

Awareness of Sexual and Reproductive Health among School Going Adolescents of Thiruvananthapuram Corporation

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Abstract:

Introduction: Despite escalating adolescent reproductive health risks, high-literacy regions like Kerala exhibit a paradox where advanced development indicators mask critical youth knowledge gaps. **Objectives:** This study aims to assess sexual and reproductive health (SRH) awareness and its key determinants among higher secondary school students in the urban setting of Thiruvananthapuram Corporation, Kerala. **Methods:** A school based cross sectional study was conducted among 420 adolescents in ten higher secondary schools of Thiruvananthapuram corporation. Stratified two-stage cluster sampling was employed to select the study participants. Data was collected using self-administered semi structured questionnaire. Chi square test was done to find out factors associated with higher awareness and multivariable analysis was done using binary logistic regression. **Results:** Majority (67.9%) of the study participants had moderate awareness. In the domain of pregnancy half of the participants had poor awareness. Less than two thirds of participants could identify STD other than HIV/AIDs. Only half (49%) of the participants had received formal sex education. Studying in the biology stream ($p = 0.002$), following the Central Board of Secondary Education (CBSE) syllabus ($p = 0.01$), and the ability to communicate about sex-related matters with cousins ($p = 0.008$) were significant determinants of sexual and reproductive health awareness on multivariable analysis. **Conclusion:** Most participants had only moderate sexual and reproductive health awareness, with notable gaps in awareness of pregnancy, STDs, social and legal aspects. Awareness was significantly influenced by academic stream, syllabus, and the ability to discuss sex-related matters with cousins.

Keywords: Puberty, Reproductive Health Services, Sexual behaviour, Sex Education, sexually transmitted diseases

Introduction:

The World Health Organization (WHO) defines sexual health as a “state of physical, emotional, mental,

and social well-being related to sexuality, requiring a positive, respectful approach and the protection of sexual rights”^[1] and reproductive health is “complete

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physical, mental, and social well-being in all matters relating to the reproductive system, its functions, and processes, and not merely the absence of disease or infirmity.”^[2]

Adolescence represents a critical transitional period characterized by profound physical, cognitive, emotional, and social development.^[3] They are an important demographic for sexual and reproductive health (SRH) awareness and services as they are in a formative stage of developing sexual identities and behaviors that can have a lasting influence on attitudes and practices in adulthood.^[4] India has one of the largest adolescent population in the world, with every fifth person belonging to this age group.^[5]

Globally, adolescents and young adults bear a disproportionate burden of sexually transmitted diseases, with over one million new infections occurring each day.^[6] In addition, approximately 21 million pregnancies occur annually among adolescents, nearly half of which are unintended, and a substantial proportion end in abortion.^[7]

In India, sexual abuse and violence against children and adolescents are alarmingly increasing with sexual offences accounting for nearly 39% of the registered crimes.^[8] This may directly contribute to the adolescent fertility rate of 43 per 1000 women aged 15-19 years.^[9]

Available evidence suggests that SRH awareness among Indian adolescents remains inadequate, with nearly half demonstrating poor levels of awareness.^[10] Similarly, a study among adolescent girls reported that only 57.8% were aware of contraceptive methods, while knowledge of sexually transmitted diseases (STDs) was limited to 14%.^[11] This lack of awareness may predispose adolescents to misconceptions and unhealthy practices related to reproduction and sexuality which can have significant public health implications.^[3,12]

Kerala, despite its high literacy rates and relatively advanced health indicators, is not immune to these challenges. This presents a unique paradox: although general education and access to healthcare are superior, specific knowledge gaps in SRH may still exist and may be masked by the state's overall development indices. This underscores the need for localized evidence-based assessment of SRH awareness.

Therefore, this study was designed to address this crucial gap by systematically evaluating the awareness of sexual and reproductive health among adolescents in a specific, high-literacy urban setting. The findings may provide important evidence for policymakers and educators to design and implement targeted, context-specific interventions that empower adolescents to make informed, healthy, and safe decisions regarding their sexual and reproductive health. The objective of the study was to assess the current state of SRH awareness and its key determinants among higher secondary school students in Thiruvananthapuram corporation.

Methods

Design and setting

A school-based, cross-sectional study design was conducted from April 2021 to December 2022 in both government and private higher secondary schools of Thiruvananthapuram corporation after obtaining clearance from Institutional Ethics Committee of Government Medical College Thiruvananthapuram (HEC No. 04/09/2021/MCT). Thiruvananthapuram corporation spans an area of 214.86 km² and serves a population of approximately 957,730 across 100 municipal wards.

Study participants

Adolescents enrolled in higher secondary schools within Thiruvananthapuram corporation, who provided written informed assent to participate, along with written informed consent from parents or guardians, were included in study. Those absent on the day of data collection or unable to participate due to illness or cognitive/communication difficulties were excluded.

Sample size and sampling

Sample size was estimated using the prevalence of sexual health awareness as 28%^[14] with a relative precision of 5.6% (20 % of prevalence) at 5 % significance level. After applying a design effect of 1.5 and 10 % non-response rate the sample size was estimated to be 420.

A stratified two-stage cluster sampling was employed, with the higher secondary schools serving as clusters. The list of higher secondary schools of

Thiruvananthapuram corporation was obtained from the District Education Officer (DEO). Each school division comprised an average of 45–55 students.

