



SEX KNOWLEDGE AND ATTITUDE AMONG UNDERGRADUATE MEDICAL STUDENTS: A CROSS-SECTIONAL STUDY

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ABSTRACT **BACKGROUND:** The word 'sex' in India is a taboo and not discussed openly. Sex attitude refers to one's attitude toward sexuality or different sexual behaviors such as masturbation, oral sex, anal sex and sexual relationships. Poor sex knowledge causes many of these problems. Liberal attitude without adequate knowledge is harmful.

AIMS: The present study aimed to assess the knowledge and attitude of undergraduate medical students.

METHODS: a cross sectional study was carried out to assess sex knowledge and attitude among 752 medical undergraduate students. The Google document contained structured questionnaire in four important parts: (1) Demographic details of students (2) Sex Knowledge and Attitude Questionnaire II (SKAQ II).

RESULTS: The mean score of participants on attitude towards sex scale is 25.47 \pm 5.04. Overall participants shows conservative attitude towards sex. Female participants have statistical significantly higher sex knowledge ($p=0.038$) and attitude towards sex score ($p<0.001$). As academic year of participants increases sex knowledge increases ($p<0.001$). Statistical significant positive correlation was observed between sex knowledge and attitude scores ($r=0.544$, $p<0.001$).

CONCLUSION: Participants are deficits in sex knowledge and conservative attitude in certain areas. Females, higher education level and urban area participants have higher sex knowledge and liberal attitude. Liberal attitude towards sex develops as sex knowledge increases. There are areas of sex knowledge and attitude which need improvement by proper sex education.

KEYWORDS :**INTRODUCTION:**

Sexual knowledge refers to the knowledge about sexuality, reproduction, pregnancy, masturbation, abortion, fertility, methods of contraceptive use, sexually transmitted disease and myths and misconceptions related to sex.¹ Sexual attitude could be liberal or conservative and it refers to the attitude one has toward sexuality or different sexual behaviors such as masturbation, oral sex, anal sex and sexual relationships.² Sexual knowledge, attitude and behavior are influenced by many factors such as; societal, cultural, environmental and physical factors.³

The word 'sex' in India is a taboo and not discussed openly. It has personal, anatomical, physiological and psychological components. Contextual factors such as poverty, gender imbalances and lack of education or livelihood opportunities clearly increase risk-taking behaviors and influencing their sexual and reproductive health of youth.⁴ Education level of the head of the family⁵ and Religiosity⁶ also plays an important role in acquiring sex knowledge and building a positive attitude toward sex. A liberal attitude towards sex without adequate knowledge is harmful resulting in engagement in premarital and extramarital sex as well as sexually transmitted diseases (STDs).⁷ In a study it is observed that one fifth participants were aware about methods of contraception and STIs.⁸

Although people's knowledge and attitude about sexual and reproductive health is increasing but this remains superficial and associated with many myths and misperceptions and a sense of invulnerability.⁹ For building a positive non-judgmental attitude towards sex related matters, it is necessary to give proper information towards sex to doctors and medical students.¹⁰ The present study aimed to assess the knowledge and attitude of undergraduate medical students.

METHODS:

A cross sectional study was carried out to investigate the sex knowledge, attitude and sexual behavior of undergraduate medical

students Jamnagar, Gujarat. A Google document form was made and shared with all students from first year to internship through email address and whatsapp group comprising 850 students. The Google document contained structured questionnaire in four important parts: (1) Demographic details of students (2) Sex Knowledge and Attitude Questionnaire II (SKAQ II). Participants who did not respond to the questionnaire were sent three reminders at a gap of 3 days. Participants who gave consent and filled the form were included in study. Ethical approval was taken from the institutional ethical committee.

MATERIAL:

Sex Knowledge and Attitude Questionnaire II' (SKAQ II):¹¹ SKAQ II was used to assess knowledge and attitude towards sex. It has of two parts: first part consist 35 item knowledge questionnaires about sex knowledge with response of "yes" or "no". Each correct response given one score with total score ranges from zero to 35. Second part contains 20 questions about attitude on a three point linear scale (0-2), with score ranges from 0 -40. Higher the scores, better the knowledge and more liberal the attitude. The test reliability is 0.66 for knowledge and 0.43 for attitude scale.

