Content available at: https://www.ipinnovative.com/open-access-journals

Indian Journal of Forensic and Community Medicine

Journal homepage: www.ijfcm.org

Original Research Article

Attitude of sexuality and gender among medical and engineering students: A comparative study

Anirudha Gulanikar[1], Shubhangini Sharma[2], Aishwarya Gulanikar[3], Sanmitra Aiholli[4]*

[1]Dept. of Dermatology, Shri Ramchandra Institute of Medical Sciences, C Sambhaji Nagar, Maharashtra, India
[2]KMC Hospital, Navi Mumbai, Maharashtra, India
[3]BJ Medical College, Pune, Maharashtra, India
[4]Shri B.M Patil Medical College Hospital and Research Centre, Vijayapura, Karnataka, India

Abstract

Background: Sexuality education in India remains neglected even among the urban population. Despite being in the 21st century, parents and schools struggle to impart sexual health education, leaving adolescents dependent on movies, the internet, and peers, often resulting in misinformation. This study aimed to assess the status of young adults' knowledge.
Aim: To study knowledge about reproductive and sexual health knowledge among medical and engineering students.
Materials and Methods: A cross-sectional observational study was conducted using a validated questionnaire administered to students of medical and engineering colleges after informed consent. Data were analyzed using SPSS version 21, and comparative analysis was done between the two groups.
Results: A total of 600 students participated. About 61% reported receiving "sex education" in school. Neither group could clearly differentiate between sex and gender, or transgender and intersex. A majority, 68.5% of medical and 66% of non-medical students, were not sexually active. Contraception was considered primarily a girl's responsibility by 90 medical and 57 engineering students ($p = 0.012$). Relationship satisfaction was low: 65.3% of medical and 47.3% of non-medical students reported being unhappy, while 39.7% were unsure of their satisfaction.
Conclusion: Sexuality education remains a taboo in India, leaving young adults misinformed about sexual health. Existing school content fails to meet students' needs. Continued, structured sessions within schools are essential to bridge this gap, fostering healthier attitudes toward sexuality and safeguarding both the mental and physical well-being of youth.

Keywords: Sexuality education, Reproductive health, Sexual health awareness, Adolescents, Medical students, Engineering students.

Received: 17-07-2025; **Accepted:** 29-08-2025; **Available Online**: 09-09-2025

1. Introduction

Education about sexual health and sexuality provides young people with the knowledge and confidence to make informed decisions about their sexuality and lifestyle. It is an internationally accepted opinion that there is a need to promote comprehensive sexuality counselling as is it a basic human right and it provides youth empowerment and good health.[1]

Sex education is a broad program that aims to build a strong foundation for lifelong sexual health by acquiring information, attitudes, beliefs and values about one's identity, relationships, and intimacy. Sexual health is considered a state of physical, emotional, mental, and social well-being in relation to sexuality and not merely the absence of disease or infirmity as defined by the WHO.[2]

There are two aspects of sexuality education. Sexual socialization and sexual literacy. Sexual socialization starts very early in life from home and society. Appropriate socialization will increase effectiveness of sexual literacy as

*Corresponding author: Sanmitra Aiholli
Email: sanmitra29@gmail.com

https://doi.org/10.18231/j.ijfcm.v.12.i.3.8

it has psychological and sociocultural influences. Adolescence (10-19 years) is the opportune time to provide sex education as it is when young people experience the developmental changes in their physiology and behavior as they enter adulthood. The complex emotional state in which adolescents find themselves in addition to the taboo surrounding matters of sexual nature in the Indian society and the widespread gender inequality makes it increasingly challenging for adolescents to attain the knowledge they need. The importance of delivery of sexuality education in a timely fashion to this significant demographic is emphasized by the current statistics that show that almost one in every fifth person on the globe is an adolescent.[3]

The existence of strong stigma and controversy handicaps any existing adolescent health programs, with them being in-comprehensive and failing to fully address the main health issues adolescents are vulnerable to. These include several negative sexual and reproductive health outcomes, such as early and closely spaced pregnancies, unsafe abortions, sexually transmitted infection (STI), HIV/AIDS, and sexual violence, which are already increasing at a disturbing rate.[4]

Adolescents find themselves at a vulnerable stage of their lives where influences of peer pressure can be conducive to socially unacceptable and perhaps even criminal group behaviour. The rapidly emerging risky sexual behaviour among youth needs to be addressed effectively. This requires concentrated efforts not only from institutions and organizations, but also from individuals as members of that society, as sexual offenders often have mental health and psycho-social risk factors that incite, maintain, and perpetuate the offence.[1,5]

2. Materials and methods

A cross-sectional comparative study was conducted over 2 months among 600 undergraduate students, comprising 300 medical and 300 engineering students from the 1st and 2nd year. Convenience sampling was used. The inclusion criteria were students enrolled in the selected colleges who voluntarily consented to participate. The exclusion criteria were those unwilling to participate or who submitted incomplete questionnaires.

