



Original Research Article

Sexuality amongst adolescents in present era: An observational cross sectional study

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ABSTRACT

Introduction: Every individual goes through the storm and stress of intense physical and mental changes during adolescence. Awareness and knowledge about sexuality and sex during this crucial phase decides the pattern and style of their life. Gen Z has been raised in era of internet revolution. In the absence of nationwide comprehensive sexual education curriculum in schools, digitalization opens up numerous platforms of learning regarding the sexuality.

Objectives: To determine the knowledge among rural and urban adolescents regarding sexuality, safe sex and their source of information.

Materials and Methods: An observational cross-sectional study was conducted in 2 co-educational rural and urban schools each of Sitapur district on 553 students aged 12-18 years of either sex. A self-report questionnaire was administered to test their knowledge and perception regarding sex and sexuality and source of information. Data was analysed using Epi Info7. Categorical variables were expressed as number and percentage.

Results: In present study rural adolescent has lesser number of opposite sex friends than urban counterpart. They have more physical groups while urban adolescents have more online groups. The preferred mode of interaction among urban adolescents is digital media. Lesser number of rural adolescents have knowledge about methods of safe sex, route of transmission and prevention of HIV. Major source of information was digital platform among urban adolescents.

Conclusion: There is knowledge gap among adolescents from rural area in present study due to social barriers and less access to internet. Thus, in this present era emphasis should be on proper sex education through different digital platforms which can play a pivotal role in delivering the facts about sexuality and appropriate grooming of adolescents.

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1. Introduction

Adolescence is a period of storm and stress as per G. Stanley Hall, in which sexual identity and gender roles are compiled.¹ Sexuality is much more than sex, it is enveloped by their values, attitudes, feelings and desires which shapes their behaviour and personality.

Studies which examined the sexual knowledge and attitude of the Indian youth found that their sexual knowledge is limited and most hold a conservative attitude toward sexuality.² This poor knowledge and attitude reflect among youth as high-risk sexual behaviors and practices. There is absence of a uniform program or a nationwide Comprehensive Sexual Education curriculum for addressing the essential Sexual Reproductive Health needs of our children and youth today.³

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Environmental interactions play a major role in the development of an adolescent mindset. Gen Z has been raised in an atmosphere, which is controlled by internet and social media. They are the youngest, most ethnically diverse and more open minded than any generation before it.⁴ With the expansion of digital space and availability of internet and related devices on low price, adolescents are increasingly opting these resources to explore friendship, interact with peers and society and seek the knowledge about sex and sexuality.

The digital divide between urban and rural population may affect their knowledge, personality and risk perception.⁵ At the same time these digital technologies may trigger to shape their faulty, mal-deviated and dangerous behaviours and personalities which may lead to the serious and fatal consequences. There are paucity of studies from India that have explored the knowledge of urban and rural adolescents regarding sexuality in present digital era. With this background, this study was designed with the aim to determine the knowledge among rural and urban adolescents regarding sexuality, safe sex and their source of information.

2. Materials and Methods

This cross-sectional questionnaire based study was done in two co-educational urban schools namely Gandhi Inter College and Govt. Inter College, Sidhauri and two rural schools namely SRK Inter College, Ataria and MSPM Inter College, Bauna Bhari of Sitapur district UP over a period of 12 months from February 2021 - February 2022. Adolescents in the age group 12-18 years studying in class 8th to 12th were included. There were 105 co-educational schools in Sitapur district with children between 12-18 age group, 70 in urban area and 35 in rural area (2:1 ratio). 2 schools each from rural and urban area were selected randomly from them. There were 1289 students of study age group in selected urban school and 542 in rural school out of which students included in the study was 346 from urban and 207 from rural area schools respectively. The study was conducted after obtaining ethical clearance from the Institutional ethical committee (IEC/IRB Approval no: HIMS/IRB/2020-21/47).

2.1. Inclusion criteria

Adolescents between 12 - 18 years of age of either sex who gave consent for participation were included in the study.

