

# Navigating Risks: Exploring Sexual and Reproductive Health and Contraceptive Awareness among Adolescent Girls in District Dehradun

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## ARTICLE CYCLE

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## ABSTRACT

**Background:** Adolescence brings about significant changes in the life, making it crucial to develop lifelong healthy habits. However, societal norms often restrict open discussions on sexual and reproductive health (SRH). In India, access to accurate SRH information and healthcare remains limited for many adolescents. **Aim & Objective:** To study trend in risk taking behavior related to sexual & reproductive health of adolescent girls and to find out awareness about and use of contraception in the study population. **Settings and Design:** A cross-sectional study was conducted in two randomly selected intercolleges in district Dehradun. **Methods and Material:** A total of 400 unmarried school-going adolescent girls (classes 9th–12th) were surveyed with a focus on SRH. **Statistical Analysis Used:** Percentages and chi-square test. **Results:** The mean age of respondents was 15.62 ( $\pm 1.557$ ) years. Teachers were the primary source of SRH information, but only 26.2% respondents had attended sex education classes. While most had heard of HIV/AIDS, knowledge about other sexually transmitted infections was low. Awareness of condoms and oral contraceptive pills was higher than other methods and improved with age. **Conclusion:** The study highlights inadequate access to accurate SRH information and the need for comprehensive education programs to promote informed decision-making.

## KEYWORDS

Adolescent Girls; Sexual and Reproductive Health; Contraceptive Awareness; Risk-Taking Behavior

## INTRODUCTION

Adolescence is a time of significant physical, psychological, and emotional change, shaping lifelong health habits. During this phase, young people explore their identity, develop independence, and experience emerging sexual awareness. Over the past few decades, globalization, urbanization, and increased educational opportunities have led to a longer period of unsupervised adolescent interactions (1). However, societal norms have not evolved in parallel. Research suggests that access to accurate sexual and reproductive health (SRH) information

can delay sexual initiation (2), yet social taboos continue to limit open discussions on these critical topics. As a result, many adolescents lack essential knowledge and are less likely to utilize adolescent-friendly health services, increasing their vulnerability to risky behaviors and related health concerns (3).

With approximately 243 million adolescents, India has the world's largest adolescent population (4). This necessitates the urgent need to provide accurate, age-appropriate SRH education to counter misinformation. Furthermore, bridging the gap between adolescents and youth-friendly

healthcare services is critical. Considering these factors, the present study aimed to conduct a sample survey in district Dehradun to explore the risk taking behavior of adolescent girls related to sexual & reproductive health and also to find out their awareness regarding contraceptive methods.

#### Aim & Objective(s)

- To explore risk taking behavior related to sexual & reproductive health of adolescent girls.
- To find out the contraceptive awareness among the study population.

#### MATERIAL & METHODS

**Study Type & Study Design:** Cross-sectional study

**Study Setting:** The study was carried out in two intercolleges of district Dehradun, one located in a rural area and the other in an urban setting.

**Study Population:** All girls studying in classes 9th to 12th in the selected intercolleges were eligible to participate in the study.

**Study Duration:** 6 months

**Sample Size Calculation:** A sample size of 400 was determined based on the assumption that awareness related to SRH would be 50%, with an allowable error of 5%. The final sample size was reached using the Probability Proportional to Size (PPS) sampling method.

**Inclusion Criteria:** Girls enrolled in classes 9th to 12th in the selected intercolleges who consented to participate in the study.

**Exclusion Criteria:** Students who were absent on the day of data collection or unwilling to participate.

**Strategy for Data Collection:** Data was collected using a self-administered, pretested, and structured questionnaire, adapted from WHO guidelines and modified as per local requirements. Investigators addressed any queries from participants regarding form completion.

**Working Definition:** Key terms related to sexual and reproductive health were defined based on WHO guidelines and adapted to the study context.