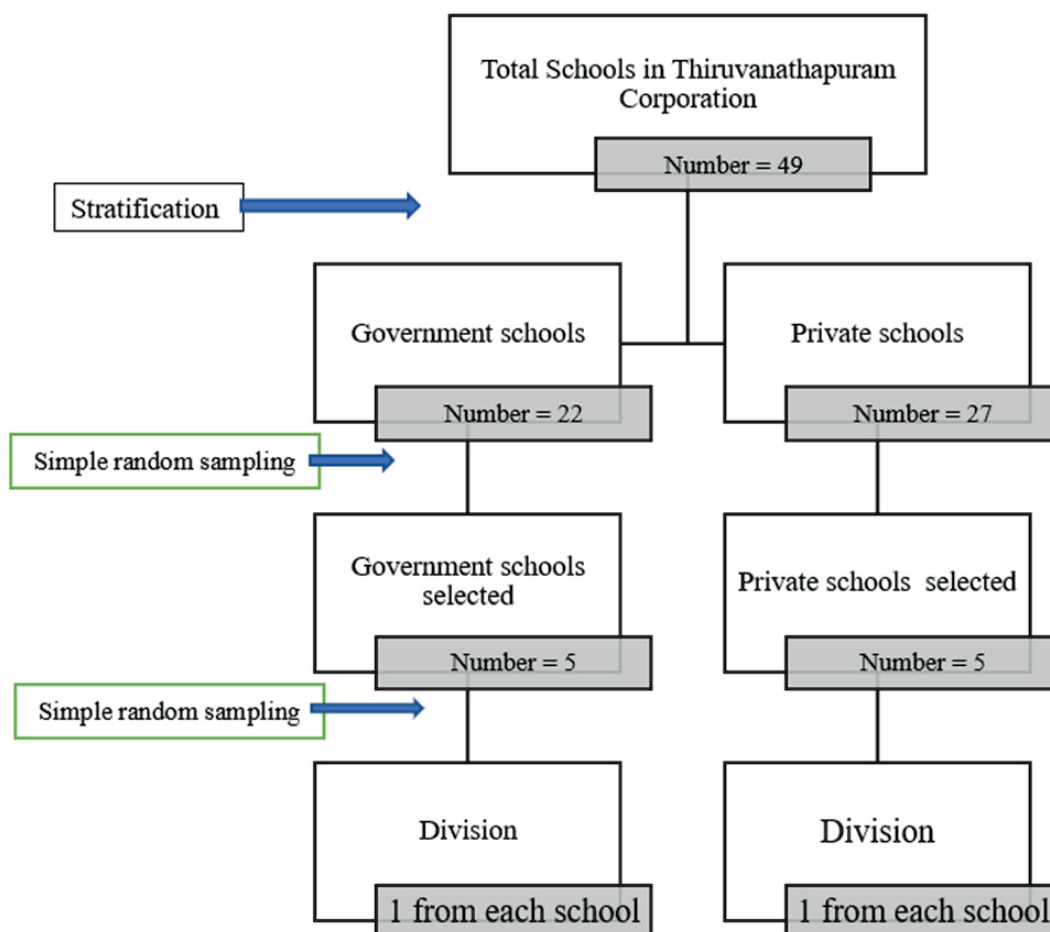
In the first stage, schools were stratified based on private and government categories. After obtaining the list of the schools in each stratum, using computer-generated random numbers, five schools were selected from each stratum by simple random sampling, yielding a total of 10 schools.

In the second stage, one division was randomly selected from each school using computer-generated random numbers. The minimum required division strength needed was $420/10 = 42$ students. If the selected division had fewer than 42 students, the next division was selected using the subsequent random number. All students in the selected divisions were enrolled until the required sample size was achieved. (Figure 1)

Data collection tool and technique

After obtaining permission from District Education Officer (DEO), the institutional heads, written assent from the study participants and written informed consent from parents/guardians, data were collected using a semi structured questionnaire which was self-administered. It was face and content validated and pilot-tested before administration, and it showed good internal consistency (Cronbach's $\alpha=0.878$). The content validation of the questionnaire was performed by a panel of 6 subject experts with expertise in community medicine, adolescent health and reproductive health. The experts reviewed the questionnaire for relevance, clarity, comprehensiveness, and appropriateness of the items, and the tool was revised based on their feedback. The questionnaire was pilot tested among 50 adolescents not included in the main study to assess clarity, acceptability,

Figure 1: Flow chart showing the sampling technique used in the study



and completion time. Necessary modifications were made before final administration. The questionnaire included items on sociodemographic characteristics and the domains on sexual and reproductive organs and secondary sexual characteristics (7 items); pregnancy (5 items); sexually transmitted infections and HIV (31 items); sexual practices (6 items); contraceptives (18 items); and sociocultural and legal aspects (8 items). Each correct response was scored 1 and each incorrect response as 0 (no negative marking), with a maximum score of 75. Awareness scores were categorized using an a priori modified Bloom's cutoff framework.^[15] Participants scoring more than 60 (80% of total score) were classified as having good awareness, those scoring 30 to 60 as having moderate awareness, and those scoring less than 30 (40% of total score) as having poor awareness. Domain wise cut-offs were also made using the same criteria.

The primary outcome variable was awareness of sexual and reproductive health. The independent variables were sociodemographic variables namely age, gender, religion, socioeconomic status (based on ration card), family type, parental education and occupation; school related factors, including type of school, syllabus and stream), communication-related factors, including receipt of formal sex education, source of first-hand information on sex-related matters, and communication regarding sex-related issues.

Strict confidentiality and privacy were maintained throughout data collection with all the data used exclusively for research purposes.

Data analysis

Data was entered in Microsoft Excel and was analyzed using IBM SPSS 27 version (Armonk, NY, USA). The awareness of sexual and reproductive health was expressed in terms of frequency and proportion.

Chi-Square test was done to assess the statistical significance between the determinants like sociodemographic factors (age, gender, religion, class, type of school, syllabus, stream, education status of father and mother, occupation of father and mother, income status, type of family), whether they received formal sex education or not, ability to communicate

regarding sex related matters and from where the study participants received first-hand knowledge about sex related matters and level of awareness regarding sexual and reproductive health. Since the scores followed a non-normal distribution Kruskal Wallis test was used to compare the scores across variables like age, religion, school management and source of firsthand knowledge regarding sex related matters.