Ethical committee approval was obtained, and permission was taken from the deans of respective colleges. A structured questionnaire was prepared after reviewing validated tools and considering issues commonly faced by adolescents. It comprised 5 sections: (1) puberty, (2) sexuality and gender norms, (3) sexuality and STIs, (4) gender concepts, and (5) an attitude test. Most questions were multiple-choice (3–5 options), with some descriptive. Written informed consent was taken, and the questionnaire was administered in the local language.

In addition to the survey, group discussions were held with both students and teachers to explore attitudes, misconceptions, and communication barriers in greater depth. Themes from these discussions were qualitatively analyzed and triangulated with questionnaire findings to provide a more comprehensive assessment.

Completed questionnaires were compiled and entered into Microsoft Excel, and analyzed using SPSS version 21. Data analysis was performed using means and percentages. Chi-square test was applied to assess significance, with a 95% confidence interval.

3. Results

Our study of 600 students from both fields, 359 were male and 241 were female students. The education medium was found to be equally divided between English and Marathi. Majority of the students from both fields belonged to nuclear type of families. A minority of students, less than 1%, could not understand this question.

Defining puberty proved to be a difficult task for the students belonging to the engineering college, where 108 students did not attempt the question and 167 gave a wrong answer. On the other hand, 167 medical students were able to correctly answer this question, 98 gave a wrong answer and 35 did not attempt (**Figure 1**).

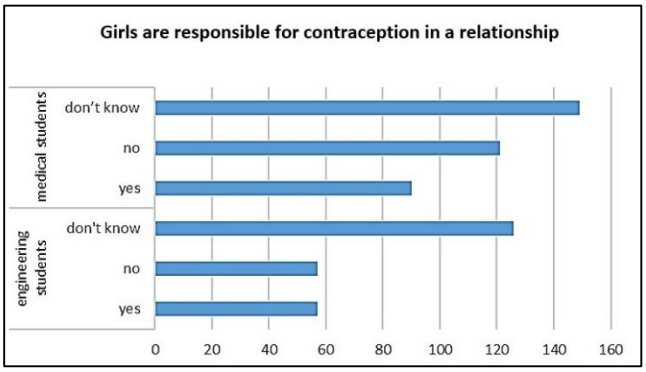

Figure 1: Understanding of definition of puberty among students

A total of 61.3% of the students said that sex education was conducted in their school and 37.8% said no and 0.8% did not know. Most of the medical students (73%) gave a positive reply for this question whereas, the graph tipped to the lower side (49.7%) for the same question among engineering students.

The next question dealt with knowing the difference between gender and sex, unfortunately even the medical students seemed to have failed here. Only 22% of the medical students managed to answer it correctly whereas, only 4% of the engineering students managed a correct answer. Even the difference between transgender and intersex seemed to have stumped both groups, with only 42 medical and 7 engineering students got the answer correctly.

Their source of information primarily seemed to be their school teacher followed by their mother in both the groups; however, they would have preferred to receive it from their school teachers, friends. Both the groups had a similar opinion. (**Table 1**)

Table 1: Source of information about puberty

Source of information about Puberty	Medical students (n)	Engineering students (n)
School teacher	121	121
Mother	82	57
Father	15	19
Brother	6	17
Sister	6	5
Friends	47	60
Other family members	3	0
Doctors	6	3
magazines/books	6	10
films/videos	4	6
others	4	2
Total	300	300

The next part of the questionnaire looked for their response to different situations in our society, what they thought about relationships, physical intimacy, feminism, marriage, importance of consent before sex, virginity. Most of the students in both the groups were open to girls and boys being friends and going out on dates.

When it came to the reason behind being in a relationship, 50% of the students from both groups strongly believed to be love followed by stability and lastly social status. 72 medical students compared to 47 engineering students marked social status being the reason.

