0	37	44.0	7.57 (4.20-13.64)	<0.001
Higher secondary and above (Ref)	28	14.3	167	85.7	-	-
Occupation						
Unskilled	70	29.7	166	70.3	1.56 (0.88-2.75)	0.120
Semiskilled	12	40.0	18	60.0	2.46 (1.02-5.95)	0.007
Skilled (Ref)	20	21.3	74	78.7	-	-
Age, years						
<35	51	23.5	166	76.5	0.55 (0.34-0.88)	0.012
≥35 (Ref)	51	35.7	92	64.3	-	-
Sex						
Male	28	20.0	112	80.0	0.49 (0.29-0.81)	0.005
Female (Ref)	74	33.6	146	66.4	-	-
Socioeconomic status						
Class IV and V	55	44.0	70	56.0	5.05 (2.68-9.53)	<0.001
Class III	31	26.7	85	73.3	2.34 (1.20-4.58)	<0.001
Class I and II (Ref)	16	13.4	103	86.6	-	-
Number of children						
>2 children	43	47.3	48	52.7	7.83 (2.47-32.38)	<0.001
Two children	20	16.4	102	83.6	1.71 (0.52-7.35)	0.490
Single child	35	32.4	73	67.6	4.19 (1.33-17.30)	0.007
No children (Ref)	4	10.3	35	89.7	-	-
Type of family						
Nuclear family	71	30.5	162	69.5	1.35 (0.83-2.21)	0.220
Extended family (Ref)	31	24.4	96	75.6	-	-

*Chi square test and odds ratio are used to test the association at 95% confidence interval (CI).

association include age less than 35 years (*OR* 1.68, *CI* 1.10-2.50, *P*=0.016), and occupation of being semiskilled workers (*OR* 3.28, *CI* 1.28-8.39, *P*=0.001). Participants who had no children had a 66% chance of having adequate knowledge when compared to those with children.

3.3. Attitude of study participants towards contraceptive use

Association between attitude regarding contraception use and related variables are given in Table 3. More than two thirds (*n*=258, 71.7%) of the population had a positive attitude towards contraception use. About 73% (*n*=263) of participants said that they were comfortable talking about contraception. More than two thirds of them discussed about how many children they wanted with their partner. More than three fourths of the participants were comfortable discussing matters relating to contraception with their partner. It was interesting to find that a large number of participants (75.3%) never used contraceptives without their partner's knowledge while the remaining participants sometimes used contraceptives without their partner's knowledge. About 33% of the participants were not using contraceptives due to fear of side effects. More than half of the participants (*n*=246) said that they were able to convince their partners on the need for contraception for family planning or birth spacing.

Those who had completed middle school level of education (*OR*

2.98, *CI* 1.61-5.49, *P*<0.05), semiskilled workers (*OR* 2.46, *CI* 1.02-5.95, *P*<0.05) had higher risk of having negative attitude towards contraception use. There was also a significant association found between attitude and other variables like age, sex, socioeconomic class and number of children.

3.4. Practice of contraception among study participants

Regarding practice of contraception, it was found that among the participants, 76.4% (*n*=275) were sexually active. Only 56.9% (*n*=205) of the participants were currently using contraception. Among them, 17% of participants (*n*=35) were using contraception for less than one year, an equal percentage of 41% (*n*=85) participants have been using contraceptive methods for 1-3 years and for more than 3 years.

The decision on whether or not to use contraceptives in most cases (61.9%) was jointly made by both the husband and wife. The remaining 14.4% said the husband made the decision while in 23.6% the wife made the decision. The most commonly used method of contraception was intrauterine devices among 91 participants. This was followed by barrier method (male condoms) among 73 participants. Sterilization (tubal ligation) was done in 41 women while the prevalence of male sterilization was at zero. Oral contraceptive pills (*n*=42), injectables (*n*=4) and traditional methods (*n*=20) were the least commonly used. Traditional

Table 4. Adverse effects faced by participants who used contraception ($n=205$).