2.2. Exclusion criteria

Those students were not taken in the study whose parents have not given consent for the interview. Incompletely filled questionnaires were also removed before result analysis.

2.3. Sample size

Sample size was calculated using Cochran's formula, $n = \frac{4pq}{d^2}$ with prevalence of knowledge regarding reproductive and sexual health among school going adolescents in India taken as 35%⁶, confidence level of 95% and margin of error 6%, thus the sample size came out to be 245. Double the sample size calculated was taken to include both rural and urban population. Final sample size was 553, subjects were chosen by simple random sampling technique.

2.4. Data collection

A self-designed, pretested, self-report questionnaire was used to assess the current knowledge of adolescents about sexual and reproductive health, their interaction, attitude, information sharing about sex, knowledge about safe sex and source of gathered information. The questionnaire was prepared in Hindi/English both after reviewing previous studies on similar topic.^{2,7,8}

It was pretested on 50 adolescents from both rural and urban background attending pediatric OPD to check its understandability and ability to address study objectives. Based on pretest result, modifications were done in questionnaire regarding few terminologies for better understanding. Informed written consent was obtained from the school principals and students/parents. Questionnaire and purpose of study was explained to each students in a sensitive and confidential manner by specific sex supervisors in the presence of pediatrician. It was distributed separately and students were given sufficient privacy to fill. Incomplete questionnaires were excluded and study was continued till total sample size was covered (dropout rate was not considered)

2.5. Statistical analysis

The data collected was compiled and tabulated using Microsoft Excel. Categorical variables were expressed as number and percentage. Data was analysed using Epi Info7.

3. Results

Out of 553 adolescents who participated in the study, 207 (37.5%) were from rural area and 346 (62.7%) were from urban background. Among adolescents from rural area 124 (59.9%) respondent were male, 83 (40.1%) females and in urban area, 190 (55.07 %) males and 156 (45.21%) females. The knowledge about sexual organs and group friendship is tabulated in Table 1. 104 (83.8%) males and 65 (78.3%) female adolescents of rural area had knowledge about their own sexual organs while 87(70.67 %) males and 56(67.4%) females have the knowledge of opposite sex organs. Among urban group 162 (85.26%) males and 135 (86.53%) females had the knowledge of own sexual organs while 144 (75.78%) males and 111(71.15%) females had

Table 1: Knowledge about sexual organs and group friendship

Variables	Rural (n=207)		Urban (n= 346)		Total
	Male n (%) 124 (59.90) n (%)	Female n (%) 83 (40.09) n (%)	Male n (%) 190 (55.07) n (%)	Female n (%) 156 (45.21) n (%)	553 n (%)
Knowledge about sexual organs					
Own	104 (83.87)	65(78.30)	162 (85.26)	135 (86.53)	446 (80.65) 398 (71.97)
Yes Opposite sex	87 (70.67)	56 (67.40)	144 (75.78)	111 (71.15)	
Opposite sex friendship					
Do you have opposite Yes Sex friends	74(59.67)	36 (43.37)	165 (86.84)	128 (82.05)	403 (72.87)
If Y, number of friends of other sex?	n=74	n= 36	n=165	n=128	n=403
1	18 (24.32)	09 (25.0)	28 (16.96)	21 (16.4)	76 (18.85)
> 1	56 (75.67)	27 (75.0)	137 (83.03)	107 (83.59)	327 (81.14)
Do you have group of friends	n=56	n=27	n=137	n=107	n=327
Yes	42 (75.0)	20 (74.07)	116 (84.67)	87 (81.30)	256 (81.03)
If Y, Mode of friendship	n=42	n =20	n = 116	n =87	n =256
Offline	28 (66.66)	14 (70.0)	28 (24.13)	19 (21.83)	89 (33.58)
Online	14 (33.33)	06 (30.0)	88 (75.86)	68 (78.16)	176 (66.41)
Both	12 (28.57)	04 (20.0)	16 (13.79)	14 (16.09)	46 (17.35)
Do you talk about sex in group	n =42	n =20	n = 116	n =87	n =256
Yes	29 (69.04)	16 (80.0)	97 (83.67)	76 (87.35)	218 (82.26)

knowledge of opposite sex organs.