**Ethical Issues & Informed Consent:** The research was approved from the Institutional Ethics Committee of the university. Written permission was obtained from the principals of the selected schools. Written informed consent was sought from all participants, ensuring anonymity and confidentiality.

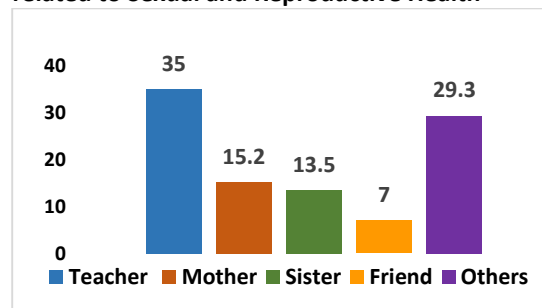
**Data Analysis** - The collected data was entered into SPSS software (version 20.0) for statistical analysis.

#### RESULTS

Overall, 400 adolescent girls were surveyed in two randomly selected intermediate colleges. The mean age of the respondents was 15.62 ( $\pm 1.557$ ) years with range of 12-23 years. The respondents were distributed in age groups of 12-13 years, 14-15 years and 16 years and above. More than half of the girls (52.2%) belonged to the higher age group i.e. 16 years and above, followed by 14-15 years (39.8%). Majority of the respondents belonged to Hindu religion (90.2%).

Teachers were the principal source of basic information about SRH, followed by other sources, which include healthcare providers, mass media, social media, NGOs, and printed materials (Figure 1). On enquiring if they had attended classes in school related to changes happening during puberty along with sexual issues, only 26.2% of the girls accepted having attended those. The response was more positive as the age increased.

**Figure 1 Respondents by Source of Information related to Sexual and Reproductive Health**



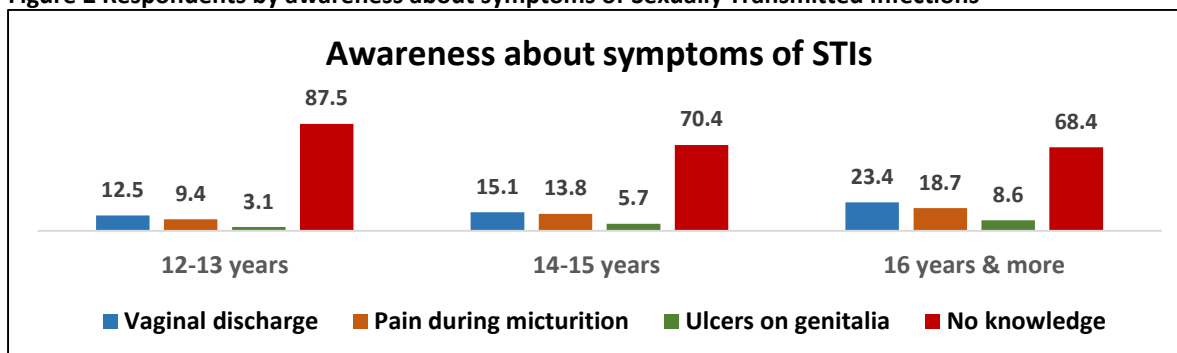
While most of the girls were aware of HIV/AIDS, only a quarter knew that HIV is incurable. (Table-1). Half of the surveyed girls did not know about the diagnostic methods for HIV/AIDS. About half of the girls knew that condom is effective way of protection from HIV/AIDS and this knowledge increased as the age increased. This was found to be statistically significant. Only about one third of the girls knew that there are other sexually transmitted infections (STIs) apart from HIV/AIDS. The knowledge about the symptoms of STIs was also found to be very low (Figure 2). Only about 30% of the respondents had some knowledge about the one or more symptoms. Knowledge about individual symptom was very low.