Types of side effect	Frequency (n)	Percentage (%)
No side effects	66	32.19
Heavy bleeding	41	20.00
Weight gain	40	19.50
Irregular bleeding	34	16.50
Condom burst/Spillage	16	7.80
Failure of contraception	4	1.95
Secondary infertility	4	1.95
Total	205	100.00

methods like periodic abstinence/rhythm method, withdrawal and lactational amenorrhea were still used by 24 participants. Among the contraception users ($n=250$), 140 of the couples accounting to 68.3% used contraceptives for the purpose of spacing. Fifteen percent practiced condom usage to prevent sexually transmitted diseases and the remaining ten percentage used contraceptive methods since they did not want any more children. Table 4 shows the side effects faced by those using contraception. Majority ($n=66$) of contraception users faced no side effects. The most common side effect was heavy bleeding among 41 women and weight gain among 40 women.

One hundred fifty five participants did not use any contraception method currently. Among these, a little more than half (55%) did not use them due to desire for more children. The remaining 37% gave no specific reason for not using contraceptives while 8% of them did not use contraception due to disapproval by either of the partner.

3.5. Logistic regression analysis of knowledge of contraception use and related variables

Variables found significant in bivariate analysis was taken up for logistic regression. On multivariate analysis it was found those with higher secondary school education had increased risk of having inadequate knowledge about contraception when compared to

graduate level of education and this association was found to be statistically significant ($aOR=7.29$, 95% CI 2.93-18.10, $P<0.05$). Age and socioeconomic class were the other two variables that had a statistical significance with knowledge on contraceptives. Adjusted odds ratio for variables associated with knowledge towards contraception use is given in Table 5.

3.6. Logistic regression analysis of attitude regarding contraception use and related variables

About attitude towards contraception use, variables that were found to have a significant association with negative attitude towards contraception use include education up to middle school (aOR 8.54, 95% CI 2.35-31.04, $P<0.05$) comparing with those had higher secondary and above education. Participants below the age of 35 had a 53% less chance of having negative attitude towards contraception use when compared to those >35 years and this association was found to be statistically significant. Males had a 15% less chance of having negative attitude towards contraception use when compared to females and this association was statistically significant. Those belonging to lower socioeconomic classes (class III, IV and V) had increased odds of having negative attitude towards contraception use when compared to those belonging to upper and upper middle class. Adjusted odds ratio for variables associated with attitude towards contraception use is shown in Table 6.

4. Discussion

Contraceptive practices play a pivotal role in shaping reproductive health outcomes, particularly in urban slum populations where access to healthcare resources may be constrained. Knowledge, attitude, and practice (KAP) studies serve as invaluable tools for

Table 5. Logistic regression analysis between knowledge regarding contraception and related variables.

Variables	Unadjusted OR (95% CI)	aOR (95% CI)	P value [#]
Education			
Middle school	4.10 (2.12-7.95)	0.58 (0.38-1.71)	0.810
Secondary school	7.83 (3.88-15.80)	1.77 (0.91-3.46)	0.095
Higher secondary	2.72 (1.49-4.90)	7.29 (2.93-18.10)	<0.001
Graduate (Ref)	-	-	-
Age, years			
<35	1.68 (1.10-2.50)	2.04 (1.19-3.50)	0.009
≥ 35 (Ref)	-	-	-
Occupation			
Semiskilled	3.28 (1.28-8.39)	2.86 (1.25-6.54)	0.013
Skilled (Ref)	-	-	-
Socioeconomic class			
Class IV and V	2.44 (1.43-4.15)	3.66 (1.71-7.85)	0.001
Class III	0.79 (0.47-1.33)	3.97 (2.12-7.49)	<0.001
Class I and II (Ref)	-	-	-
Number of children			
No children	0.34 (0.16-0.70)	0.52 (0.22-1.27)	0.152
Single child	0.61 (0.29-1.26)	0.52 (0.19-1.38)	0.506
Two children	0.54 (0.255-1.16)	0.67 (0.68-1.37)	0.232
>2 children (Ref)	-	-	-

[#]Enter method of logistic regression is used to identify the predictor variables. *CI*: confidence interval, *aOR*: adjusted odds ratio.