A multivariable binary logistic regression model was constructed using the "Enter" method to determine independent predictors of sexual and reproductive health. Participants with moderate or good awareness were categorised as having good awareness, while rest were classified as having poor awareness, this dichotomisation was used for binary logistic regression to facilitate clear interpretation and communication of the findings. All factors that demonstrated a p value < 0.05 during bivariable analyses were included in constructing the final model. The overall model fit was measured using Nagelkerke's R-squared, while model calibration was assessed through the Hosmer–Lemeshow test.

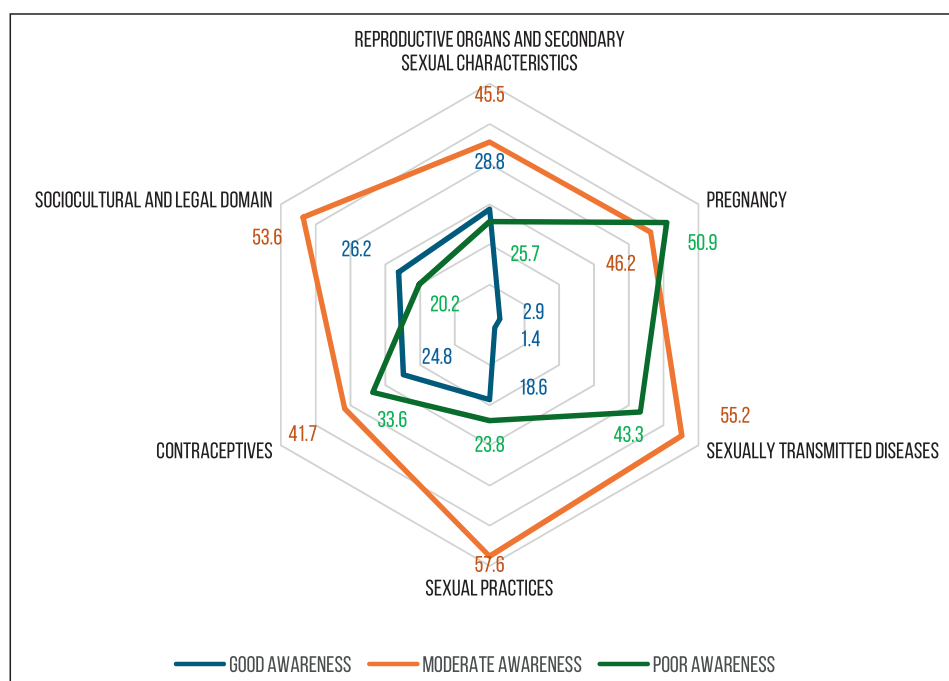
Results

Our study included 238 (56.7%) females and 182 (43.3%) males with mean age of 16.67 (0.61) years. Majority of the students followed Hindu religion 305 (72.6%). A total of 130 (31.0%) students studied in 11th class, and rest 290 (69.0%) studied in the 12th class. Most of 302 (71.9%) the students followed state syllabus and 118 (28.1%) followed CBSE syllabus. Biology-mathematics 124 (29.5%) was the most common stream, followed by computer-mathematics 100 (23.8%). Majority 254 (60.5%) were from Above Poverty Line (APL) families. Education level above high school was present in 243 (55.7%) fathers and 270 (64.3%) mothers. However, only a small proportion 124 (29.5%) of mothers were skilled workers compared to 292 (69.5%) fathers. (Table 1)

Majority of the study participants [285 (67.9%)] had moderate awareness and 117 (27.9%) had poor awareness of SRH. In all the domains also, majority had moderate awareness. Domain wise awareness is depicted in Figure 2.

Table 1: Baseline Information of Study Participants

Baseline characteristic	n	%
Age		
15	11	2.6
16	136	32.4
17	252	60
18	21	5
Gender		
Male	182	43.3
Female	238	56.7
Religion		
Hindu	305	72.6
Muslim	61	14.5
Christian	51	12.1
Others	3	0.7
Class		
11	130	31
12	290	69
Type of school		
Government	210	50
Private school	210	50
School management		
Central Government	39	9.3
Unaided school	79	18.8
Aided school	131	31.2
State Government	171	40.7
Syllabus		
CBSE	118	28.1
State syllabus	302	71.9
Stream		
Biology Mathematics	124	29.5
Computer Mathematics	100	23.8
Commerce	97	23.1
Bio Psychology	31	7.4
Humanities	31	7.4
Biology Hindi	23	5.5
Biology Sanskrit	14	3.3
Income level		
Above Poverty Line	254	60.5
Below Poverty Line	166	39.5
Type of family		
Joint/extended	69	16.4
Nuclear	351	83.6
Father's education		
Intermediate degree or more	234	55.7
High school degree or less	186	44.3
Mother's education		
Intermediate degree or more	270	64.3
High school degree or less	150	35.7
Father's occupation		
Skilled worker or more	292	69.5
Less than skilled work	128	30.5
Mother's occupation		
Skilled worker or more	124	29.5
Less than skilled work	296	70.5

Figure 2: Spider Diagram Showing Domain-wise Awareness Of SRH Among Study Participants.

Only 197 (46.9%) were aware that night emission is a normal physiologic process and 97 (23.1%) were aware of the most fertile period of menstrual cycle. Regarding sexually transmitted diseases, 387 participants (92.1%) correctly recognized HIV/AIDS as an STD, while fewer than two-thirds identified other STDs. The awareness of contraceptives other than condom was less than 50%. While 363 (86.4%) knew about the legal age of marriage of men, only 43.3% knew the women's legal age of marriage. (Table 2)

Only 206 participants (49.0%) had received formal sex education. Although 324 participants (77.1%) reported being able to discuss sex-related matters with friends, only 166 (39.5%) and 44 (10.5%) could do so with their mothers and fathers, respectively. Communication with mothers was reported by more than half of the female participants (138, 58.0%), compared with 28 (15.4%) male participants. In addition, only 222 participants (52.9%) expressed a positive opinion regarding communication about sexual matters with health professionals. The majority of the study participants reported friends as their primary source of first-hand information on sex-related matters (183, 43.6%), followed by social media and the internet (67, 16.0%).