RESULTS:

Total 752 participants completed the survey. Participant's age ranged from 18-26 years with mean age of 20.63 \pm 1.46 years. Most of participants (95%) belonging to Hindu religion.

Table 1: correct response rate of participants on sex knowledge questionnaire (N=752)

Sr no	Sex knowledge questionnaire	Correct response rate of participants	
		N	percentage
1	Reading erotic materials and books affect children's sex-related attitude	111	14.76%
2	Homosexuality is increased by watching or learning same-sex intercourse	524	69.68%

3	Removing testes causes impotency	402	53.46%
4	Masturbation of married person is a sign of spoiled sex relations	516	68.62%
5	Possibility of conceiving increases if female experience orgasm	438	58.24%
6	Common cause of not having baby is impotency	401	53.32%
7	Some foods increase sex desire	566	75.26%
8	Mother does not conceive until she is lactating	391	52.00%
9	Excessive sex desire is responsible for bad sexual activities	448	59.57%
10	Masturbation causes various types of mental imbalances	445	59.18%
11	Women having multiple premarital sex relations are less honest than others	507	67.42%
12	Males' sexual acts are affected more by age than females	424	56.38%
13	Mostly, people of low SEC use various ways of sexual intercourse	533	70.88%
14	Rapists have more sex desire	239	31.78%
15	People of low SEC do more sexual intercourse than people of high SEC	492	65.42%
16	People of low SEC do not give much attention to family planning	631	83.91%
17	Excessive sexual acts in childhood or adolescence causes negative effect on married life	348	46.28%
18	Addictive drugs increase sex desire	282	37.50%
19	Excessive sex desire weakens semen	565	75.13%
20	Bigger the penis, more the sexual potency	650	86.44%
21	Intact hymen is not a strong evidence of virginity	154	20.48%
22	Females also masturbate	738	98.14%
23	Masturbation causes impotency	696	92.55%
24	Masturbation does not cause any physical weakness	419	55.72%
25	Semen is abstraction of blood	634	84.31%
26	Conception can also occur after menopause	562	74.73%
27	Conception can also occur before menarche or attaining puberty	568	75.53%
28	Excessive masturbation causes mental illness	348	46.28%
29	Excessive masturbation in adolescence empties semen earlier in adulthood	628	83.51%
30	Use of condom prevents STDs	729	96.94%
31	Females easily conceives during menstruation	648	86.17%
32	During menstruation, females should not go to kitchen as it spoils food	703	93.48%
33	Females do not do sexual intercourse with other females	637	84.71%
34	Delivering a baby decreases sexual pleasure	592	78.72%
35	Doing sexual intercourse with unmarried girl can cure sex-related diseases	724	96.28%

The mean of sex knowledge score was 23.53 (4.17). Correct response rate of participants on sex knowledge questionnaire is presented in table 1. Deficit in sex knowledge in certain areas such as; Reading erotic materials and books affect children's sex-related attitude, Excessive sexual acts causes negative effect on married life, rapists have more sex desire, Excessive masturbation causes mental illness, Addictive drugs increase sex desire and intact hymen is not a strong evidence of virginity. In other areas participants have moderate to fairly good knowledge.

TABLE 2: Response of participants towards sex attitude questionnaire (N=752)

Sr No	Sex attitude questionnaire	Response of participants, Number (%)		
		Agree	Not sure	Disagree

