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Original Research Article

Navigating the terrain of teenage pregnancy: a socio-demographic and health outcomes study focused on contraceptive knowledge, attitudes, and practices among urban adolescents

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ABSTRACT

Background: Teenage pregnancy remains a significant public health concern in India, with far-reaching implications for maternal and child health. This study aims to examine the socio-demographic profiles, pregnancy outcomes, and contraceptive knowledge, attitudes, and practices (KAP) among urban adolescents in Bangalore.
Methods: This hybrid study combined retrospective analysis of 707 antenatal records and prospective follow-up of 62 pregnant teenagers (aged <19 years) at an urban referral hospital in Bangalore between August 2021 and January 2022. A structured questionnaire assessed contraceptive KAP via telephone interviews.
Results: Most participants were 19 years old (82.3%) and from Bangalore Urban (77.4%). While 62.9% had heard about contraceptives, only 35.5% reported ever using them. Condoms (48.8%) and birth control pills (38.8%) were the most known methods. Media (44.6%) and healthcare professionals (43.1%) were primary information sources. Attitudes towards contraceptives were largely neutral (80.6%). Partner's refusal (40%) and lack of knowledge (37.6%) were main reasons for non-use. Education was significantly associated with contraceptive knowledge (p=0.022), while the source of information was associated with attitudes (p=0.032).
Conclusions: This study reveals significant gaps in contraceptive knowledge and practices among urban adolescents in Bangalore. Findings highlight the need for comprehensive sexuality education, improved access to youth-friendly reproductive health services, and interventions addressing gender dynamics in contraceptive decision-making. These insights contribute to understanding adolescent reproductive health in urban India and call for multifaceted strategies to reduce teenage pregnancy rates and improve reproductive health outcomes.

Keywords: Contraceptives, India, Reproductive health, Teenage pregnancy, Urban adolescents

INTRODUCTION

Teenage pregnancy remains a significant public health concern in India, with far-reaching implications for maternal and child health, as well as socioeconomic development. The National Family Health Survey-5 (NFHS-5) conducted in 2019-21 provides crucial insights into the current scenario of adolescent reproductive health in the country. According to NFHS-5, 6.8% of women aged 15-19 years were already mothers or pregnant at the time of the survey, a slight decrease from 7.9% reported in NFHS-4 (2015-16).[1] This situation is alarming, especially in a country where early marriages and early childbearing are deeply rooted in certain socio-cultural norms. The ramifications of teenage pregnancy stretch beyond health concerns, encapsulating socio-economic and educational setbacks for the young mothers and their offspring.[2-4]

Research has highlighted substantial differences in teenage pregnancy rates across India's diverse geographical landscape. Notably, rural areas of India consistently report higher rates of teenage pregnancies compared to urban

settings. The NFHS data of 2019-2020 indicated that 23.3% of women in rural areas between the ages of 20-24 got married before the age of 18, compared to 16.7% in urban areas highlighting the ongoing issue of child marriage, which is closely linked to teenage pregnancy.[5] The drivers behind these elevated rates in rural areas are intricate, encompassing socio-cultural norms, lack of awareness, limited access to contraceptives, and challenges in availing reproductive health services.[6-8] The contraceptive landscape among young women is of particular interest. NFHS-5 data shows that overall contraceptive use has increased, with 66.7% of currently married women aged 15-49 using any method of contraception. However, the unmet need for family planning remains at 9.4%, indicating a gap in access to or utilization of contraceptive services, especially among younger age groups.

Sociodemographic factors play a crucial role in teenage pregnancy and contraceptive use. The survey indicates that 71.5% of women aged 15-49 are literate, with 41.0% having 10 or more years of schooling. These educational indicators are important as they often correlate with better reproductive health outcomes and increased contraceptive use. Furthermore, the survey highlights disparities between urban and rural areas in various health indicators, including contraceptive use and teenage pregnancy rates. This urban-rural divide underscores the need for targeted interventions in different geographical settings.

In light of these findings, our study aims to delve deeper into the socio-demographic profiles, pregnancy outcomes, and knowledge, attitudes, and practices (KAP) regarding contraceptive measures among teenagers in urban Bangalore. Our study examines teenage pregnancy through the lens of contraceptive knowledge, attitudes, and practices among urban adolescents, considering socio-demographic factors and health outcomes.

This research is crucial for informing policy decisions and designing targeted interventions to address the complex issue of teenage pregnancy in India. By examining the interplay of socio-demographic factors, health outcomes, and contraceptive practices, we aim to contribute valuable insights that can help improve adolescent reproductive health and reduce the incidence of early childbearing in the country. The objectives of this study were as follows: 1) To describe the socio-demographic profile of the study participants, 2) To assess the level of knowledge, attitudes, and practices related to contraceptive measures among urban adolescents, 3) To assess the impact of socio-demographic factors on contraceptive knowledge, attitudes, practices, and health outcomes.