Table 6. Logistic regression analysis between attitude regarding contraception and related variables.

Variables	Unadjusted OR (95% CI)	aOR (95% CI)	P value [#]
Education			
Middle school	2.98 (1.61-5.49)	8.54 (2.35-31.04)	0.001
Graduate (Ref)	-	-	-
Age, years			
<35	0.55 (0.34-0.88)	0.53 (0.28-0.99)	0.048
≥35 (Ref)	-	-	-
Sex			
Male	0.49 (0.29-0.81)	0.15 (0.06-0.37)	<0.001
Female (Ref)	-	-	-
Occupation			
Semiskilled	2.46 (1.02-5.95)	0.98 (0.28-3.44)	0.978
Skilled (Ref)	-	-	-
Socioeconomic class (BG Prasad Scale)			
Class IV and V	5.05 (2.68-9.53)	4.42 (1.97-9.92)	<0.001
Class III	2.34 (1.20-4.58)	9.83 (3.63-26.58)	<0.001
Class I and II (Ref)	-	-	-
Number of children			
>2 children	7.83 (2.47-32.38)	10.04 (4.26-23.66)	<0.001
Single child	4.19 (1.33-17.30)	3.14 (0.60-16.35)	0.175
No children (Ref)	-	-	-

[#]Enter method of logistic regression is used to identify the predictor variables. CI: confidence interval, aOR: adjusted odds ratio.

understanding the dynamics of contraception utilization within such settings. This discussion seeks to provide a comparative analysis of the present study findings, focusing on the shifts, consistencies, and disparities observed in contraception awareness, attitudes, and actual practices. Through this exploration, we contribute evidence-based insights that can inform and enhance family planning initiatives within urban slum communities.

In the present study, 91% knew about at least one method of contraception. However, adequate knowledge regarding contraception was seen in only 43.3% of the population. Similar findings were found in a study done by Kumar *et al* in 2019[14] in Vellore where 40.6% had adequate knowledge. A comparatively lower prevalence was found in a study done by Mahawar *et al* in Indore[15]. A study done by Sherpa *et al* in Karnataka found the prevalence of adequate knowledge to be high (81%)[16]. Similar high knowledge of contraception awareness was found among women in Andhra Pradesh as evident from a study done by Rao *et al*[17].

The present study found that 71% of the study participants had a positive attitude towards contraception. Similar findings were obtained in study done by Kumar *et al* in Vellore, Mahawar *et al* in Indore and Sherpa *et al* in Karnataka[14–16].

More than half of the study participants (57%) practiced contraception in the present study. Similar findings were obtained in study done by Rao *et al* in Andhra Pradesh and Rattan *et al* in Punjab[17,18].

Regarding the knowledge, attitude and practice and contraception, the present study concludes that, irrespective of the knowledge and attitude, 43% of the study participants did not practice contraception which is a dire need for call for action, as it could lead to unwanted pregnancies and increase in population leading to strain on already depleted resources in our country.

In the present study, education and socio-economic status were found to have statistically significant association with knowledge regarding contraception. Similar results were found in a study done

by Kumar *et al* in Vellore and Koringa *et al* in Gujarat[14,19]. Lower education levels especially among females is one of the major factors hindering the acceptance of contraception in many parts of the country as evident from several studies[20,21]. In the present study, those less than 35 years of age were more likely to have inadequate knowledge regarding contraception. Similar results were obtained in a study done by Sheeha *et al*[22], but contradictory findings were obtained in a study done by Alkalash *et al*[23] in which it was concluded that higher age groups are at increased odds of having inadequate knowledge regarding contraception. This disparity may be attributed to the disparities in sociodemographic characteristics in different study areas and settings.

Education was found to have a statistically significant association with attitude regarding contraception with those who have studied only up to middle school having higher odds of having unfavorable attitude when compared with graduates. Similar findings were obtained in a study done by Bekele *et al* in Ethiopia[24]. These findings suggest that higher education plays an important role in having favorable attitude towards contraception.