For bivariable analysis using chi square test study participants having good and moderate awareness were considered as having good awareness about sexual and reproductive health and those having poor awareness was considered as having poor awareness about sexual and reproductive health. Awareness of sexual and reproductive health was associated with studying in the biology stream, APL family status, nuclear family type, higher parental education, higher parental occupational status, receipt of formal sex education and communication about sex related matters with fathers and cousins (Table 3).

Differences in sexual and reproductive health scores based on demographic and educational variables were analysed using the Kruskal-Wallis test. Statistically significant differences in final scores were observed only across age categories and school management types. (Figure 3)

Binary logistic regression was done to find out the determinants of good awareness about sexual and reproductive health. Factors that were found to have a significant association in the bivariable analysis were included in the model. The model to assess the determinants of good awareness about sexual and reproductive health was found to be significant at p

Table 2: Table Showing Domain Wise Awareness Regarding Sexual and Reproductive Health

Statement	Correct awareness	
	n	%
Reproductive organs and secondary sexual characteristics		
Babies are delivered through vagina	366	87.1
Penile discharge during ejaculation contains sperm	271	64.5
Pubic hair and axillary hair growth are secondary sexual characteristics	310	73.9
Night emission is a normal physiologic process	197	46.9
Pregnancy		
Most fertile period during the menstrual cycle is 12-16 days before menstruation	97	23.1
Absence of menstruation is an indicator of pregnancy	318	75.7
Sexually transmitted diseases		
Syphilis	121	28.8
Herpes	82	19.5
HIV/AIDS	387	92.1
Hepatitis B	109	26
Route of transmission of STDs		
Sexual contact	392	93.3
Through contaminated syringes	297	70.7
Symptoms		
Foul smelling genital discharge	113	26.9
Burning sensation during micturition	119	28.3
Swelling in genital area	109	26.0
Ulceration in genital area	67	16.0
Complications		
Abortion	177	42.1
Infertility	163	38.8
Cancer	96	22.9
Sexual practises		
Multiple sexual partners is a risky sexual practise	286	68.1
Sex with condoms is a safe sexual practise	262	62.4
Sex with HIV positive individual is risky	327	77.9
Sex under the influence of drug is risky	229	54.5
Contraceptive methods		
Condoms	347	82.6
Copper T	185	44.0
Implants	132	31.4
Sociocultural legal domain		
Legal age of marriage of men	363	86.4
Legal age of marriage of women	182	43.3
Age of valid consent for an act of sexual intercourse	231	55.0
Heard about MTP Act	144	34.3

Table 3: Bivariable Analysis of Factors Associated with Awareness of Sexual and Reproductive Health

Factor	Good awarenessn (%)	Poor awarenessn (%)	P	OR (95% CI)
Gender				
Male	131 (72.0)	51 (28.0)	0.95	0.99 (0.64-1.52)
Female	172 (72.3)	66 (27.7)		
Class				
12	217 (74.8)	73 (25.2)	0.07	1.52 (0.97-2.38)
11	86 (66.2)	44 (33.8)		
Type of school				
Private	156 (74.3)	54 (25.7)	0.33	1.24 (0.81-1.89)
Government	147 (70.0)	63 (30.0)		
Syllabus				
CBSE	111 (94.1)	7 (5.9)	<0.001	9.08 (4.09-20.19)
State syllabus	192 (63.6)	110 (36.4)		
Stream				
Studies biology	161 (83.9)	31 (16.1)	<0.001	3.14 (1.97-5.03)
Does not study biology	142 (62.3)	86 (37.7)		
Income status				
APL	198 (78.0)	56 (22.0)	0.001	2.05 (1.33-3.17)
BPL	105 (63.3)	61 (36.7)		
Type of family				
Nuclear	261 (74.4)	90 (25.6)	0.022	1.84 (1.09-3.19)
Joint/extended	42 (60.9)	279 (39.1)		
Father's education				
Intermediate degree or more	194 (82.9)	40 (17.1)	<0.001	3.43 (2.19-5.36)
High school degree or less	109 (58.6)	77 (41.4)		
Mother's education				
Intermediate degree or more	217 (80.4)	53 (19.6)	<0.001	3.05 (1.96-4.74)
High school degree or less	86 (57.3)	64 (42.7)		
Father's occupation				
Skilled worker or more	227 (77.7)	65 (22.3)	<0.001	2.39 (1.53-3.74)
Less than skilled work	76 (59.4)	52 (40.6)		
Mother's occupation				
Skilled worker or more	106 (85.5)	18 (14.5)	<0.001	2.96 (1.7-5.16)
Less than skilled work	197 (66.6)	99 (33.4)		
Received formal sex education				
Yes	164 (79.6)	42 (20.4)	0.001	2.11 (1.36-3.27)
No	139 (65.0)	75 (35.05)		
Talk with father				
Yes	38 (86.4)	6 (13.6)	0.026	2.65 (1.09-6.45)
No	265 (70.5)	111 (29.5)		
Talk with mother				
Yes	127 (76.5)	39 (23.5)	0.11	1.44 (0.92-2.26)
No	176 (69.3)	78 (30.7)		

Talk with siblings				
Yes	69 (76.7)	21 (23.3)	0.28	1.35 (0.78-2.32)
No	234 (70.9)	96 (29.1)		
Talk with cousins				
Yes	100 (81.3)	23 (18.7)	0.007	2.01 (1.20-3.37)
No	203 (68.4%)	94 (31.6%)		
Talk with friends				
Yes	239 (73.8%)	85 (26.2%)	0.17	1.41 (0.86-2.29)
No	64 (66.7%)	32 (33.3%)		
Talk with teachers				
Yes	60 (64.5%)	33 (35.5%)	0.06	0.63 (0.38-1.03)
No	243 (74.3%)	84 (25.7%)		
Talk with health professionals				
Yes	165 (74.3%)	57 (25.7%)	0.29	1.26 (0.82-1.93)
No	138 (69.7%)	60 (30.3%)		