**Table 1 Age-wise Distribution of Knowledge and Awareness About HIV/AIDS Among Respondents-**

Variable	12-13 years (32)	14-15 years (159)	16 years & more (209)	Total (400)	P value
Heard about HIV/ AIDS	24 (75.0)	129 (81.1)	193 (92.3)	346 (86.5)	p <0.001
Knowledge about non-cure of HIV/AIDS	7 (21.9)	43(27.0)	48(23.0)	98 (24.5)	p >0.05

Knowledge about diagnosis of HIV/AIDS	19 (61.3)	66 (43.1)	125 (60.4)	210 (53.7)	p <0.05
Condoms are effective way of protection from HIV/AIDS	11 (34.4)	65 (40.9)	123 (58.9)	199 (49.8)	P< 0.05

**Figure 2 Respondents by awareness about symptoms of Sexually Transmitted Infections**



Over half of the girls were familiar with condoms, oral pills, and female sterilization as family planning methods. Knowledge of IUDs and male sterilization followed, whereas only 9% of the girls had heard about implants. (Table-2). The awareness about almost all the methods improved as the age increased. It can be seen from Table-3 that less than half of the girls were aware that condoms are not reusable and they provide protection from

HIV/AIDS along with other STIs. Overall, 87 girls out of 400 (21.8%) admitted currently being in a relationship and the proportion increased with increasing age. Out of these 87 girls, about 22 % accepted being in sexual relationship with the partner once or more. Majority (70%) of them agreed that condom use is safe for sexual acts. None of the surveyed girls was married.

**Table- 2: Age-wise Distribution of Awareness of the respondents about methods of Contraception**

Awareness of Family Planning Method	Age groups (in years)			Total	Chi-square value, df, p Value
	12-13 yrs (32)	14-15 yrs (159)	≥ 16 yrs (209)	(400)	
Condoms	15 (46.9)	78 (49.1)	141 (67.5)	234 (58.5)	14.54, df-2, p<0.0007
Oral Pills	17 (53.1)	84 (52.8)	132 (63.2)	233 (58.2)	4.34, df-2, p- 0.11
Hormonal Injections	15 (46.9)	56 (35.2)	77 (36.8)	148 (37.0)	1.56,df-2, p- 0.46
Emergency Pills	5 (15.6)	47 (29.6)	105 (50.2)	157 (39.2)	24.33,df- 2, p- 0.00001
IUDs	11 (34.4)	59 (37.1)	126 (60.3)	196 (49.0)	22.39, df- 2, p- 0.00001
Implants	2 (6.2)	7 (4.4)	28 (13.4)	37 (9.2)	9.07, df- 2, p-0.008*
Female Sterilization	14 (43.8)	75 (47.2)	141 (67.5)	230 (57.5)	17.91, df- 2, p-0.00013
Male Sterilization	12 (37.5)	59 (37.1)	111 (53.1)	182 (45.5)	11.16, df-2, p-0.0037

\*Fisher's exact test

**Table- 3: Age-wise Distribution of Awareness of respondents about Condom Use**

Correct Opinion	Age groups			
	12-13 years (32)	14-15 years (159)	16 years & above (209)	Total (400)
Condoms can be used only once	18 (56.2)	75 (47.2)	93 (44.5)	186 (46.5)
Condoms are effective way of protection from HIV/AIDS	11 (34.4)	65 (40.9)	123 (58.9)	199 (49.8)

The survey results show a lack of comprehensive knowledge about condoms among girls. While many (especially those in relationships) agreed that condoms prevent pregnancy, misconceptions existed about reuse of it. Half of the respondents knew that condoms prevent STIs, but there was disconnect between knowledge and asserting condom use (Table-4). There was a discrepancy between attitudes toward premarital sex and

contraception responsibility among the surveyed females. Over half of the surveyed girls expressed the belief that females engaging in premarital sex subsequently experience regret. Conversely, 60% of the respondents agreed that contraception should not be solely the woman's responsibility, but rather a shared responsibility between partners for family planning.