Age less than 35 years of age was found to be an important predictor of positive attitude towards contraception with statistically significant association. However, other studies had contrasting results with younger ages being associated with negative attitude towards contraception use. This is a cause of concern because younger the age, higher the chances for unintentional pregnancies leading to abortion and miscarriages. This is supported from the results of the studies done by Caraig *et al* and Raine *et al*. It was concluded that negative attitude towards contraception necessitates awareness creation among young adults and teenagers to break the various myths associated with contraception[25,26].

Regarding sex, the present study found that male had increased odds of having positive attitude towards contraception. Similarly, Rattan *et al* found that males have favorable attitude towards contraception when compared with females[18]. Contradictory findings were found

in studies done by Parija *et al* in Chhattisgarh and Mejía-Guevara *et al* in India. These studies attribute the fact that males being decision makers in the family had negative attitude towards contraception that it may reduce pleasure and cause discomfort for the partners[27,28].

A study done by Hayat *et al* in rural Kashmir revealed that improving socioeconomic status was associated with an overall improvement in acceptance of contraceptives[29]. These findings are concurrent to the present study findings.

The prevalence of contraception practice in the present study was 57%. Despite a good attitude towards contraception use, almost 43% of the participants were currently not using any contraceptive methods. In a study done by Rattan *et al* in urban slums of Punjab, 72.5% of the population was using some form of contraception[18]. Media was the major source of information regarding contraceptive use in the present study (53.6%). Similar findings were present in a study done by Hayat *et al* in rural Kashmir where mass media was the source of information to 60.4% of the study participants[29]. A study done by Govil *et al* in 2021 showed that there was a higher reporting of contraceptive use among wives 59.0% when compared to their husbands 25.2%[30]. This shows that concordance between the husband and wife about contraceptive use was low as reflected in the various similar studies[27,28]. This is a similar finding to our study where 24.7% of married women were using contraceptive methods even without their partner's knowledge.

The current study showed a relatively less prevalence (56.9%) of contraception when compared to Tamil Nadu NFHS 5 data for urban areas 67.6%. This may be due to the reason that there is still lack of information, education and communication to urban slum population in this area. More than two third participants used any method of contraception in the study by Kumar *et al* among urban population in Vellore[14]. In this study, however, only 50% were using contraceptives.

Thulaseedaran *et al* in Kerala in 2018 reported that 58% of the population practiced any one method of contraception among which withdrawal method was the most commonly used followed by barrier method and intrauterine contraceptive devices (IUCD) was used only by 2% of women[31]. The current study found that the most commonly used contraceptive method was IUCDs. A study done on comparing the changes in the pattern of contraceptive use between 1992-1993 to 2015-2016 by Pradhan *et al* in 2019 showed that female sterilization continued to be the common method of contraception[32]. While the use of pills and condoms had increased, use of traditional methods remained almost unchanged during both the time periods. In our study, intrauterine devices were the most commonly used contraceptive method followed by condoms and female sterilization. This difference in finding may be due to the reason that majority of our study participants were below 35 years of age due to which they opted for a reversible method of contraception when compared to female sterilization.

This study has some limitations. Due to the cross-sectional nature of the study, it is challenging to establish causal relationships between variables. Given the sensitive nature of contraception-related topics, participants may be prone to providing responses that align with societal norms or expectations, introducing a potential

for social desirability bias. This could affect the accuracy of self-reported information.

In conclusion, this study shows that there is a wide gap between awareness of at least one method of contraception and usage of contraceptives. The present study highlights that the knowledge, attitude and practice towards contraception in urban slum areas is less than the national averages. This calls for efforts for increasing awareness among the slum population and for motivating usage of contraceptives in the primary care settings. Media has proven to be a good platform to reach a bigger audience and hence it can be used to spread awareness about the need for family planning and the options available to eligible couples living in slums. Further research must focus on male sterilization and its societal acceptance.

Conflict of interest statement

Authors report no conflict of interest.

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Authors' contributions

Dr. Angeline Grace designed and provided the concept for the study. Dr. Sushmitha and Dr. Shirley Esther Priscilla collected data. Dr. Monica Albert Sekhar analysed the data and prepared the manuscript. Dr. Shanthi Edward reviewed the manuscript. All contributing authors approved the final manuscript.

