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Original Article

Interaction of media, sexual activity and academic achievement in adolescents

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ABSTRACT

Background: Adolescence is a period when the individual is vulnerable and exposure to sexually implicit/explicit programs on television and internet can influence their sexual behaviour and make them more permissive towards premarital sex, which is known to influence their academic performance. This can be modified by parental discussion on these matters with their children. There have been only few studies from India that have explored such issues therefore this study aimed to explore the impact of television, internet and parental discussion on sexual activity and academic performance.

Methods: This study was conducted in two co-education schools using a self reporting questionnaire administered to students of class IX–XII. This study evaluated the relation of academic performance, exposure to media such as television & internet to sexual activity & academic performance of the students and the role of parental discussion on these.

Results: The study sample size was 586. There is no significant association between the number of hours of watching television per day and academic performance as measured by marks in examinations. Significant positive association was found among boys between sexual contact and average score in academics & unsupervised use of internet. In both genders a significant positive association was found between those watching English serials, movies and increased chances of indulging in sexual activity while a negative relation with those watching Cartoons. There is no significant difference in occurrence of sexual contact in those who discussed sexual matters with parents and those who did not.

Conclusion: This being first of its kind of study from India and a cross sectional study, further prospective and detailed studies are warranted to delineate the interaction of media, parental discussion, academic performance and sexual activity.

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Introduction

Adolescence is a period when an individual is vulnerable to external events, influences and circumstances. These may mould his attitudes, knowledge regarding his sexuality, his sexual activity. Exposure to sexually implicit/explicit programs on television and internet can influence their sexual behaviour.^{1–3} Television is an important source of information for adolescents on sex and related issues but did not ascertain its influence on their sexual behaviour.⁴ Children's viewing of television has been an anathema for parents ever since it entered our homes. Of the many adverse effects attributed to television (TV) viewing by children, poor school performance has been found to be associated with the time spent in front of the television.^{5,6}

Internet is a growing form of media to which children are exposed. Exposure to sexually implicit content on the internet is likely to initiate early sex.³ Early sexual activity among adolescent students has been known to influence their academic performance.¹ Those exposed to sexual content on television are more permissive towards premarital sex.⁷ Is it the content or the duration of exposure to television that affects academic and sexual activity? Studies have shown that when parents moderate/supervise and discuss such matters with their adolescent children it is likely that they get less influenced by media,^{1,8,9} though not many Indian parents do so.¹⁰

There have been only few studies from India that have explored such issues especially effect of television and internet on adolescent students. With increasing penetration of cable TV, satellite television and internet into our homes, it is only prudent that we study impact of these on their sexual behaviour and academic performance. This study aimed to explore the impact of television, internet and parental discussion on these issues.

Material and methods

This study was conducted in two co-education schools. After having taken permission of school administration, due consent of parents of students of class IX–XII was taken to administer a questionnaire to their children.

The questionnaire was constructed by the authors, the construct validity was ascertained and the test retest validity found to be satisfactory. The questionnaire contained four sections, first one dealt with socio-demographic data, second one pubescence, third sexual experience and fourth attitudes, knowledge in regard to sexual health including HIV. The demographic data collected included questions regarding duration of television/unsupervised internet use, the type of channels usually seen on television. Questions like whether they discussed matters related to sex with their parents, whether preoccupation with matters related to sex in any affected their academic performance were also asked.

The students whose parents had given consent were given the self reporting questionnaire on separate days in the two schools, boys and girls separately. One of the female workers explained and made clarifications in regard to the

questionnaire to girls and principal worker clarified for the boys. The identity of the students was kept confidential. Sexual contact was described as having kissed sensuously, touched/fondled private parts of opposite sex and having had engaged in sexual intercourse. The combined strength of students in class IX–XII was 1580 of which 822 students' parents gave consent for their child to be administered the questionnaire. Of them 642 students who filled up the forms and of these 586 were taken up as study sample as others were either wrongly filled or incomplete.

This study restricted itself to evaluating the relation of academic performance, exposure to media such as television and internet to sexual activity of the students and the role of parental discussion on this.

Questionnaires that were not complete or had not given demographic data were excluded from the analyses. Analyses were done using EpiInfo6 software.

Results

Table 1 shows that the incidence of sexual contact was 30.25% among boys and 17.03% among girls. There was no significant difference in the number of students from each class nor was any difference in proportion of boys and girls in different classes noted.

Table 2 shows gender wise relation of scoring marks in the last annual examination and having had any sexual contact. Across different score brackets among the girls there is no significant difference between those who have had sexual contact and those who have had not among girls, but among boys a significantly large number of those scoring 51–70% marks have had sexual contact while a significantly large number of those scoring more than 90% did not have sexual contact.

