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Original Research Article

Association of Socio-Demographic Factors with Reproductive and Sexual Health among College Girls in Central India: A Cross-Sectional Study

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Abstract

Background: Reproductive and sexual health (RSH) is an essential component of women's health and is strongly influenced by socio-demographic determinants such as education, residence, family environment, and socioeconomic status. Young women in colleges represent a critical population requiring accurate knowledge and healthy practices regarding RSH.

Objective: To assess the association of socio-demographic factors with reproductive and sexual health knowledge, attitudes, and practices among college girls in Sagar City, Madhya Pradesh, India.

Methods: A cross-sectional study was conducted among 360 undergraduate female students enrolled in a government girls' college in Central India. Participants were selected through stratified random sampling. Data were collected using a pre-tested semi-structured questionnaire. Descriptive statistics and Chi-square tests were applied using SPSS version 25. A p-value <0.05 was considered statistically significant.

Results: Among 360 participants, 64% demonstrated good knowledge and 59% had adequate practices regarding reproductive and sexual health. Science students had significantly better knowledge compared to Commerce and Arts students (χ^2=10.94, p=0.004). Urban participants had more positive attitudes than rural participants (χ^2=18.62, p=0.001). Family type was significantly associated with practices (χ^2=9.02, p=0.011). Maternal education showed a strong association with knowledge levels (χ^2=18.43, p=0.001).

Conclusion: Socio-demographic factors play an important role in shaping reproductive and sexual health among college girls. Focused awareness programs for rural students, non-science streams, and girls from less educated families are needed. Including reproductive health education in college curricula can improve knowledge, attitudes, and healthy practices.

Keywords: Reproductive Health; Sexual Health; College Girls; Socio-Demographic Factors; India; Cross-Sectional Study.

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Introduction

Reproductive and sexual health (RSH) is an important part of overall health and includes physical, mental, and social well-being related to the reproductive system and sexuality. It is especially important during late adolescence and early adulthood, when young women develop lifelong attitudes and practices regarding menstruation, contraception, relationships, and healthcare-seeking behaviour. Proper awareness at this stage helps prevent unintended pregnancies, sexually transmitted infections (STIs), and reproductive health problems. [1,2]

In India, many college girls still face challenges such as social stigma, cultural taboos, poor communication, and limited access to reliable information regarding sexual and reproductive health. These barriers often lead to misconceptions about menstruation, contraception, and STI prevention. National data also show gaps in menstrual hygiene practices and reproductive health awareness among young women. [3,4]

Several socio-demographic factors influence reproductive and sexual health knowledge and

behaviour. Residence, educational background, family type, socioeconomic status, and parental education have been found to play an important role in shaping awareness and healthy practices. Students from urban areas and educated families often have better access to health information and services. [5-8]

Previous studies from India have reported that science students and girls with educated mothers tend to have better reproductive health knowledge than others. However, evidence from Central India, particularly among college girls in Madhya Pradesh, remains limited. Understanding these factors is necessary for planning targeted health education programs. [7-10]

Therefore, the present study was conducted to assess the association of socio-demographic factors with knowledge, attitudes, and practices regarding reproductive and sexual health among college girls in Sagar City, Madhya Pradesh, India.

Materials and Methods

This study was designed as a cross-sectional, descriptive study to assess the socio-demographic determinants of reproductive and sexual health among college-going girls. It was conducted in Government Girls Degree College of Excellence, located in Sagar City, Madhya Pradesh. The study population comprised female students currently enrolled in undergraduate courses in the college. The study was carried out over a period of six months, which included data collection, analysis, and report writing.

Ethical clearance was obtained from the Institutional Ethics Committee of Bundelkhand Medical College, Sagar (M.P.). The study did not involve any invasive or hazardous procedures, and all participants were informed about the purpose of the study. Informed consent was obtained from each participant, ensuring confidentiality and voluntary participation.

The inclusion criteria consisted of female students enrolled in the college who were willing to participate and provide informed consent. Students who were absent during data collection, refused consent, or had known psychiatric illnesses impairing comprehension were excluded from the study.

The sample size was calculated using the standard formula for estimation of proportion ($n = Z^2pq/e^2$), considering a 99% confidence level ($Z = 2.58$), a prevalence (p) of 37.2% based on a previous study by Bhattacharya et al., and an absolute error of 7%.

The calculated sample size was 317, which was increased by 10% to account for non-respondents, yielding a final sample size of 360 participants.