**Table 4: Perceptions and Awareness of Condom Use and Sexual Behaviour Among Adolescent Girls as per their Relationship Status**

Agreement on statements	Currently in relationship		Total (400)	$\chi^2$ , df, p value
	Yes (87)	No (313)		
Condoms are an effective means of preventing pregnancy	54 (62.1)	129 (41.2)	183 (45.8)	11.9, 1, p-0.0005
Condoms can be used only once	14 (16.1)	27 (8.6)	41 (10.2)	4.12, 1, p-.04
A girl can suggest her boyfriend to use condom during sexual act	59 (67.8)	137 (43.8)	196 (49.0)	15.75, 1, p-0.00007
Condoms are effective in protection from HIV/AIDS	53 (60.9)	146 (46.6)	199 (49.8)	5.55, 1, p-0.018
Condoms are suitable for casual relationships	40 (46.0)	81 (25.9)	121 (30.2)	13.03, 1, p-0.0003
It's alright for unmarried boys and girls to go on dates	52 (59.8)	129 (41.2)	181 (45.2)	9.46, 1, p-0.002
It's alright for unmarried boys and girls to have sexual relationship	41 (47.1)	61 (19.6)	102 (25.6)	27.37, 1, p-0.000
Most girls who have sex before marriage, regret it afterwards	60 (69.0)	151 (48.2)	211 (52.8)	11.73, 1, p- 0.0006
Girls should not go for premarital sex	54 (62.1)	165 (52.7)	219 (54.8)	2.4, 1, p- 0.121
I am confident that I can insist on condom use by my partner	40 (46.0)	80 (26.8)	124 (31.0)	13.5, 1, p- 0.0002
I would refuse sex if condom is not used by the partner	68 (78.2)	145 (46.3)	213 (53.2)	27.71, 1, p- 0.000
It's not only woman's responsibility to ensure contraception	50 (57.5)	191 (61.0)	241 (60.2)	0.36, 1, p- 0.55

## DISCUSSION

In India, where adolescents form a significant portion of the population, insufficient knowledge about sexual and reproductive health (SRH) and contraception poses serious risks. Despite government efforts to establish adolescent-friendly health clinics, these services remain underutilized, especially in rural areas. Stigma surrounding SRH discourages young people from seeking necessary care, contributing to higher rates of STIs and teenage pregnancies. Cultural taboos and limited access to comprehensive sex education worsen the situation. Given the limited data available from Uttarakhand, we undertook a survey in two randomly chosen schools (one rural and one urban) of district Dehradun to gauge SRH and contraceptive awareness among adolescent girls, aiming to provide valuable data to support informed interventions and promote healthier futures.

In our study, the mean age of the respondents was 15.62 ( $\pm 1.557$ ) years, with ages ranging from 12 to 23 years. Teachers were the main source of basic information about sexual and reproductive health, followed by family members. On the contrary, Sharma *et al* documented that friends were the primary source of information on reproductive health matters, followed by media, literature, and family elders for the surveyed adolescent girls. Only 1.4% of girls mentioned school teachers as a source of information.<sup>(5)</sup> When questioned about

attending school classes addressing puberty changes and safe sex, merely 26.2% of respondents acknowledged participation. Interestingly, the likelihood of attending these classes increased with age.

According to a report published in 2021, a significant number of women commence their sexual activity, enter into marriage, and initiate childbearing between the ages of 15 and 19 in India. Many adolescent women (3.2 million married and 195,000 sexually active unmarried women) expressed a desire to avert pregnancy. <sup>(6)</sup> Every adolescent girl requires a thorough understanding of contraceptive choices to make educated decision regarding her sexual and reproductive well-being. This aids in promoting safe sexual practices, averting unintended pregnancies and sexually transmitted infections (STIs), and empowering women to assert their reproductive autonomy. In the present survey, more than half of the girls were aware of condoms, oral pills, and female sterilization as methods of family planning, which is in accordance with findings by other researchers <sup>(5, 7)</sup>. Knowledge about rest of the methods was comparatively less. Notably, awareness of almost all contraceptive methods increased with age. Regarding opinions on the most suitable contraceptive method for young people, approximately 40% of the girls opted for oral pills, followed by condoms (22%). This shows that there aren't enough programs to teach about family planning and contraception methods, even though

the government has started many. Since these young women will soon start families, it's important to empower them so they can decide for themselves when they want to have children.