References

- [1] Worldometers. *India population (2023)*. [Online] Available from: <https://www.worldometers.info/world-population/india-population/> [Accessed 23rd October 2023].
- [2] Worldometer. *Population by country (2020)*. [Online] Available from: <https://www.worldometers.info/world-population/population-by-country/> [Accessed 23rd October 2023].
- [3] India. *Family planning: National Health Mission*. [Online] Available from: <https://nhm.gov.in/index1.php?lang=1&level=2&sublinkid=821&lid=222>

- [Accessed 23rd October 2023].
- [4] World Health Organization. *Contraception*. [Online] Available from: https://www.who.int/health-topics/contraception#tab=tab_1 [Accessed 23rd October 2023].
 - [5] The Demographic and Health Surveys (DHS) Program. *Guide to DHS Statistics DHS-7. Knowledge of contraceptives*. [Online] Available from: https://dhsprogram.com/data/Guide-to-DHS-Statistics/Knowledge_of_Contraceptive_Methods.htm [Accessed 23rd October 2023].
 - [6] United Nations Department of Economic and Social Affairs, Population Division (2022). *World family planning 2022: Meeting the changing needs for family planning: Contraceptive use by age and method*. New York, NY: United Nations; 2023.
 - [7] Government of India, Ministry of Health and Family Welfare. *National Family Health Survey 5 (2019–2021) Compendium of fact sheets*. [Online] Available from: https://main.mohfw.gov.in/sites/default/files/NFHS-5_Phase-II_0.pdf [Accessed 23rd October 2023].
 - [8] United Nations Population Fund. *Family planning*. [Online] Available from: <https://www.unfpa.org/family-planning#:~:text=Family%20planning%20is%20the%20information> [Accessed 23rd October 2023].
 - [9] Rattan S, Kalia M, Rohilla R, Grover PK, Dandona S, Sharma MK, et al. Contraceptive awareness and practices in reproductive age couples: A study from urban slums of Punjab. *J Family Med Prim Care* 2022; **11**(7): 3654-3659. doi: 10.4103/jfmpc.jfmpc_2257_21.
 - [10] Hazarika I. Women's reproductive health in slum populations in India: Evidence from NFHS-3. *J Urban Health* 2010; **87**(2): 264-277. doi: 10.1007/s11524-009-9421-0.
 - [11] Statista. *India: slum population as a share of urban population*. [Online] Available from: <https://www.statista.com/statistics/1400274/india-slum-population-as-a-share-of-urban-population/> [Accessed 3rd October 2023].
 - [12] Invest India. *India preparing for the biggest human migration on the planet*. [Online] Available from: <https://www.investindia.gov.in/team-india-blogs/india-preparing-biggest-human-migration-planet#:~:text=Every%20minute%2C%2025%2D30%20people> [Accessed 23rd October 2023].
 - [13] Population census. *Anakaputhur Town Population Census 2011–2023*. [Online] Available from: <https://www.census2011.co.in/data/town/803353-anakaputhur-tamil-nadu.html> [Accessed 20th September 2022].
 - [14] Kumar Y, Mukherjee P, Frankline A, Rahman SMF, David KV, Pricilla RA. Determination of prevalence, knowledge, attitude and practices of contraceptive use in an urban population in South India: A community-based study. *Int J Community Med Public Health* 2019; **6**(9): 3871-3877.
 - [15] Mahawar P, Anand S, Raghunath D, Dixit S. Contraceptive knowledge, attitude and practices in mothers of infant: A cross-sectional study. *Natl J Community Med* 2011; **2**.
 - [16] Sherpa SZ, Sheilini M, Nayak A. Knowledge, attitude, practice and preferences of contraceptive methods in Udupi district, Karnataka. *J Family Reprod Health* 2013; **7**(3): 115.