When asked about opposite sex friendship, 165 (86.84%) males and 128 (82.05%) females from urban area had opposite sex friends which is much higher than rural adolescents where only 74 (59.67%) males and 36 (43.37%) females had friendship with opposite sex. Majority of rural and urban adolescents of both sexes had more than one opposite sex friends. More than 75% of urban adolescents have opposite sex friendship through online platform. On the other hand, more than two-thirds of rural adolescents made friends offline. When asked whether they talk about sex in their friend groups, majority of adolescents gave answer as affirmative.

Table 2 depicts the adolescent interaction, attitude and information sharing about sex. Majority of adolescents from rural areas use SMS (text message) followed by phone call to talk about sex with their friends. In urban area preferred mode of sex talk was social media followed by audio/video phone call. When asked whether they have physical contact with opposite sex friends, 46 (42.59%) males and 37 (46.25%) females from urban area said yes, while 14 (38.81%) boys and 6 (28.57%) girls answered positive in rural population. The place of meeting was chosen neighborhood by 31(70.45%) male and 12(57.14%) females and home by 9 (20.45%) male and 7 (33.33%) females

among rural adolescents. In urban area, 64 (59.25%) boys and 28 (35.0%) girls met in school followed by 30 (27.77%) boys and 25 (31.35%) in neighborhood. 36 (81.81%) male and 7 (33.33%) female of rural area and 82 (75.92%) male and 43 (53.75%) female of urban area, shared this relationship to peers.

Table 3 depicts knowledge about safe sex .Knowledge about intercourse was better in urban adolescents than rural counterparts. When asked about knowledge of protective methods for safe sex, majority knew about condoms. Overall urban adolescents have better knowledge about protective methods.

Less than one-third of adolescents had knowledge about sexually transmitted diseases. However, majority had knowledge about HIV/AIDS. Overall 390 (70.52%) adolescents know unprotected sex as route of transmission of HIV/AIDS. But 28 (22.58%) males and 28 (33.73%) females from rural area had no knowledge about route of transmission of HIV/AIDS which was higher as compared to urban adolescents. Majority of adolescents had knowledge of safe practices for prevention of HIV.

Table 4 reflects source of information to adolescents regarding sexuality. Peer group were the main offline source of information in rural adolescents while social media platforms provided most knowledge to urban adolescents.

Table 2: Adolescents interaction, attitude, information sharing about sex

Variables	Rural (n=207)		Urban (n= 346)		Total
	Male n (%) 124 (59.90)	Female n (%) 83 (40.09)	Male n (%) 190 (55.07)	Female n (%) 156 (45.21)	553
Do you talk about sex with friend	n=74	n= 36	n=165	n=128	n=403
Y	44 (59.45)	21 (58.33)	108 (65.45)	80 (62.50)	253 (62.77)
N	30 (40.54)	15 (41.66)	67 (40.60)	49 (38.28)	161 (39.95)
If Y, Through *	n =44 (%)	n =21 (%)	n =108 (%)	n= 80 (%)	n = 253(%)
Call	20 (45.45)	06 (28.57)	76 (70.37)	31 (38.75)	133 (52.57)
SMS	28 (63.63)	17 (80.95)	-	-	45 (17.79)
Social media (WhatsApp/ Facebook messenger/ Snapchat etc.)	14 (31.82)	04 (19.05)	98 (90.74)	63(78.75)	169 (66.79)
Video Call	01(2.27)	—	68 (62.96)	23 (28.75)	92 (36.36)
Have you had any physical contact	n =44 (%)	n =21(%)	n =108(%)	n= 80(%)	n =253
Yes	14 (38.81)	06 (28.57)	46 (42.59)	37 (46.25)	103 (40.71)
Place of meeting					
School	4 (9.9)	2 (9.09)	64 (59.25)	28 (35.0)	98 (38.73)
Home	9 (20.45)	7 (33.3)	14 (12.96)	24 (30.0)	54 (21.34)
Neighbourhood	31 (70.45)	12 (57.14)	30 (27.77)	25 (31.35)	98 (38.73)
Else where	-	-	-	03 (3.75)	
With whom you share about this relationship	n =44 (%)	n =21(%)	n =108(%)	n= 80(%)	n =253
Mother	-	04 (19.04)	-	02 (2.50)	06 (2.37)
Father	-	-	-	-	-
Siblings	03 (6.81)	02 (9.52)	06 (5.55)	05 (6.25)	16 (6.32)
Peers	36 (81.81)	07 (33.33)	82 (75.92)	43 (53.75)	168 (66.40)
Others	-	-	-	-	-
Not shared	05 (11.36)	08 (38.09)	20 (18.51)	30 (37.50)	63 (24.90)