Most of the students, 338 to be precise, disagreed on pre-marital sex being okay and 192 students, of which 147 were medical agreed that it is okay to have pre- marital sex. (**Figure 3**) The very next question was if forceful sex was okay, and 60% of the students said they disagreed but 13.3% found it correct. In this 13.3% there were 42 medical and 38 engineering students.

On whether virginity was an important consideration at the time of marriage for girls, 107 medical students chose to disagree whereas only 65 engineering thought on the same lines. When questioned whether boys should also remain virgin till marriage, 114 medical and 83 engineering students chose to disagree. This indicates in a difference in the thinking between the two sexes, 7 more medical students and 18 more engineering changed their opinion when the gender was changed.

When it came to contraception, 39.3% said they knew how to use a condom out of which medical students outnumbered the engineering ones. However, the next common answer that was given was “don’t know” and in this the engineering students outnumbered the medical ones.

On being asked if it was the girl’s responsibility to ensure that contraception is being used, 121 medical students and 57 engineering disagreed with this concept, 90 medical and 57 engineering students agreed with it (p value=0.012). The answer which bothers the most is “do not know” which was given by 126 engineering students and this leads to most problems faced by young couples. (**Figure 2**).

Next category dealt with direct answers on sexuality. On being asked if they were sexually active, most of them gave a negative response, 68.5% medical and 66% engineering students. Is it important to be sexually active for a happy relationship? 73% medical, 49.7% engineering students agreed, 26% medical and 49.7% engineering students disagreed and very few did not know what to answer for this question.

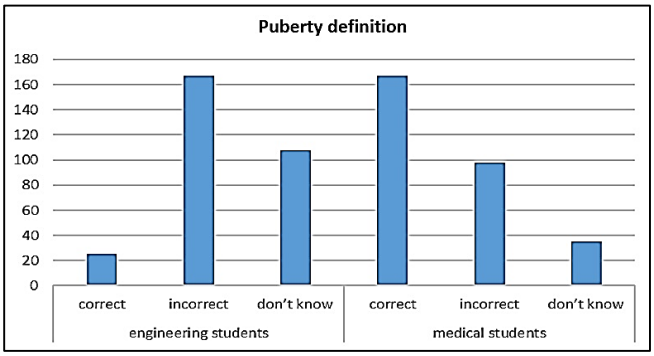

Figure 2: Belief that contraception is the girl’s responsibility among students

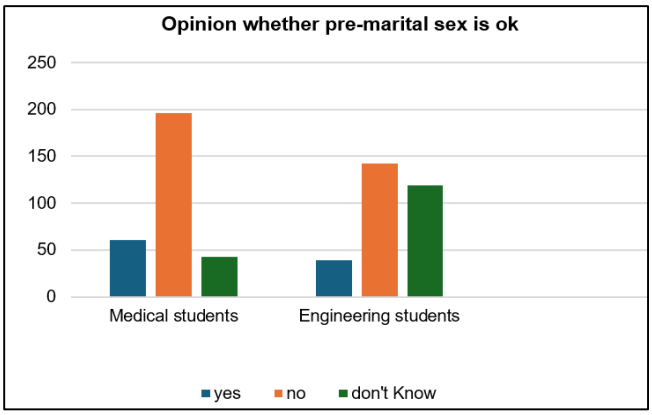

Figure 3: Opinion about pre-marital sex

81% medical students managed to enumerate different types of contraception whereas almost the same number of engineering students could not go ahead of condoms.

243 (81%) medical students could answer the difference between HIV and AIDS, while 81.3% of the engineering students could not answer and this question. 63.7% medical and 12.3% engineering students could correctly answer the mode of transmission of HIV. This can be attributed to medical and biology knowledge of students.

To enumerate other STDs, 79.3% medical students managed to mention the diseases correctly, but 82.7% engineering students did not know the answer. The next category dealt with gender concepts where they had to answer if certain characteristics are restricted to females or males or can be common to both.

Homemaking was not restricted to females thankfully, and 50.3% of all the students thought it could be both a male and a female characteristic where the medical students edged the engineering students out by 30 students. Similarly, traveling long distances alone or a business person or cooking, both males and females gave similar responses by both the groups thereby going against the old orthodox thought process where certain jobs or characteristics can be restricted to either of the sexes. This category threw some light on the changing thought process of the newer generation.

The last category was an attitude test. Is it normal to think of sexuality at their age, 74.7% medical and 6% engineering students strongly agreed to this 90.6% engineering students did not know if it was true or not.