Sampling Technique: A stratified random sampling technique was used to select participants from three academic streams—Science, Commerce, and Arts. Within each stream, students from first, second, and third-year classes were identified and selected using simple random sampling. A total of 360 students were included, with approximately 40 participants chosen from each class across all streams.

Study Tool & Data Analysis: The study primarily focused on variables related to the socio-demographic profile of participants and its association with reproductive and sexual health. Data were analysed using SPSS and Microsoft Excel software. The Chi-square test was applied to assess the association between variables, with appropriate statistical significance considered.

After data collection, students were provided educational training on menstrual and genital hygiene, contraception options, and prevention and healthcare-seeking for sexually transmitted infections.

Socio-demographic variables like stream of study, religion, type of family, residence, education of mother, age, caste, marital status, socio-economic status were assessed.

For assessment of knowledge regarding reproductive & sexual health, each question was given a score of 1. Every correct answer was given a score of 1, every wrong answer was a given score of 0. Mean & Standard deviations were calculated.

Good Knowledge – No. of participants scored above Mean +_ Standard Deviation.

Poor Knowledge – No. of participants scored below Mean +_ Standard Deviation.

Attitude was assessed on the basis of 3-point Likert scale.

For domain of practice regarding menstrual hygiene each question was given a score of 1. Every correct answer was given a score of 1, every wrong answer was a given score of 0. Mean & Standard deviations were calculated.

For practice section

Adequate Practices – No. of participants giving answers correct above Mean +_ SD.

Inadequate Practices – No. of participants giving answers correct below Mean +_ SD.

Ethical clearance was obtained from the Institutional Ethics Committee of Bundelkhand Medical College, Sagar (M.P.). The study did not involve any invasive or hazardous procedures, and all participants were informed about the purpose of the study. Informed consent was obtained from each participant, ensuring confidentiality and voluntary participation.

Results

A total of 360 participants were included in the study. The majority belonged to the age group of 18–19 years (141/360, 39.2%), followed by 20–21 years (118/360, 32.8%), 22–24 years (81/360, 22.5%), and ≥25 years (20/360, 5.5%). Most participants were from the general caste (197/360, 54.7%), followed by OBC (99/360, 27.5%), SC (45/360, 12.5%), and ST (19/360, 5.3%).

The study population was predominantly unmarried (344/360, 95.5%) and Hindu (314/360, 87.2%), with a smaller proportion of Muslim participants (46/360, 12.8%). Regarding family type, the majority belonged to nuclear families (236/360, 65.6%), followed by joint families (94/360, 26.1%) and three-generation families (30/360, 8.3%). Urban residents constituted 63.3% (228/360) of the sample, while 36.7% (132/360) were from rural areas.

Socio-economically, most participants belonged to Class III (112/360, 31.1%) and Class II (98/360, 27.2%), followed by Class IV (68/360, 18.9%), Class I (62/360, 17.2%), and Class V (20/360, 5.6%). Equal representation was ensured across academic streams and years of study (120/360, 33.3% each).[Table 1]

Table 1: Sociodemographic Profile of Study Participants

Variable	Category	Frequency (n)	Percentage (%)
Age Group (years)	18–19	141	39.2%
	20–21	118	32.8%
	22–24	81	22.5%
	≥25	20	5.5%
Caste	UR	197	54.7%
	OBC	99	27.5%
	SC	45	12.5%
	ST	19	5.3%
Marital Status	Unmarried	344	95.5%
	Married	16	4.5%
Religion	Hindu	314	87.2%
	Muslim	46	12.8%
Type of Family	Nuclear	236	65.6%
	Joint	94	26.1%
	Three-generation	30	8.3%
Stream of Study	Science	120	33.3%
	Commerce	120	33.30%
	Arts	120	33.30%
Year of Study	1st Year	120	33.30%
	2nd Year	120	33.30%
	3rd Year	120	33.30%
Residence	Urban	228	63.30%
	Rural	132	36.70%
Socio-economic Class (Modified B.G. Prasad)	Class I	62	17.20%
	Class II	98	27.20%
	Class III	112	31.10%
	Class IV	68	18.90%
	Class V	20	5.60%

Overall, 230 out of 360 participants (64.0%) demonstrated good knowledge regarding reproductive and sexual health, while 130 (36.0%) had poor knowledge. A statistically significant association was observed between academic stream and knowledge (χ^2=10.94, p=0.004), with science students showing the highest proportion of good knowledge (97/120, 81.0%), followed by commerce (76/120, 63.3%) and arts students (57/120, 47.5%).[Table 2]