* Note: More than 1 response

4. Discussion

Sex and gender are two different concepts of one's sexuality. Gender is determined at the time of birth, whereas sex is - how an individual perceives oneself as a sexual being. Adolescence plays a vital role in determining one's sexuality as it brings profound alteration in hormonal, anatomic, and neuropsychological substrates of sexuality and the interpersonal, familial, and social significance of these changes.⁹ In today's hyper-sexualized culture of digitalization and globalization, the online platforms are an important source of information which is remodelling the sexual behaviour development of adolescents.¹⁰

In the present study overall higher no. of adolescents of both sex had the knowledge about their own sexual organs which is in contrast to UNESCO 2019 report where only 26% boys and 30% girls had the knowledge about their reproductive organs.¹¹

Urban adolescents in this study had more opposite sex friends than their rural counterpart. Despite of having lesser number of opposite sex friends in rural population, they had more groups of friends. This reflects that group friendship has been reinforced in this digital era which is similar to

the findings of Anderson & Jiang where majority of teens had close friend of a different gender, race or ethnicity.¹² Adolescents within a peer group tend to be similar to one another in behaviour and attitudes, which has been explained as being a function of homophily (adolescents who are similar to one another choose to spend time together in a "birds of a feather flock together" way) and influence (adolescents who spend time together shape each other's behaviour and attitudes)¹³. Rural adolescents had more physical groups while urban had more online groups. In this study, majority of adolescents in rural area use Short Message Service (SMS) text followed by phone call as a preferred mode to talk about sex among their friends while urban adolescents use more internet based social media. This may be attributed due to unequal distribution of digitalization in India.⁵ Lesser interaction seen among females especially in rural area as compared to males. This may be explained by family attitudes and biases which restrict the time given to girls to access a digital device especially in rural areas.¹⁴

1 out of 2 adolescents of urban area in present study had physical contact with their opposite sex friends. As