Is masturbation injurious to health when asked to the students 51.33% of all students skipped this question entirely. Out of those students who answered 65% said they did not know, 4.5% believed that masturbation is injurious to health and 7% disagreed with that notion. These shows the taboo while discussing sexuality leading to ignorance among teenagers. (**Table 2**) Is menstruation making a girl unholy, 41.7% medical, 33% engineering students strongly disagreed whereas, 14.3% engineering and 6.3% medical students agreed with it.

When asked about whether taboos about sexuality in Indian society 46.8% of overall students believe that it is old fashioned and orthodox.

Majority of the the boys had heard about contraceptive pills. About two-thirds of the adolescents, particularly those in the older ages, had heard about HIV / AIDS. Over all about 50 percent of adolescent boys and girls knew correctly, various modes of transmission of HIV. With age correct knowledge about various modes of transmission increased. Most of the teachers considered adolescence as the period between age 13 and 19 years. Teachers themselves hesitate and are uncomfortable in teaching topics related to reproduction.

The group discussions with teachers from both specialty revealed that majority of engineering teachers felt ill-equipped to handle topics related to sexuality and gender. They cited lack of training and fear of parental or institutional backlash. Teachers from both streams acknowledged that while sexuality education is necessary, the existing school/college curricula are inadequate and culturally constrained. Interestingly, both medical and engineering faculty expressed that students often know more from informal sources (internet, peers, media) than from formal education, but this knowledge is fragmented and sometimes incorrect.

Table 2: Is masturbation injurious to health?

Masturbation is injurious to health	Medical students (n)	Engineering students (n)
Strongly agree	6	6
Slightly agree	15	15
Slightly disagree	20	10
Strongly disagree	12	8
Don't know	80	120
Did not answer	167	141

4. Discussion

This study has been done to highlight the importance of sex education being imparted to the students at the correct age. Unfortunately, not too many such studies have been carried out in our country. We were faced with lot of hardships from authorities to get permission to conduct survey on sex education among adolescents.

In a study conducted by P.V Kotecha in 30 schools in Vadodara, very few of the boys and girls could correctly explain the process of reproduction.[6] Over two-thirds of the students wanted more information on reproduction.

The source of information for the students in both groups seemed to be their school teacher primarily followed by their mother, however they would have preferred to receive it from their school teachers, friends. In a similar study by Kumar et al. among adolescents of Ambala district preferred doctors followed by teachers.[7] In another study conducted by Jaideep K et al., in Chandigarh found that 76.74% students choose the teacher as the best source to provide sex education.[8] In a study by P.V Kotecha preferred sources for the same were mothers, doctors and teachers in the same order.[6]

Most of the students, 203 to be precise, disagreed on pre-marital sex being okay and 192 students, of which 116 were medical agreed that it is okay to have pre- marital sex. A study by Kumar and Tiwari on youth living in Delhi and Lucknow showed that only 19% approves of it.[9] Another study by Dave et al. on college students of Jamnagar, nearly 60% of students were involved in pre-marital sex.[10]

When it came to contraception, 39.3% said they knew how to use a condom out of which medical students outnumbered the engineering ones. However, the next common answer that was given was “don’t know” and in this the engineering students outnumbered the medical ones. In a study by shah et al on adolescent girls, majority (60.36%) respondents had inadequate knowledge of contraception.[11] In a similar study by Puri et al on female college students in Chandigarh, nearly half of students knew of contraceptive

methods.[12] One-third of the boys and one-fourth of the girls had heard about contraception, mainly Condoms (22 percent), intrauterine devices (11 percent) and oral pills (10 percent) in a study by PV Kotecha.[6]

191 medical students could answer the difference between HIV and AIDS, while most of the engineering students chose not to answer this question. This can be attributed to medical and biology knowledge of students. A study on undergraduates in Ghana found similar results with 54% of students were not able to attribute HIV to AIDS.[13]

In another study carried out in AFMC Hospital, Pune, included students from Class IX to XII in two co-education schools. The results of the study suggested that a significant association was found among those holding the view that having sex proves their masculinity, being sexually abused, masturbation among boys, and sexual activity. A significantly large number of boys and girls are unaware of role of alcohol on sexual activity and that pregnancy can be caused by single intercourse.[14,15]

Focus group discussions held between five teachers and 30 students of both streams, echoed the survey findings—most students desired open, judgment-free discussions but felt embarrassed to approach teachers. They highlighted a preference for interactive sessions led by trained professionals rather than traditional didactic lectures as incorrect information can hamper children in understanding about their sexual orientation or gender identity.