METHODS

Study design and setting

This research was structured as a hybrid study, a combined approach incorporating both retrospective and prospective components. The study setting was an urban referral hospital, Bangalore which predominantly serves the urban poor population and is a focal point for maternal healthcare in the area.

Inclusion criteria

Pregnant teenagers aged less than 19 years, visiting the urban referral hospital during study period and those willing to participate and provide verbal consent for the telephonic follow-up were included.

Exclusion criteria

Pregnant teenagers with incomplete medical records, those who were unreachable or declined to participate in the telephonic follow-up were excluded.

Questionnaire design

A pretested and pre-validated questionnaire was used to assess knowledge, attitudes, and practices (KAP) regarding contraceptive use among urban adolescents in Bangalore. The questionnaire comprised four sections: Demographics, Knowledge, Attitudes, and Practices. It included questions on socio-demographic factors, awareness of contraceptive methods, sources of information, perceptions about contraceptive use, and actual contraceptive practices. A mix of closed-ended (multiple-choice and Likert-scale) and open-ended questions was used to gather both quantitative and qualitative data. The questionnaire was designed to be administered via telephone during the follow-up process, ensuring comprehensive data collection while maintaining participant convenience and safety.

Data collection

Retrospective component

Case records of antenatal mothers who visited the urban referral hospital between August 2021 and January 2022 were meticulously analyzed. This retrospective analysis formed the foundation for identifying the target population for the prospective component of the study.

Prospective component

All identified pregnant women aged less than 19 years from the retrospective analysis were followed up with a telephonic call. This follow-up aimed to enquire about the outcome of their pregnancy and the mode of delivery. Additionally, a structured questionnaire was administered during this call to assess their knowledge, attitude, and practices concerning contraceptive use.

Sample size

A total of 707 antenatal records were meticulously reviewed during the study period. Out of these, 62 were

identified as adolescent pregnancies, making them the focal point for the telephonic follow-up and further analysis.

Prior to initiating the study, ethical approval was secured from the Institutional Ethics Committee of the referral hospital. Additionally, necessary permissions from relevant authorities within the hospital administration were obtained. All participants were informed about the study's objectives, and verbal consent was acquired before administering the telephonic questionnaire. Confidentiality of participants' responses and personal information was maintained throughout the study.

Data analysis

Data was entered in Google excel sheet and analyzed using R studio (Version 2023.12.1+402 (2023.12.1+402) and R commander statistical pack-ages (11). Descriptive statistics were employed to summarize demographic characteristics, pregnancy outcomes, and KAP responses. Frequencies and percentages were calculated for categorical variables. Chi-square tests were used to assess associations between socio-demographic factors and contraceptive knowledge and attitudes. Spearman's rank correlation was applied to evaluate relationships between ordinal variables, such as education and attitude, and income and knowledge. All statistical tests were two-tailed, with a significance level set at $p<0.05$. The analysis aimed to identify patterns and relationships within the data to address the study's objectives of understanding contraceptive KAP among urban adolescents.

RESULTS

Our study included 62 participants, predominantly aged 19 (82.3%), with the remainder aged 18 (17.7%). The majority of participants were from Bangalore Urban (77.4%), while 22.6% were from Bangalore Rural.

Sociodemographic characteristics and obstetric history

Table 1 presents the sociodemographic profile of the participants. Most participants had completed high school (32.3%) or primary school (30.6%). The sample was predominantly from upper (46.8%) and upper-middle (38.7%) socioeconomic classes. The majority (59.7%) reported a monthly income between 5,001 to 10,000 rupees.

Knowledge and awareness of contraceptives

Of the participants, 62.9% had heard about contraceptives. Among those aware, condoms (48.8%) and birth control pills (38.8%) were the most commonly known methods. The primary sources of contraceptive information were media (44.6%) and healthcare professionals (43.1%).

Table 1: Sociodemographic characteristics and obstetric history of participants.

Characteristic	Category	Frequency (N)	Percentage (%)
Education	Primary school	19	30.6
	Middle school	14	22.6
	High school	20	32.3
	PUC	9	14.5
	Primary school	19	30.6
Area	Bangalore urban	48	77.4
	Bangalore rural	14	22.6
Monthly income (Rupees)	15,001 and above	1	1.6
	10,001 to 15,000	14	22.6
	5,001 to 10,000	37	59.7
	Below 5000	10	16.1
Consanguinity	Consanguineous	17	27.4
	Non consanguineous	45	72.6
Obstetric history	Primigravida	54	87.1
	Multigravida	8	12.9
Mode of delivery	NVD*	23	37.1
	LSCS*	34	54.8
	Vacuum assisted	5	8.06
Outcome of pregnancy	Live birth	60	96.8
	Still birth	2	3.2

*NVD: Normal Vaginal Delivery ; *LSCS: Lower Segment Cesarean segment

Attitudes towards contraceptives

Attitudes towards contraceptives were largely neutral. 80.6% of participants were neutral about the necessity of contraceptives and whether they signify promiscuity. Notably, 32.3% expressed concerns about side effects, while 58% were unsure. The majority (87.1%) were

uncertain about encouraging friends or family to use contraceptives.