Figure3: Boxplot A. Boxplot showing total score of awareness of sexual and reproductive health based on school management B. Boxplot showing total score of awareness of sexual and reproductive health based on the age of study participants

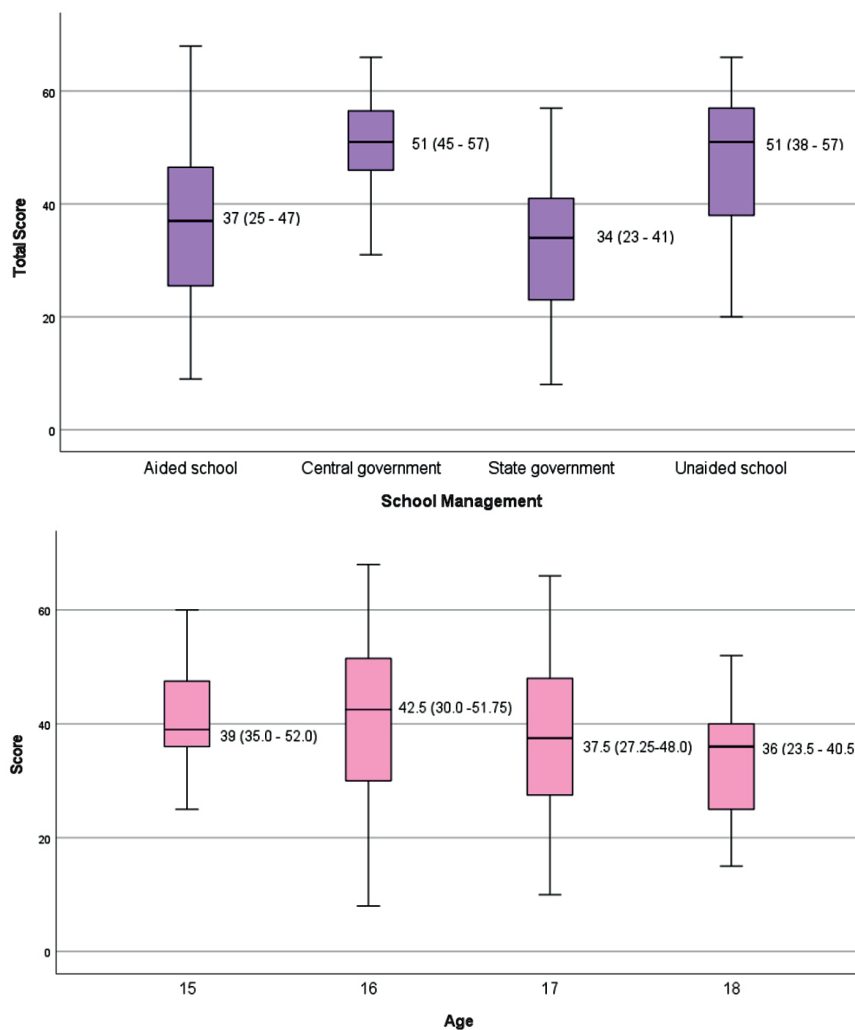
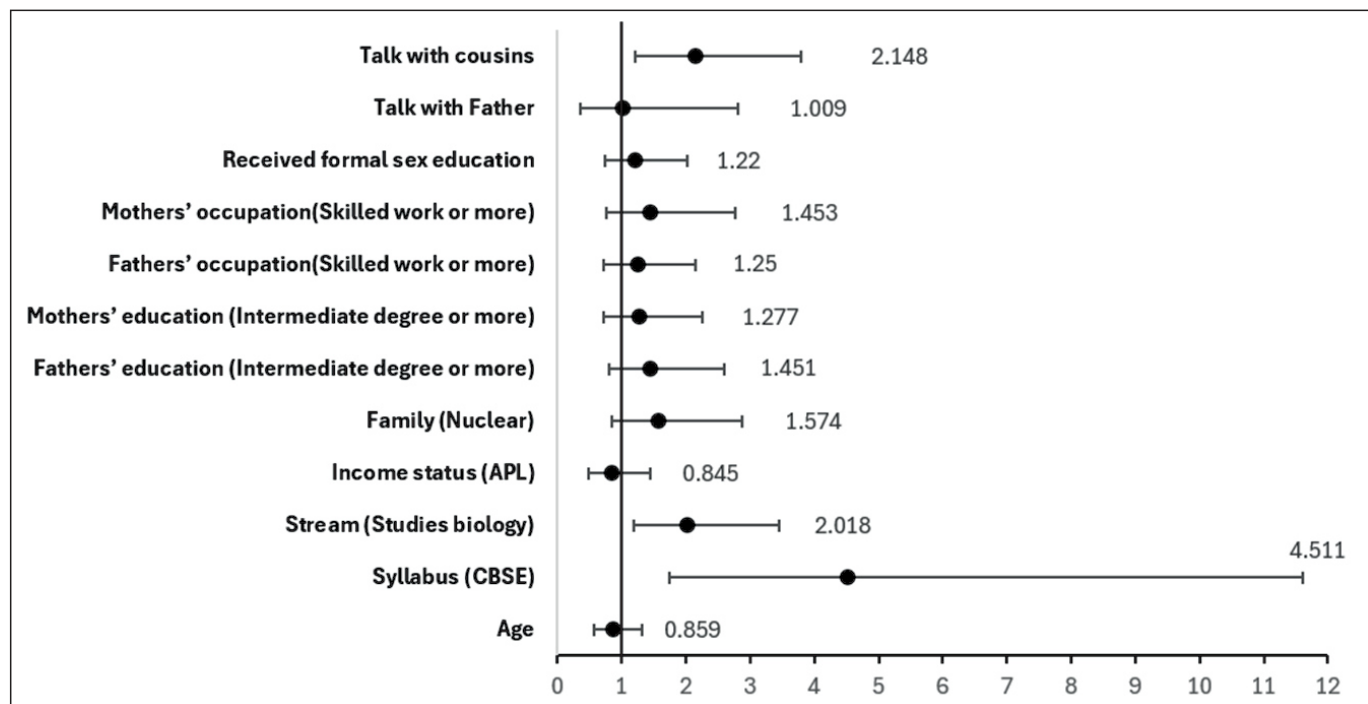