Table 2: Association between Stream of Study and Knowledge Regarding Reproductive & Sexual Health among Study Participants

Stream	Good Knowledge	Poor Knowledge	Total	χ^2 /df	p-value
Science	97 (81%)	23 (19%)	120 (33.3%)	(10.94)2	0.004
Commerce	76 (63%)	44 (37%)	120 (33.3%)		
Arts	57 (47.5 %)	63 (52.5%)	120 (33.3%)		
Total	230 (64%)	130 (36%)	360 (100%)		

In terms of attitude, 221 participants (221/360, 61.4%) exhibited a positive attitude, 101 (28.1%) had a neutral attitude, and 38 (10.6%) had a negative attitude. A significant association was found between residence and attitude (χ^2=18.62, p=0.001), with urban participants demonstrating a higher proportion of positive attitude (158/228, 69.3%) compared to rural participants (63/132, 47.7%). [Table 3]

Table 3: Association between Residence and Attitude Regarding Reproductive & Sexual Health among Study Participants

Residence	Positive	Neutral	Negative	Total	(χ^2) / df	p-value
Urban (n = 228)	158 (69.3%)	52 (22.8%)	18 (7.9%)	228 (100%)	(18.62)2	0.001
Rural (n = 132)	63 (47.7%)	49 (37.1%)	20 (15.2%)	132 (100%)		
Total	221 (61.4%)	101 (28.1%)	38 (10.6%)	360 (100%)		

However, no significant association was observed between religion and attitude (χ^2=1.02, p=0.60), as positive attitudes were similar among Hindu (193/314, 61.5%) and Muslim participants (28/46, 60.9%).[Table 4]

Table 4: Association between Religion and Attitude Regarding Reproductive & Sexual Health among Study Participants

Religion	Positive	Neutral	Negative	Total	(χ^2) /df	p- value
Hindu (n = 314)	193 (61.5%)	85 (27.1%)	36 (11.4%)	314 (100%)	(1.02)2	0.60
Muslim (n = 46)	28 (60.9%)	16 (34.8%)	2 (4.3%)	46 (100%)		
Total	221 (61.4%)	101 (28.1%)	38 (10.6%)	360 (100%)		

Regarding practices, 212 participants (212/360, 59.0%) demonstrated adequate practices, while 148 (41.0%) had inadequate practices. Family type showed a statistically significant association with practices (χ^2=9.02, p=0.011), with better practices observed among participants from nuclear families (152/236, 64.5%) compared to joint (44/94, 46.8%) and three-generation families (16/30, 53.3%).[Table 5]

Table 5: Association between Family Type and Practices Regarding Reproductive & Sexual Health among Study Participants

Family Type	Adequate Practices	Inadequate Practices	Total	(χ^2) / df	p-value
Nuclear	152 (64.5%)	84 /35.5%	236/ (65.5%)	**(9.02) 2**	**0.011**
Joint	44 (47%)	50 /53%	94 (26%)		
Three-generation	16 (53.3%)	14 /46.7%	30 (8.5%)		
Total	**212 (59%)**	**148 /41%**	**360(100%)**		

Additionally, maternal education was significantly associated with knowledge levels (χ^2=18.43, p=0.001), as participants whose mothers had higher secondary education and above demonstrated better knowledge (87/132, 65.9%) compared to those with middle/high school education (79/145, 54.5%) and those with illiterate/primary-educated mothers (29/83, 34.9%).[Table 6]

Table 6: Association between Mothers Education and Knowledge Regarding Reproductive & Sexual Health among Study Participants

Mother's Education	Good Knowledge	Poor Knowledge	Total	(χ^2) /df	p-value
Illiterate / Primary (n = 83)	29 (35%)	54 (65%)	83 (23%)	(18.43) 2	0.001*
Middle / High School (n = 145)	79 (54.5%)	66 (45.5%)	145 (40%)		
Higher Secondary & Above (n = 132)	87 (66%)	45 (35%)	132 (37%)		
Total	195 (54%)	165 (46%)	360(100%)		

Overall, these findings indicate that socio-demographic factors such as academic stream, residence, family structure, and maternal education significantly influence knowledge, attitudes, and practices related to reproductive and sexual health among college girls.