Contraceptive practices

Table 2 summarizes the contraceptive practices among participants. 35.5% reported having used contraceptives, with condoms (65.5%) being the most common method. Usage frequency varied, with 40.9% using contraceptives occasionally and 36.4% rarely.

For those not using contraceptives, the main reasons were partner's refusal (40%) and lack of knowledge (37.6%).

Table 2: Knowledge, attitudes, and practices (KAP) regarding contraceptives.

Category	Subcategory	Frequency (N)	Percentage (%)
Knowledge	Have you ever heard about contraceptives?	39	62.9
Contraceptive method(s) aware of	Condom	39	48.8
	Birth control pills	31	38.8
Source of information	Media	29	44.6
	Healthcare professionals	28	43.1
Attitude	Neutral on necessity	50	80.6
	Worried about side effects	20	32.3
	Unsure about encouraging use	54	87.1
Practices	Ever used contraceptives	22	35.5
Methods used	Condoms	21	65.5
	Birth control pills	10	31.3
Frequency of use	Occasionally	9	40.9
	Rarely	8	36.4
Reasons for non-use	Partner's refusal	34	40
	Lack of knowledge	32	37.6
Procurement source	PHC	12	54.5
	Pharmacy	8	36.5

Associations between variables

Table 3 presents the associations between sociodemographic factors and contraceptive knowledge and attitudes. Education was significantly associated with knowledge (p=0.022), while the source of information was significantly associated with attitudes (p=0.032). No significant correlations were found between education and attitude (ρ=0.041, p=0.752) or between income and knowledge (ρ=0.196, p=0.127) (Table 4).

Table 3: Statistical association table (Chi-square test).

Variable	Knowledge (Chi-Square p value)	Attitude (Chi-Square p value)
Education	0.02*	0.96
Area	0.31	0.70
Income	0.42	0.84
Consanguinity	0.63	0.79
Source of information	1	0.03*

*Statistically Significant

Table 4: Spearman's rank correlation.

Variable pair	Spearman's rank correlation coefficient	P value	Interpretation
Education vs. attitude	0.04	0.75	No significant correlation between education and attitude
Income vs. knowledge	0.19	0.12	No significant correlation between income and knowledge

Other relevant finding

Our findings shed light on participants' reproductive health status and contraceptive behaviors. The majority of pregnancies (97.3%) were term, with a high live birth rate of 96.8%. Regarding delivery methods, lower cesarean sections were most common (54.8%), followed by normal vaginal deliveries (37.1%), and vacuum-assisted deliveries

(8.06%). While condoms and birth control pills were the most recognized contraceptive methods, there was some awareness of other options such as implants (1.2%), intrauterine devices (2.5%), injections (3.7%), and emergency pills (5%). Beyond the primary sources of contraceptive information (media and healthcare professionals), a small percentage of participants obtained information from family (3.1%), friends/peers (1.5%), and the internet (7.7%). Attitudes towards contraceptive necessity varied, with 12.9% agreeing they were necessary, 6.5% disagreeing, and the majority remaining neutral. Additional reasons for not using contraceptives included concerns about side effects (17.6%), religious beliefs (3.5%), and personal preference (1.2%).

DISCUSSION

Our study provides valuable insights into the socio-demographic characteristics, pregnancy outcomes, and contraceptive knowledge, attitudes, and practices (KAP) among urban adolescents in Bangalore. The findings highlight several important aspects of teenage pregnancy and contraceptive use in this population.

The majority of our participants were 19 years old (82.3%), which suggests that most teenage pregnancies in our sample occurred at the upper end of adolescence. This finding aligns with national trends reported in the NFHS-5, where the percentage of women aged 15-19 who had begun childbearing was 6.8%. The predominance of participants from Bangalore Urban (77.4%) reflects the urban focus of our study and may indicate better access to antenatal care services in urban areas compared to rural settings.[9]

The educational profile of our participants, with most having completed high school (32.3%) or primary school (30.6%), is somewhat encouraging but also highlights the need for continued efforts to promote education among adolescent girls. Higher education levels have been associated with better reproductive health outcomes and increased contraceptive use.[10] The socioeconomic distribution, with a majority in the upper (46.8%) and upper-middle (38.7%) classes, was unexpected and warrants further investigation, as lower socioeconomic status is typically associated with higher rates of teenage pregnancy.[11]

Our finding that 62.9% of participants had heard about contraceptives is concerning, as it indicates a significant knowledge gap among urban adolescents. This gap is particularly alarming given the urban setting of our study, where access to information is presumably better than in rural areas. The most commonly known methods were condoms (48.8%) and birth control pills (38.8%), which is consistent with other studies on contraceptive awareness among young people in India.[12] However, the low awareness of other methods such as implants, IUDs, and emergency contraception suggests a need for more comprehensive sexual education programs.