5. Conclusion

Sexual health education is an important developmental milestone for children and adolescents. They need accurate information about their bodies, relationships, mental health, and sexuality. The American Academy of Pediatrics recommends universal access to developmentally appropriate, evidence-based sexuality education to help young people develop a positive view of sexuality, build healthy relationships, and make informed, safe choices.

Our study highlights the deficiency of formal sex education among adolescents, despite their willingness to receive it from trusted sources. Incomplete knowledge fosters misconceptions that are difficult to change later and contributes to social issues such as teen pregnancy and STDs. Creating a safe, open, and non-judgmental environment with parents, teachers, and doctors is essential for effective communication.

Findings showed that medical students had better knowledge of contraception and STDs, underscoring the positive impact of formal sexual health education. Incorporating topics like reproduction, puberty, and contraception into non-medical curricula could lay a strong foundation for healthier sexual attitudes and outcomes.

6. Source of Funding

None.

7. Conflict of Interest

None.

References

1. UNESCO. *Youth and comprehensive sexuality education* [Internet]. New York: United Nations; 2013. Available from: https://www.un.org/esa/socdev/documents/youth/fact-sheets/youth-sexuality-education.pdf.
2. World Health Organization. Defining sexual health [Internet]. Geneva: World Health Organization. Available from: https://www.who.int/teams/sexual-and-reproductive-health-and-research/key-areas-of-work/sexual-health/defining-sexual-health.
3. Zenouzi A, Rezaei E, Behboodi Moghadam Z, Montazeri A, Maani S, Vasegh Rahimparvar SF. Reproductive health concerns of women with high risk sexual behaviors. *SAGE Open Nurs*. 2021;7:23779608211017779.
4. Ismail S, Shajahan A, Sathyanarayana Rao TS, Wylie K. Adolescent sex education in India: current perspectives. *Indian J Psychiatry*. 2015;57(4):333–7.
5. Khubchandani J, Clark J, Kumar R. Beyond controversies: sexuality education for adolescents in India. *J Family Med Prim Care*. 2014;3(3):175–9.
6. Kotecha PV, Patel S, Baxi RK, Mazumdar VS, Misra S, Modi E, et al. Reproductive health awareness among rural school going adolescents of Vadodara district. *Indian J Sex Transm Dis AIDS*. 2009;30(2):94–9.
7. Kumar R, Goyal A, Singh P, Bhardwaj A, Mittal A, Yadav SS. Knowledge attitude and perception of sex education among school going adolescents in Ambala District, Haryana, India: a cross-sectional study. *J Clin Diagn Res*. 2017;11(3):LC01–4.
8. Kumar J. Need assessment for sex education amongst the university students – a pilot study. *Glob J Med Pub Health*. 2012;1(2):23–9.
9. Kumar A, Tiwari V. Knowledge, attitude and behaviour towards pre-marital sex: A study among youths from two city-slums in India. *J Health Pop.* 2003;26(4):126–34.
10. Dave VR, Makwana NR, Yadav BS, Yadav S. A study on high-risk premarital sexual behavior of college going male students in Jamnagar city of Gujarat, India. *Int J High Risk Behav Addict.* 2013;2(3):112–6.
11. Shah C, Solanki V, Mehta HB. Attitudes of adolescent girls towards contraceptive methods. *Australas Med J*. 2011;4(1):43–8.
12. Puri S, Bhatia V, Swami HM, Singh A, Sehgal A, Kaur AP. Awareness of emergency contraception among female college students in Chandigarh, India. *Indian J Med Sci*. 2007;61(6):338–46.
13. Oppong AK, Oti-Boadi M. HIV/AIDS knowledge among undergraduate university students: implications for health education programs in Ghana. *Afr Health Sci*. 2013;13(2):270–7.
14. Shashikumar R, Das RC, Prabhu HRA, Srivastava K, Bhat PS, Prakash J, et al. A cross-sectional study of factors associated with adolescent sexual activity. *Indian J Psychiatry*. 2012;54(2):138–43.
15. Goldstein AL, Barnett NP, Pedlow CT, Murphy JG. Drinking in conjunction with sexual experience among at risk college student drinkers. *J Stud Alcohol Drugs.* 2007;68(5):697–5.

Cite this article: Gulanikar A, Sharma S, Gulanikar A, Aiholli S. Attitude of sexuality and gender among medical and engineering students: A comparative study. *Indian J Forensic Community Med*. 2025;12(3):185–189.