1	Sex education promotes premarital sex relations in society	196 (26.06)	191 (25.40)	365 (48.54)
2	Homosexuality in males often starts with mutual masturbation	157 (20.88)	302 (40.16)	293 (38.96)
3	After marriage, sexual intercourse with person other than spouse is always harmful	291 (38.70)	202 (26.86)	259 (34.44)
4	Information of contraception often promotes wrong ways of doing sexual intercourse	69 (09.18)	133 (17.69)	550 (73.14)
5	Parents should stop their children doing masturbation	75 (09.97)	235 (31.25)	442 (58.78)
6	Females should have experience of sexual intercourse before marriage	103 (13.70)	325 (43.22)	324 (43.09)
7	Abortion is not a murder	335 (44.55)	205 (27.26)	212 (28.19)
8	Females should be prohibited from masturbating	26 (03.46)	90 (11.97)	636 (84.57)
9	All laws permitting abortion should be banned	38 (05.05)	117 (15.56)	597 (79.39)
10	Sexual intercourse must be between husband-wife only	251 (33.38)	215 (28.59)	286 (38.03)
11	Masturbation is usually harmful to health	106 (14.10)	165 (21.94)	481 (63.96)
12	It is not doctor's responsibility to inform relatives of a woman undergoing abortion	313 (41.62)	164 (21.81)	275 (36.57)
13	Abortion should not be permitted in any situation	53 (07.05)	74 (09.84)	625 (83.11)
14	Males should have experience of sexual intercourse before marriage	104 (13.83)	259 (34.44)	389 (51.73)
15	Watching family members nude, increases eagerness of knowing about sex in children	275 (36.57)	233 (30.98)	244 (32.45)
16	Masturbation usually calms down sex desire of women	296 (39.36)	324 (43.08)	132 (17.56)
17	Women of low socioeconomic usually participate more in sexual intercourse	180 (23.94)	344 (45.74)	228 (30.32)
18	Abortion is worse than birth of unwanted baby	107 (14.23)	186 (24.73)	459 (61.04)
19	Mutual masturbation in childhood should not be prohibited	114 (15.16)	277 (36.84)	361 (48.00)
20	Virginity in unmarried females should be supported and enhanced in our society	197 (26.20)	316 (42.02)	239 (31.78)

The mean score of participants on attitude towards sex scale is 25.47 ±5.04. Overall participants shows conservative attitude towards sex. Response rate of participants on attitude towards sex questionnaire is presented in table 2. Lower score represent conservative attitude while higher score represent liberal attitude towards sex.

Table 3: Relation of different demographic variable with sex knowledge score and attitude score (N=752)

Demographic variable		Sex knowledge score		Sex attitude score	
		Mean (SD)	statistical value	Mean (SD)	statistical value
Gender	Male (N=483)	23.30 (4.33)	df=611.822 t=2.081 p=0.038	24.89 (5.08)	df=750 t=4.218 p<0.001
	Female (N=269)	23.94 (3.84)		26.49 (4.82)	
Academic year	First year (N=203)	22.12 (3.82)	F=17.615 P<0.001	24.08 (4.85)	F=2.492 P=0.42
	Second year (N=151)	22.44 (4.27)		24.88 (6.06)	
	Third year (153)	23.96 (3.96)		25.79 (4.87)	

	Fourth year (N=147)	24.66 (4.38)		26.07 (4.73)	
	Internship (N=98)	25.27 (3.88)		26.08 (3.90)	
Geographical area	Urban (N=572)	23.91 (4.01)	df=277.43 8	25.69 (5.18)	df=750 t=-2.141
	Rural (N=180)	22.31 (4.43)	t=-4.317 p<0.001	24.77 (4.52)	p=0.33

Table 3 shows that female participants have statistical significantly higher sex knowledge ($p=0.038$) and attitude towards sex score ($p<0.001$), which was denoted by independent t test. Participants belonging to urban area have statistical significant higher score on sex knowledge ($p<0.001$), while no significant association with attitude towards sex ($p=0.33$) which was denoted by independent t-test.

Table 3 shows that as academic year of participants increases sex knowledge increases, which was found to be statistical significant ($p<0.001$). While no statistical significant difference observed among attitude towards sex score among different academic years ($p=0.42$), as denoted by one way ANOVA test.

No statistical relation of sex knowledge and attitude was observed with relationship status.

Positive correlation was observed between per capita income and sex knowledge score ($r=0.420$). As per capita income increases sex knowledge of participants also increases, which was found to be statistical significant as denoted by Pearson correlation test ($p<0.001$).

Positive correlation was observed between per capita income and attitude towards sex scale ($r=0.244$). As income of participants increases, liberal attitude towards sex increases. Relation was statistical significant ($p<0.001$), as denoted by Pearson correlation test. Positive correlation found between age of participants with sex knowledge score ($r=0.264$). As age of participants increases sex knowledge also increases. Relation was statistical significant ($p<0.001$) according to Pearson correlation test.