The primary sources of contraceptive information being media (44.6%) and healthcare professionals (43.1%) highlight the important role these channels play in disseminating reproductive health information. However, the minimal contribution of family (3.1%) and friends/peers (1.5%) as information sources suggests a potential taboo around discussing contraception within social circles, which may hinder information spread and normalize contraceptive use.[13]

The predominantly neutral attitudes towards contraceptives, with 80.6% of participants being neutral about their necessity, indicate a lack of strong opinions either for or against contraceptive use.[14] This neutrality could be seen as an opportunity for targeted education to positively influence attitudes. However, the significant proportion (32.3%) expressing concerns about side effects and the majority (87.1%) being uncertain about encouraging contraceptive use among friends or family highlight the need for addressing misconceptions and promoting positive attitudes towards contraception.

The low rate of contraceptive use (35.5%) among our participants is alarming and significantly lower than the national average reported in NFHS-5 for currently married women aged 15-49 (66.7%).[15] This discrepancy could be due to the younger age group in our study and their unmarried status, highlighting the unique challenges faced by adolescents in accessing and using contraceptives. The preference for condoms (65.5%) among those who used contraceptives aligns with their higher awareness of this method.[16] However, the inconsistent use, with 40.9% using contraceptives only occasionally and 36.4% rarely, is concerning and may explain the high pregnancy rates despite some contraceptive use. The main reasons for non-use, including partner's refusal (40%) and lack of knowledge (37.6%), underscore the need for interventions that target both genders and provide comprehensive sexual education. The role of partner refusal, in particular, highlights the importance of addressing gender power dynamics in contraceptive decision-making.

The significant association between education and contraceptive knowledge ($p=0.022$) reinforces the importance of education in improving reproductive health outcomes. The association between the source of information and attitudes towards contraceptives ($p=0.032$) suggests that the quality and nature of information received play a crucial role in shaping attitudes. The lack of significant correlations between education and attitude or between income and knowledge is surprising and warrants further investigation. These findings suggest that factors beyond education and income may be influencing contraceptive attitudes and knowledge in this population.

This study has several limitations that should be considered when interpreting its findings. The small sample size of 62 participants, predominantly 19-year-olds from a single urban referral hospital in Bangalore, limits

the generalizability of results to broader adolescent populations. The retrospective design and reliance on self-reported data via telephonic questionnaires may introduce recall and social desirability biases. The cross-sectional nature precludes establishing causal relationships or tracking changes over time. The study's focus on pregnant teenagers excludes insights from sexually active adolescents who avoided pregnancy, and the limited exploration of cultural factors and male perspectives may have missed important contextual influences on contraceptive use and teenage pregnancy. Additionally, potential selection bias from using hospital records may have excluded adolescents not seeking formal antenatal care. These limitations highlight the need for larger, more diverse studies to comprehensively address adolescent reproductive health in urban India.

CONCLUSION

This study on teenage pregnancy and contraceptive use among urban adolescents in Bangalore reveals significant gaps in contraceptive knowledge, attitudes, and practices. With only 62.9% of participants aware of contraceptives and a low usage rate of 35.5%, our findings highlight the urgent need for comprehensive interventions. The study underscores the critical role of education, healthcare professionals, and media in shaping contraceptive awareness and attitudes. Partner refusal and lack of knowledge emerged as primary barriers to contraceptive use, emphasizing the need for gender-inclusive approaches and improved sexual education. These insights contribute to the understanding of adolescent reproductive health in urban India and call for multifaceted strategies encompassing education, healthcare access, and policy reforms. By addressing these challenges, we can work towards reducing teenage pregnancy rates and improving reproductive health outcomes among urban adolescents, ultimately enhancing their overall well-being and life prospects.

Recommendations

Based on our study findings, we recommend implementing comprehensive sexuality education in schools and community settings, coupled with improving access to youth-friendly reproductive health services. Targeted media campaigns should be developed to increase awareness about contraceptives, while engaging male partners and families to promote open communication about sexual health. Strengthening policies to ensure adolescents' right to contraceptive access, investing in research to understand sociocultural factors influencing contraceptive use, and utilizing technology for information dissemination are crucial. Additionally, fostering multi-sectoral collaboration, addressing mental health concerns, and providing economic empowerment programs for adolescent girls can contribute to reducing teenage pregnancy rates and improving overall reproductive health outcomes among urban adolescents in Bangalore.

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