Table 4: Binary Logistic Regression Model to Predict Factors Associated with Good Awareness of SRH

Factor	Crude odds ratio (95% CI)	Adjusted odds ratio (95% CI)	P
Age	NA	0.859 (0.563–1.310)	0.480
Syllabus (CBSE)	9.08(4.09-20.19)	4.511 (1.754–11.602)	0.002
Stream (Studies biology)	3.14(1.97-5.03)	2.018 (1.182–3.444)	0.010
Income status (APL)	2.05(1.33-3.17)	0.845 (0.492–1.451)	0.541
Family (Nuclear)	1.84(1.09-3.19)	1.574 (0.858–2.886)	0.143
Fathers' education (Intermediate degree or more)	3.43(2.19-5.36)	1.451 (0.813–2.591)	0.208
Mothers' education (Intermediate degree or more)	3.05(1.96-4.74)	1.277 (0.726–2.247)	0.397
Fathers' occupation (Skilled work or more)	2.39(1.53-3.74)	1.250 (0.729–2.144)	0.418
Mothers' occupation (Skilled work or more)	2.96(1.7-5.16)	1.453 (0.761–2.777)	0.258
Received formal sex education	2.11(1.36-3.27)	1.220 (0.739–2.014)	0.437
Talk with Father	2.65(1.09-6.45)	1.009 (0.361–2.819)	0.986
Talk with cousins	2.01(1.20-3.37)	2.148 (1.217–3.790)	0.008

Figure 4: Odds ratio plot showing adjusted odds ratio of factors associated with SRH

<0.001 and the Homer and Lemeshow Chi-square test to assess the goodness of fit showed p-value >0.05, indicating a good fit for the model. Those students who had studied in the biology stream, followed the CBSE syllabus, and were able to communicate about sex-

related matters with cousins were associated with higher awareness of SRH, as indicated by the regression model. The model could explain 24.6% of awareness of sexual and reproductive health. (Nagelkerkes' R square = 0.246) (Table 4, Figure 4)

Discussion

This study included 420 adolescents from higher secondary schools in Thiruvananthapuram Corporation. There was a varied level of awareness regarding sexual and reproductive health, with 4.3% of participants demonstrating good awareness and 67.9% exhibiting moderate awareness. The proportion of adolescents with good awareness in our study was lower than that reported in a study from Nepal, where 35% of participants had good knowledge^[16], likely because Nepal constitutionally guarantees sexual and reproductive health rights whereas India relies on policy driven initiatives prone to regional implementation barriers.^[17] Domain-wise, awareness was relatively higher for reproductive organs and secondary sexual characteristics, contraceptives, and sociocultural and legal aspects, whereas lower awareness was observed for pregnancy and sexually transmitted diseases.

In this study, 28.8% of participants had good awareness regarding pubertal changes. This was higher than the level reported in a study from Karnataka, where less than 20% of participants had good awareness.^[18] In contrast, the awareness observed in our study was lower than the study from Nepal, where 63% demonstrated good awareness; this difference may be due to the higher age of students in the Nepal study.^[19] While over 80% knew babies are delivered vaginally, fewer than 75% recognized pubic and axillary hair as secondary sexual characteristics, and under 50% knew nocturnal emissions are a normal physiological process. Despite the inclusion of reproductive health in the high school curriculum itself, poor awareness in more than one-fourth of participants is a significant concern.

Over 90% of participants identified HIV as an STD, while awareness of gonorrhoea, syphilis, hepatitis B, and herpes was less than 50%. This awareness level was higher than previous studies conducted in India and Nigeria but lower than in studies conducted in Germany reflecting the role of sociocultural differences in awareness of STDs.^[20-22] Also, the HIV centric focus in India may be driven by National AIDS Control Programme initiatives and a school curriculum that prioritizes HIV/AIDS over broader STD education.

Only 2.9% of participants had good awareness, while 46.2% had moderate awareness regarding pregnancy and its indicators. While 75.7% correctly identified a missed period as a sign of pregnancy, this remains lower than the 82% reported by Vanusha et al.^[23] Furthermore, only 23.1% of participants accurately identified the most fertile period of the menstrual cycle, compared to 37.3% in a similar study from rural Bangalore.^[24]

Condoms (82.6%) followed by copper T (44%) were the most known contraceptives. Only 68.6% knew that HIV can be prevented by the use of condoms compared to a study in Nepal where 96.1% had correct knowledge regarding condoms as an effective method for the prevention of HIV/AIDS.^[25] The awareness regarding emergency contraception was poor with less than one third knowing the correct timing of emergency contraceptive use. Improving knowledge of pregnancy indicators and contraceptives is critical for the prevention of adolescent pregnancies, which currently contributing to 2.4% of pregnancies according to NFHS 5 data. Also, the awareness on indicators of pregnancy is essential to identify accidental pregnancies early, ensuring access to timely and legal interventions.

Only 34.3 % of study participants had heard about Medical Termination of Pregnancy Act, 64.8 % knew that abortions done by an unauthorised person is illegal and only 56.9 % knew that illegal abortions can lead to maternal and foetal problems. About half of students knew the legally permitted minimum age of marriage for women in contrast to 86.4% knowing about the legally permitted age of marriage for men. The lack of awareness in the legal domain is highlighted in similar studies conducted in India which is an area of concern.^[14,26]

In the present study, friends were the primary source of sexual knowledge (43.6%), followed by social media and teachers. Similar findings were seen in studies in India^[27,28] and across the world^[29], where media accounted as the main source of SRH knowledge. This suggests that students heavily rely on informal sources before sexual health is formally introduced in the curriculum.