Table 3: Knowledge about safe sex

Variables	Rural (n=207)		Urban (n= 346)		Total 553
	Male n (%)	Female n (%) 83	Male n (%)	Female n (%)	
Know about intercourse	124 (59.90)	42 (50.60)	190 (55.07)	156 (45.21)	433 (78.30)
Know about consequences of intercourse	76 (61.29)	52 (62.65)	136 (71.57)	116 (74.35)	380 (68.71)
Do you know the protective methods					
Condoms	96 (77.41)	53 (63.85)	157 (82.63)	134(85.89)	440 (79.56)
Pills	41(33.06)	36 (43.37)	87(45.78)	106 (67.94)	270 (48.82)
Other methods	-	-	-	-	-
Knowledge about sexually transmitted diseases(STDs)	39 (31.45)	21 (25.30)	64 (33.68)	45 (28.84)	169 (30.56)
Knowledge about HIV/AIDS	76 (61.29)	47 (56.62)	139 (73.15)	112 (71.79)	374 (67.63)
Knowledge about route of transmission of HIV					
Unprotected sex	81 (65.32)	53(63.85)	138 (72.63)	118 (75.64)	390 (70.52)
Blood & blood products	19 (15.32)	11(13. 25)	39 (20.52)	32 (20.51)	101 (18.26)
Needles / syringes	36 (29.03)	09(10.84)	63 (33.15)	41 (26.28)	149 (26.94)
Mother to child	-	-	-	-	-
Others	-	-	-	-	-
No knowledge	28 (22.58)	28 (33.73)	24 (12.63)	26 (16.66)	106 (19.16)
Knowledge about prevention of HIV					
Sex with only one partner	79 (63.70)	26 (31.32)	122 (64.21)	109(69.87)	336 (60.75)
Using condom	103 (83.06)	61 (73.49)	167 (87.89)	124 (79.48)	455 (82.27)
Blood screening prior to transfusion	-	-	-	-	-
Using sterile syringe	41 (33.06)	21 (25.30)	77 (40.52)	62 (39.74)	201 (36.34)
No knowledge	21 (16.93)	15 (18.07)	18 (9.47)	17 (10.89)	71 (12.83)

Table 4: Source of information gathering regarding sexuality

Variables	Rural (n=207)		Urban (n= 346)		Total 553
	Male n (%)	Female n (%) 83	Male n (%)	Female n (%) 156	
	124 (59.90)	(40.09)	190 (55.07)	(45.21)	
Offline					
Father	-	-	03 (1.57)	-	3 (0.54)
Mother	-	27 (32.53)	-	42 (26.92)	69 (12.47)
Sisters	-	17(20.48)	-	32 (20.51)	49 (8.49)
Brothers	31 (25.0)	-	57 (30.0)	-	88 (15.91)
Teachers	09 (7.25)	11(13.25)	07(3.68)	25 (16.02)	52 (9.40)
Neighbors	19(15.32)	08 (09.63)	33 (17.36)	06 (3.84)	114 (26.03)
Media	51(41.12)	28 (33.73)	96 (50.53)	71 (45.51)	246 (44.48)
(TV/Radio/Newspaper)					
Book	23 (18.54)	18 (21.68)	46 (24.21)	41(26.28)	128 (23.14)
Friends/peers	76 (61.29)	49 (59.03)	141(74.21)	116(74.35)	382 (69.07)
Online					
Social	52 (41.93)	31 (37.35)	161(84.73)	124(79.48)	419 (75.76)
Media/websites					
Friends	32(25.81)	19 (22.89)	126 (66.31)	94 (60.25)	322 (58.22)
Others	-	-	-	-	-

children reach sexual maturity and embark on the transition to adulthood, corresponding changes in their tactile social world continue to shape brain and behaviour. The effects of social touch in adolescents and adults are not limited to those relevant to romantic or sexual relationships but plays a role in adult attachment and the ability to form and maintain close and intimate relations with others.¹⁵ The school was a preferred meeting place in urban adolescents that can be attributed to the maximum time spent at schools and school transport in cities, while in rural group the neighborhood was the convenient and secure place of meeting.

Majority of adolescents in present study shared about their opposite sex relationship with peers, because they think that friends are the most trustworthy and the best to share such type of personal information. On the other side, they want to disclose such relationships to their friends to impress them. Studies show that in adolescence, peer relationships become more salient and, in some domains, more important than parent child relationship.¹⁶ However, 1 out of 4 adolescent did not share their relationship with anyone that might be attributed to secure the confidentiality because we are still not an open minded society.

Teenagers want their relationships to bring them intimacy, social status and sexual pleasure, and they have a strong expectation that these goals will be fulfilled if they have sex.¹⁷ In the present study, larger no. of adolescents had the knowledge about intercourse in contrast to the findings of the survey of UNESCO- 2019.¹¹ But the knowledge about consequences of intercourse was limited more so in adolescents from rural background.