A majority of the surveyed girls (86.5%) were familiar with HIV/AIDS; however, their understanding was superficial. Only about one-third were aware of other STIs besides HIV/AIDS. Similarly, other studies have reported significantly lower levels of knowledge about other STIs among adolescents (5, 8, 9). Furthermore, less than half of the girls knew that condoms offer protection against both HIV/AIDS and other STIs.

Overall 87 girls out of 400 (21.8%) admitted currently being in love relationship with a boyfriend. The proportion increased with increasing age. Out of 87 girls, who were in current relationship, about 22 % accepted being in sexual relationship with the partner once or more. 70% of them agreed that condom use is safe for sexual acts. The survey results show a lack of comprehensive knowledge about condoms among girls. While many (especially those in relationships) agreed that condoms prevent pregnancy, misconceptions existed about reuse of it. Half of the respondents knew that condoms prevent STIs, but there was disconnect between knowledge and asserting condom use.

There was a discrepancy between attitudes toward premarital sex and contraception responsibility among the surveyed females. Over half of the surveyed girls believed that females who engage in premarital sex, subsequently experience regret. Conversely, 60% of the respondents concurred that contraception is not the sole responsibility of women, but rather a shared responsibility between partners for family planning purposes.

## CONCLUSION

This study on adolescent girls' sexual and reproductive health reveals gaps in knowledge, particularly regarding HIV/AIDS and proper condom use. Despite awareness of family planning methods, crucial details were lacking. Insufficient knowledge about SRH and contraception among adolescents can lead to unintended pregnancies, school dropout rates, and academic underachievement. Additionally, it increases the risk of STIs and perpetuates social stigma surrounding adolescent sexuality. Few girls engaged in sexual activity without consistent condom use, despite understanding its effectiveness. Surprisingly, most respondents believed contraception is a shared responsibility, highlighting the need for improved sexual health education tailored to this demographic.

## RECOMMENDATION

Addressing these issues requires comprehensive sex education programs to empower adolescents with accurate information and support their academic success, as well as strategies such as promoting gender equity, empowering young people, and investing in research and evidence-based interventions. Accurate information on contraceptives is indispensable for safeguarding the sexual and reproductive health of teenage girls. Prioritizing adolescent SRH will enable India's youth to thrive and contribute to the nation's development.

## LIMITATION OF THE STUDY

Reliance on self-administered questionnaires poses risks of bias due to social desirability and discomfort discussing sensitive topics. The questionnaire's scope may overlook key factors influencing behavior, and the absence of longitudinal data hinders understanding changes over time. Additionally, anonymity in the questionnaire may lead to information bias if participants misunderstand or provide inaccurate responses.

## RELEVANCE OF THE STUDY

This study holds relevance for understanding local needs of adolescent girls in district Dehradun. Identifying knowledge gaps can reveal areas where girls lack awareness about SRH and contraception. While not generalizable, it can provide valuable insights into the specific knowledge and risk behaviors of girls. This study can be a stepping stone for larger, more comprehensive research studies on adolescent SRH in India.

## AUTHORS CONTRIBUTION

All authors have contributed equally.

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Nil

## CONFLICT OF INTEREST

There are no conflicts of interest.

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## DECLARATION OF GENERATIVE AI AND AI ASSISTED TECHNOLOGIES IN THE WRITING PROCESS

The authors haven't used any generative AI/AI assisted technologies in the writing process.

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