Another alarming finding obtained was that about half of the study participants reported they have not received any formal sex education similar to study done in Nepal.^[16] The sociocultural disparities between the nations have had a significant impact on the distribution of sex education levels. As a result, public school sex education in developed countries had higher level of content completion and coverage, while sex education curriculum in the low and lower middle-income countries is primarily in the developmental stage.^[30] This lack of formal education may also be contributed by the hesitation of teachers to teach chapters on sexual and reproductive health.^[31]

Syllabus and stream in which students were studying and communication with cousins as the determinants of good sexual and reproductive awareness. Those students studying in CBSE syllabus and those having biology in their higher secondary curriculum had higher awareness. The higher awareness among CBSE students may partly reflect differences in curriculum structure; however, our study did not examine the curriculum content in detail. Other studies from India have also highlighted the role of school curricula in promoting awareness of sexual and reproductive health among adolescents.^[28] Similar studies also point to higher awareness in those studying biology^[32] which accounts for a need for comprehensive sex education for all the adolescents irrespective of the curriculum and stream in which they were enrolled.

Evidence from this study showed no significant difference in the level of awareness between males and females in contrast to other studies from India where awareness was more in boys.^[14,26] This difference noted may be due to the sociocultural differences between the Indian states and Kerala being high in female literacy and gender equality, equal opportunities are provided for the males and females especially when it comes to matters relating to education.

Even though studies from rural settings in India regarding awareness of sexual and reproductive health were common, only limited studies were conducted in urban settings of India. Our study included students from both private and government schools, as well as from different religious and socioeconomic backgrounds in urban settings. Therefore, evidence from our study

emphasises the need to reform the curriculum to include early-stage SRH education, alongside a mandate for educators to communicate these concepts clearly to their students.

Limitations

Since the questionnaire was self-administered, the responses may be influenced by social desirability bias, especially due to the sensitive nature of sexual and reproductive health topics. As the study was conducted among school-going adolescents in selected schools of Thiruvananthapuram, the findings may not be generalizable to out-of-school adolescents or other settings.

Conclusion

This cross-sectional study among adolescents of Thiruvananthapuram corporation highlights a significant gap in sexual and reproductive health (SRH) awareness, with the majority (67.9%) possessing only moderate knowledge. While awareness of HIV and secondary sexual characteristics is relatively high, there is a critical lack of understanding regarding pregnancy, fertility cycles, diverse STDs, and legal ages of consent. These findings reveal a fragmented support system where informal sources like friends and social media replace formal sex education, and communication with parents remains low. Key determinants of awareness included the students' academic stream, syllabus, and ability to discuss these topics with cousins.

Recommendation

The evidence from our study emphasises the need to reform the school curriculum to include early-stage SRH education, alongside a mandate for educators to communicate these concepts clearly to their students. Strengthening age-appropriate SRH education through the School Health and Wellness Programme, with greater emphasis on curriculum-based learning. Schools should facilitate trained teachers and peer educators to provide accurate, age-appropriate information and promote appropriate help-seeking. Adolescent Friendly Health Clinics' (AFHCs) should be promoted as confidential, accessible referral points for adolescents requiring SRH information, counselling and services. The states should also scale up the peer led education models by leveraging the Rastriya Kishore Swasthya Karyakram (RKSK) framework.

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References:

1. Sexual health [Internet]. World Health Organization; [cited 2026 Feb 14]. Available from: [https://www.who.int/teams/sexual-and-reproductive-health-and-research-\(srh\)/areas-of-work/sexual-health](https://www.who.int/teams/sexual-and-reproductive-health-and-research-(srh)/areas-of-work/sexual-health)
2. Reproductive health [Internet]. World Health Organization; [cited 2026 Feb 14]. Available from: <https://www.who.int/southeastasia/health-topics/reproductive-health>
3. Adolescent health [Internet]. World Health Organization; [cited 2026 Feb 14]. Available from: <https://www.who.int/health-topics/adolescent-health>
4. Sawyer SM, Azzopardi PS, Wickremaratne D, Patton GC. The age of adolescence. *Lancet Child Adolesc Health*. 2018;2(3):223-228. doi:10.1016/S2352-4642(18)30022-1.
5. Adolescent development and participation [Internet]. UNICEF India; [cited 2026 Feb 14]. Available from: <https://www.unicef.org/india/what-we-do/adolescent-development-participation>
6. Sexually transmitted infections (STIs) [Internet]. World Health Organization; [cited 2026 Mar 14]. Available from: [https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-\(stis\)](https://www.who.int/news-room/fact-sheets/detail/sexually-transmitted-infections-(stis))
7. Adolescent pregnancy [Internet]. World Health Organization; [cited 2026 Mar 14]. Available from: <https://www.who.int/news-room/fact-sheets/detail/adolescent-pregnancy>
8. Confederation of Indian Industry. CII 2020. Volume 1 [Internet]. [cited date unknown]. Available from: <https://www.thehinducentre.com/resources/article36608197.ece/binary/CII2020Volume1.pdf>
9. International Institute for Population Sciences (IIPS), ICF. National Family Health Survey (NFHS-5), 2019–21: India. Mumbai: IIPS; 2021.
10. Gadkari RP, Somani G, Nayak CS, Giri AS. A study for sexual health awareness in adolescent population (13-18 years) attending dermatology OPD. *Indian Journal of Sexually Transmitted Diseases and AIDS* 2012;33(2):148. doi:10.4103/0253-7184.102140
11. Sharma S, Sharma P. Reproductive health problems and their awareness among adolescent girls: a clinical study. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology* 2019;8(10):3870–3. doi:10.18203/2320-1770.ijrcog20194207
12. Putri, Y. H. S., Maryati, I., & Solehati, T. (2025). Interventions to Improve Sexual and Reproductive Health Related Knowledge and Attitudes Among the Adolescents: Scoping Review. *Risk management and healthcare policy*, 18, 105–116. <https://doi.org/10.2147/RMHP.S490395>
13. Paul AS, Varghese TC. A Brief Overview of the Sexual and Reproductive Health Awareness of Adolescents in Kerala. *IJMRA* 2023;06(07). doi:10.47191/ijmra/v6-i7-18
14. Deshmukh DD, Chaniana SS. Knowledge About Sexual and Reproductive Health in Adolescent School-Going Children of 8th, 9th, and 10th Standards. *Journal of Psychosexual Health*. 2020;2(1):56-62. doi:10.1177/2631831819898916
15. Khanna D, Khargekar N, Budukh A. Knowledge, attitude, and practice about cervical cancer and its screening among community healthcare workers of Varanasi district, Uttar Pradesh, India. *J Family Med Prim Care* 2019;8(5):1715–9. doi:10.4103/jfmpe.jfmpe_143_19
16. Bhandari R, Gorkhali R, Humagain V, Onta M. Awareness Regarding Adolescent Sexual and Reproductive Health Among School Students in a Province of Nepal 2025; doi:10.56974/pmjn.917
17. Gautam L, Adhikari S, Bist A, Gautam S (2025) Sexual and reproductive health rights: A cross-sectional study of knowledge and practice among the married women of reproductive age residing in Besishahar Municipality, Nepal. *PLOS Glob Public Health* 5(10): e0004370. <https://doi.org/10.1371/journal.pgph.0004370>
18. Dorle, Ashok & Hiremath, L.D. & Mannapur, B.S. & Ghattargi, C.H.. (2010). Awareness regarding puberty changes in secondary school children of Bagalkot, Karnataka”- a cross sectional study. *Journal of Clinical and Diagnostic Research*. 4. 3016-3019.
19. Sandhya, P., & Bimala, P. (2017). Awareness and Attitude on Pubertal Changes among Community Adolescents.
20. Samkange-Zeeb F, Mikolajczyk RT, Zeeb H. Awareness and knowledge of sexually transmitted diseases among secondary school students in two German cities. *J Community Health*. 2013 Apr;38(2):293-300. doi: 10.1007/s10900-012-9614-4. PMID: 23001541.
21. Jain, M. A., Jain, S. M., Patil, S., & Bang, A. (2016). A study on knowledge, attitude and practice of sexually transmitted diseases and HIV in adolescent population in Wardha, Maharashtra, India. *International Journal of Contemporary Pediatrics*, 3(2), 367–372. <https://doi.org/10.18203/2349-3291.ijcp20161016>
22. Amu EO, Adegun PT. Awareness and Knowledge of Sexually Transmitted Infections among Secondary School Adolescents in Ado Ekiti, South Western Nigeria. *J Sex Transm Dis*. 2015;2015:260126. doi: 10.1155/2015/260126. Epub 2015 Aug 9. PMID: 26345225; PMCID: PMC4546807.
23. A., V., & K., P. (2018). Assessment of present awareness on reproductive health and evaluation of a tool designed for reproductive health education among school going adolescent girls. *International Journal of Reproduction, Contraception, Obstetrics and Gynecology*, 7(6), 2381–2387. <https://doi.org/10.18203/2320-1770.ijrcog20182354>
24. Kishor, D., Madaiah, M., Munipapanna, S., & Sonnappa, S. D. (2019). Effectiveness of adolescent health education among secondary and senior secondary school girls in rural Bangalore. *International Journal Of Community Medicine And Public Health*, 6(10), 4336–4343. <https://doi.org/10.18203/2394-6040.ijcmph20194491>
25. Paudel, Dillee & Nepal, Laxmi. (2012). “Awareness on Reproductive and Sexual Health among Adolescents: A Cross sectional study from Higher Secondary Schools of Kathmandu, Nepal”. *Health Science Journal*. 5. 31-37
26. Gupta, N., Mathur, A. K., Singh, M. P., & Saxena, N. C. (2004). Reproductive health awareness of school-going, unmarried, rural adolescents. *Indian journal of pediatrics*, 71(9), 797–801. <https://doi.org/10.1007/BF02730716>
27. Char, A., Saavala, M., & Kulmala, T. (2011). Assessing young unmarried men’s access to reproductive health information and services in rural India. *BMC public health*, 11, 476. <https://doi.org/10.1186/1471-2458-11-476>
28. Kotecha, P. V., Patel, S. V., Mazumdar, V. S., Baxi, R. K., Misra, S., Diwanji, M., Bakshi, H., Modi, E., Shah, S., & Shringarpure, K. (2012). Reproductive health awareness among urban school going adolescents in Vadodara city. *Indian journal of psychiatry*, 54(4), 344–348. <https://doi.org/10.4103/0019-5545.104821>
29. Guan, M. Sexual and reproductive health knowledge, sexual attitudes, and sexual behaviour of university students: Findings of a Beijing-Based Survey in 2010-2011. *Arch Public Health* 79, 215 (2021). <https://doi.org/10.1186/s13690-021-00739-5>
30. Yang, X. (2021). Comparison Between Chinese and Danish School-based Sex Education from Gender Aspects.
31. Kotecha, P. V., Patel, S., Baxi, R. K., Mazumdar, V. S., Misra, S., Modi, E., & Diwanji, M. (2009). Reproductive health awareness among rural school going adolescents of Vadodara district. *Indian journal of sexually transmitted diseases and AIDS*, 30(2), 94–99. <https://doi.org/10.4103/0253-7184.62765>
32. Mukherjee, Tanima. (2020). Comparative Study on Reproductive Health Awareness between Bio-Science and Non Bio-Science Students of H.S Level of West Bengal Board. *Asian Review of Social Sciences*. 9. 32-35. 10.51983/arss-2020.9.2.1619