Regarding knowledge about protective methods for safe sex, majority of adolescents were aware of condoms followed by birth control pills. Our findings are similar to the Kaiser Family reports where according to 72% of teens, safe sex method is using a condom followed by contraceptive pills in 46%. Teens say their top priority when choosing a method of contraception is pregnancy prevention, followed closely by how well it protects against disease. The convenience to procure, confidentiality and the cost are taken in consideration, at the time of selection of method of contraception. 67% of sexually active teens in their study said that they use some type of birth control or protection every time.¹⁸ Maximum awareness in present study was among urban girls.

Of about 20 million new sexually transmitted infections each year in the United States, half of cases occur among adolescents.¹⁹ The physical, biological, and psychological factors make this group more prone to acquire sexually transmitted diseases than adults.²⁰ The uncontrolled exposure to media, lack of access to correct information, and an environment which makes discussing issues around sexuality with elders, a taboo adds to their vulnerability. In the present study only 169 (30.56 %) adolescent knows about sexually transmitted diseases. This is similar to

study done by Maheshwari et al which depicts that a significant proportion of adolescents and young adults of our country, involve in risky sexual behaviour, lack a complete knowledge about safe sex practices, and hence are at risk of acquiring HIV/STIs.²¹

The knowledge about HIV/AIDS was much higher in present study when compared to UNICEF data, where rates of comprehensive knowledge regarding HIV remain below 50 per cent in most countries.²² Data shows that the risk of HIV incidence among both genders increased sharply from ages 15–19 to 20–24 years.²³ The risk of HIV in Indian adolescents is further compounded by their incomplete and inaccurate knowledge about it. In addition, the conservative Indian culture with its social restrictions and norms prevent a free and open discussion about HIV/acquired immune deficiency syndrome (AIDS) within family and that culture denies the children and adolescents even the basic information about it.²⁴

The current study also outlines a higher awareness about HIV among urban adolescents than their rural counterparts which is similar to previous studies.^{25,26} This rural–urban differences in awareness could also be due to differences in schooling and exposure to mass media.²⁷ Mass media addresses such topics more openly and in a way that could attract adolescents' attention which can be the plausible reason for higher awareness of HIV among those having access to mass media and the internet.²⁸

Apart from unprotected sex, knowledge about route of transmission of HIV was limited in present study which is different from a study done among secondary school students in north India where a significant proportion had adequate knowledge regarding modes of transmission of HIV/AIDS, that it was transmitted through unprotected sex (92.1% students) and from mother to child (75.8%); amongst girls, 95.1% said that it was through unprotected sex followed by sharing injections (88.2%), blood transfusion (84.3%), and sex with multiple partners (69.6%).²⁹

Source of knowledge regarding sexuality in present study was friends mostly offline followed by media among rural adolescents. Online seek of knowledge regarding sexuality was more among urban adolescents than their rural counterparts. Studies supported the idea that the media often behaves as a peer in its relationship to sexual behaviour.³⁰ This reflects that in this digital era with the availability of cheap devices and internet, online sex education can play a pivotal role in delivering the facts about sexuality, which would augment the process of an appropriately groomed adolescent.

5. Limitation(s)

As the study was conducted only in two co-educational schools of rural and urban areas each, it may not represent the general adolescents of the society. Also, there might be

possibility of response bias from the participants due to self-reported nature of the study. In spite of these limitations, the study was able to determine the knowledge regarding sexuality among adolescents.

6. Conclusion

Due to increased accessibility and availability to digital space, the perception of sexuality and magnitude of experimentation has been remodeled in this era. In the absence of comprehensive sexual education curriculum in schools, today adolescents are seeking information on digital media, however confusing or incomplete information can lead to a situation which may embarrass or open the door for problems. Differences in knowledge among urban adolescents from the rural counterpart in present study might be due to compromised digital connectivity in rural area. Thus, in this present era, emphasis should be on digital platform delivering proper sex education to adolescents which can play a pivotal role in the development of an appropriate sexual behaviour of adolescents.

7. Conflicts of Interest

None.

8. Source of Funding

None.

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