Discussion

The present study highlights that socio-demographic determinants significantly influence reproductive and sexual health (RSH) knowledge, attitudes, and practices among college girls in Central India. In the current study, 64% of participants demonstrated good knowledge regarding reproductive and sexual health. This finding is comparable to the study conducted by Kaur and Singh et al among female college students in Punjab, where 67.4% respondents had adequate reproductive health knowledge [12]. Similarly, Sharma and Verma et al reported that nearly 62.8% of Indian college students had satisfactory awareness regarding menstruation, contraception, and sexually transmitted infections [13]. However, lower awareness levels were reported by Singh and Kumar et al among rural adolescents, where only 48.5% participants had adequate knowledge, suggesting that rural residence remains an important barrier to health literacy [14].

A major finding of the present study was the strong association between academic stream and knowledge levels. Science students showed the highest proportion of good knowledge (81%), followed by Commerce (63%) and Arts (47.5%) students. Similar observations were reported by Patel and Desai in Gujarat, where 78.6% of science students had good reproductive health awareness compared with 58.2% in commerce and 46.7% in arts streams [15]. This difference may be attributed to greater exposure of science students to biology, physiology, and health-related subjects during formal education. Mishra et al, also found that students with science backgrounds were 1.8 times more likely to possess accurate contraceptive knowledge than non-science students [16].

Residence was another significant determinant in the present study. Urban participants demonstrated a more positive attitude (69.3%) compared with rural participants (47.7%). Comparable findings were noted by Gupta and Sharma et al, who observed positive reproductive health attitudes among 71.2% of urban young women versus 49.6% of rural women in North India [17]. Likewise, Bhandari and Kutty et al reported that urban youth had nearly 20% higher awareness scores than rural youth [5]. These differences are likely due to better healthcare access, digital media exposure, educational opportunities, and reduced social stigma in urban areas.

The present study also found that family structure significantly influenced practices regarding reproductive and sexual health. Adequate practices were observed among 64.5% of girls from nuclear families compared with 47% in joint families and 53.3% in three-generation families. Similar findings were reported by Mishra and Singh et al, where 61.8% of adolescents from nuclear families practiced good menstrual hygiene compared to 44.3% from joint families [18]. Patne et al. also noted that girls from smaller family units were more likely to discuss menstrual and reproductive issues openly, leading to healthier practices [19].

Maternal education emerged as one of the strongest predictors of knowledge in the present study. Participants whose mothers had higher secondary education or above showed better knowledge (66%) compared with those whose mothers were illiterate or had only primary education (35%). This is consistent with findings by Verma and Tiwari et al, who reported adequate reproductive health awareness in 69.1% of daughters of educated mothers versus 38.7% among daughters of less educated mothers [10]. Similarly, Paul and Chouhan et al demonstrated that maternal literacy increased the odds of good reproductive health knowledge by nearly 2.3 times [20]. Educated mothers may provide guidance on menstruation, contraception, genital hygiene, and timely healthcare-seeking.

No statistically significant association was observed between religion and attitude in the current study ($p=0.60$). Positive attitudes were seen in 61.5% of Hindu participants and 60.9% of Muslim participants. This finding aligns with Khan and Ali et al, who reported no meaningful difference in reproductive health attitudes across religious groups, with positive attitude levels ranging from 58% to 63% [21]. This suggests that educational and socio-economic factors may play a greater role than religion in shaping health behaviours among college girls.

Overall, the present findings are consistent with contemporary literature showing that urban residence, smaller family size, and maternal literacy are strong facilitators of improved reproductive and sexual health outcomes. At the same time, lower awareness among rural students, arts stream students, and girls from less educated households emphasizes the need for targeted interventions. College-based reproductive health modules, peer education, mother–daughter communication programs, and outreach activities in rural settings may substantially improve knowledge and practices.

The present study adds important evidence from Central India, where limited data are available regarding socio-demographic determinants of reproductive and sexual health among college-going girls. These findings may help policymakers and academic institutions design culturally appropriate, evidence-based reproductive health promotion strategies.

Conclusion

This study shows that reproductive and sexual health among college girls is strongly influenced by socio-demographic factors such as educational stream, place of residence, family type, and maternal

education. Students from rural backgrounds, non-science streams, and less educated families were more likely to have lower awareness and poorer practices.

These findings highlight the need for targeted, student-friendly health education programs within colleges, with special attention to vulnerable groups. Integrating comprehensive reproductive health education into academic settings can help build informed attitudes, safer practices, and better long-term health outcomes for young women.

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