Statistical significant positive correlation was observed between sex knowledge and attitude scores ($r=0.544$, $p<0.001$), as denoted by Pearson correlation test. As participants sex knowledge increases they develops more liberal attitude towards sex. While, statistical non significant positive correlation was observed between age of participants and attitude towards sex ($r=0.062$, $p=0.089$)

DISCUSSION:

The current study observed overall deficit in sex knowledge in certain areas such as; Reading erotic materials and books affect children's sex-related attitude, Excessive sexual acts causes negative effect on married life, rapists have more sex desire, Excessive masturbation causes mental illness, Addictive drugs increase sex desire and intact hymen is not a strong evidence of virginity. Current study also observed conservative attitude of participants towards sex. Study by Sidi et al (2013) among 452 medical students from Malaysia observed inadequate knowledge about sex and conservative attitude on premarital sex, masturbation, abortion, homosexuality and oral sex.¹¹ Study by Kacha et al (2019) among 60 medical interns from Ahmedabad, Gujarat reports deficit of sex knowledge.¹² Study by Joshi et al (2010)¹¹ among 182 urban adolescent from Mumbai found that participants have less knowledge about physiology of sexual response, conception and pregnancy. Avasthi et al (2008) in study among young women from north India observed that majority of participants has adequate sexual knowledge and a fairly liberal attitude.¹¹ The differences among observation may be due to difference in study population

In present study only 31% students correctly answer about rapists have more sex desire. Almost similar results (80%) agreed that rapist have more sexual desire in findings by Kacha et al (2019)¹² and 75% by Dutt et al (2017)¹³ among urban college youth. These results may be due to increased incidence of rapes and excessive media coverage.

In present study most of participants have conservative attitude towards attitude questionnaire about; Sexual intercourse must be between husband-wife only, Virginity in unmarried females should be supported and enhanced in our society, sexual intercourse with person other than spouse is always harmful, masturbation usually calms down

sex desire of women and abortion is not a murder. Study results are consistent with findings of Kacha et al (2019)¹² and Shah et al (2008)¹¹, most of participants consider sexual activity before marriage as sin.

In present study female participants had more sex knowledge and liberal attitude towards sex. In study by Kacha et al (2019)¹² and Sidi et al (2013)¹¹ found no significant difference in overall knowledge between males and females. Baumeister et al (2000) found men have a better sexual knowledge and attitude than women.¹¹ These results may be due to different study population and education level.

In present study it is observed that as academic year (education) of participants increases sex knowledge increases. These findings were consistent with Sidi et al (2013).¹¹ These results can be explained as with increasing academic year students acquire more knowledge and during clinical posting.

Current study found that participants residing at urban area have more sexual knowledge than rural while no difference observed in attitude towards sex. Sidi et al (2013)¹¹ observed no difference in sex knowledge among rural and urban area. The difference in results may be due different education background of participants.

In present study positive correlation was observed between sex knowledge and attitude. Participants having more sex knowledge have liberal attitude towards sex, while those having less sex knowledge have conservative attitude towards sex. Study results are consistent with findings of Tiang et al (2016)¹¹, Dutt et al (2017)¹³ and Kacha et al (2019)¹². This fact can be explained that increase in knowledge improves the attitude.

CONCLUSION:

Participants are deficits in sex knowledge and conservative attitude in certain areas. Females, higher education level and urban area participants have higher sex knowledge and liberal attitude. Liberal attitude towards sex develops as sex knowledge increases. There are areas of sex knowledge and attitude which need improvement by proper sex education. Sex education is also necessary because young people are unable to discuss their sexual concerns freely with family members.

LIMITATION:

The anonymous nature of survey permits good response, while self reported data that could be biased in the direction of both over-reporting and underreporting. As there are no well-defined criteria or norms to determine normal sexuality and attitude toward it, these are influenced by a complex interplay of individual and cultural expectations and can change over time.

CONFLICT OF INTEREST: Nil

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