 - [17] Rao PD, Babu MS. Knowledge and use of contraception among Racha Koyas of Andhra Pradesh. *Anthropologist* 2005; **7**: 115-119.
 - [18] Rattan S, Kalia M, Rohilla R, Grover PK, Dandona S, Sharma MK, et al. Contraceptive awareness and practices in reproductive age couples: A study from urban slums of Punjab. *J Family Med Prim Care* 2022; **11**: 3654-3659.
 - [19] Koringa HT, Joshi KJ, Mehta JP. A study on various factors affecting family planning practices among eligible couples in urban slums of municipal corporation area in Jamnagar, Gujarat, India. *Int J Med Sci Public Health* 2015; **4**: 1675-1680.
 - [20] Woldeamanuel BT, Gessese GT, Demie TG, Handebo S, Biratu TD. Women's education, contraception use, and high-risk fertility behavior: A cross-sectional analysis of the demographic and health survey in Ethiopia. *Front Glob Women's Health* 2023; **4**: 1071461. doi: 10.3389/fgwh.2023.1071461.
 - [21] Waiz NK. Role of education in the use of contraception. *Lancet* 2000; **356**(Suppl: s51). doi: 10.1016/s0140-6736(00)92037-3.
 - [22] Sheeha M. Awareness and use of contraceptives among saudi women attending primary care centers in Al-qassim, saudi arabia. *Int J Health Sci (Qassim)* 2010; **4**(1): 11-21.
 - [23] Alkalash SH, Alessi SM, Alrizqi AA, Alamri AA, Al Kenani A, Alrizqi HA, et al. Knowledge on, attitude toward, and practice of contraceptive methods among females of reproductive age in Al-Qunfudah Governorate, Saudi Arabia. *Cureus* 2023; **15**(3): e36606. doi: 10.7759/cureus.36606.
 - [24] Bekele D, Surur F, Nigatu B, Teklu A, Getinet T, Kassa M, G et al. Knowledge and attitude towards family planning among women of reproductive age in emerging regions of Ethiopia. *J Multidiscip Healthc* 2020; **13**: 1463-1474. doi: 10.2147/JMDH.S277896.
 - [25] Craig AD, Dehlendorf C, Borrero S, Harper CC, Rocca CH. Exploring young adults' contraceptive knowledge and attitudes: Disparities by race/ethnicity and age. *Women's Health Issues* 2014; **24**(3): e281-e289.
 - [26] Raine TR, Foster-Rosales A, Upadhyay UD, Boyer CB, Brown BA, Sokoloff A, et al. One-year contraceptive continuation and pregnancy in adolescent girls and women initiating hormonal contraceptives. *Obstet Gynecol* 2011; **117**(2 Pt 1): 363-371. doi: 10.1097/AOG.0b013e31820563d3.
 - [27] Parija PP, Pal A, Panigrahi SK, Thakur P, Pal R. Male involvement in family planning in a rural area of India. *J Family Med Prim Care* 2022; **11**(5): 1943-1948. doi: 10.4103/jfmpc.jfmpc_1557_21.
 - [28] Mejía-Guevara I, Cislighi B, Darmstadt GL. Men's attitude towards contraception and sexuality, women's empowerment, and demand satisfied for family planning in India. *Front Sociol* 2021; **6**: 689980. doi: 10.3389/fsoc.2021.689980.
 - [29] Hayat H, Khan PS, Imtiyaz B, Hayat G, Hayat R. Knowledge, attitude and practice of contraception in rural kashmir. *J Obstet Gynaecol India* 2013; **63**(6): 410-414. doi: 10.1007/s13224-013-0447-6.
 - [30] Govil D, Khosla N. Concordance in spousal reports of current contraceptive use in India. *J Biosoc Sci* 2021; **53**(4): 606-622. doi: 10.1017/S0021932020000437.
 - [31] Thulaseedharan JV. Contraceptive use and preferences of young married women in Kerala, India. *Open Access J Contracept* 2018; **9**: 1-10. doi: 10.2147/OAJC.S152178.
 - [32] Pradhan MR, Dwivedi LK. Changes in contraceptive use and method mix in India: 1992-92 to 2015-16. *Sex Reprod Healthc* 2019; **19**: 56-63. doi: 10.1016/j.srhc.2018.12.006.

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