Table 3 shows the relationship between academic performance and preoccupation with sexual matters. No significant association was found.

Table 4 shows that there is no significant association between number of hours of watching television per day and academic performance as measured by marks in examinations in among girls while among boys 31.34% of those scoring more than 71% watch TV for more than 3 h only 14.22% of those scoring less than 70% do so.

Table 5 shows the relationship between sexual contact and the type of television channels watched by the adolescents. We see here a significant positive relation between those

Table 1 – Age at first sexual contact.

	Boys numbers (%)	Girls numbers (%)
Gender wise study sample	357 (60.92%)	229 (39.07%)
Sexual contact present	108 (30.25%) (CI 25.29%–34.87%)	39 (17.03%) (CI 12.29%–22.07%)
Average age at first sexual contact	13.72 yrs	14.09 yrs

Table 2 – Relation of having sexual contact status with scoring marks in exams.

Girls (Numbers)						Boys (Numbers)					
Sexual contact	Marks in exams%					Sexual contact	Marks in exams%				
	30–50	51–70	71–90	>90	Total		30–50	51–70	71–90	>90	Total
No	99	18	10	35	162	No	145	11	9	43	208
Yes	22	3	3	5	33	Yes	59	18	2	13	92
Total	121	21	13	40	195	Total	204	29	11	56	300
$\chi^2 = 1.1470$ $df = 3$ $p = 0.765$						$\chi^2 = 16.0110$ $df = 3$ $p = 0.001$					

watching English serials & movies and a negative relation with those watching cartoons, while other channels have no significant relation.

Table 6 shows that there is no significant difference in the amount of time spent on watching television among those who have had sexual contact and those who have had not irrespective of gender. The average time spent on watching television was 1.69 h/day. On being asked about their accessibility to internet without any parental monitoring only 32.31% of girls and 35.85% boys responded.

Table 7 shows that when boys are exposed to internet with no supervision there is a significant association with having sexual contact, whereas there is no such association among girls.

Table 8 shows that while 95.63% girls have responded to this question, only 77.59% boys have done so. Of them 34.70% girls and 22.74% boys reported discussing sexual matters with parents. There is no significant difference in the occurrence of sexual contact in those who discussed and those who did not.

Discussion

Adolescence is a period of turmoil and exploration in an individual's life. At the same time they are expected to strive to perform well academically. Our educational system is geared in such a way that scoring high marks is considered *sin qua non* of a good student. However if this is affected by distractions like sexual activity and watching television then this could be a major cause for concern. This study was conducted in two co-education schools to ascertain if there is indeed any interaction between media, sexual activity and academic performance.

Here in this study 37.08% of the class IX–XII students participated. Some of the forms had to be rejected as they were either incomplete or wrongly filled up. Since the number of samples finally taken up for the study is just 586 of the total strength of 1580 it could have affected the outcome, but since it involved minors we could not take views of those children whose parents had not consented. Premarital sex among adolescents among our study sample is not very different from that reported in studies in India (5–12.6% among girls and 22–49.3% for boys).^{10,11} However the average age of first sexual contact (Table 1) is much lower than reported by Grover which was 19.57 years for boys and 16.95 years for girls.¹²

Here we found significant association ($p = 0.0011$) among only boys between having sexual contact and scoring of marks (Table 2). Among both boys and girls larger percentage of the students scored $\leq 70\%$. However, it is interesting that among the boys scoring about 51–70% marks only, a larger number of students have had sexual contact. That is those performing averagely are more likely to be associated with sexual contact. In a study Collins et al had found that getting lower grades was one of the factors was positively associated with initiation of sexual intercourse.¹ A study from the United States found that those who scored poorly in academics and having difficulty in social skills also engaged in early sexual activity.¹³ In the present study however social skills were not evaluated.

In our study we asked if the students' preoccupation with matters related to sex affected their academic performance. A large percentage of girls and boys had either not answered (Girls – 20.52%, Boys – 22.96%) or said don't know (Girls – 16.59%, Boys – 12.04%) (Table 3). It could be that they are not preoccupied at all or just did not answer. Interestingly we found significant association only among boys. Among both boys and girls, those having had sexual contact were more

Table 3 – Relation between academic performance and preoccupation with matters related to sex.

Girls (Numbers) (16.59% did not respond to the question)				Boys (Numbers) (22.96% did not respond to the question)			
Academic performance affected	Preoccupation with matters related to sex			Academic performance affected	Preoccupation with matters related to sex		
	No	Yes	Total		No	Yes	Total
Yes	21	6	27	Yes	59	36	95
No	91	16	107	No	95	42	137
Don't know	36	11	47 (20.52% of Total No of Girls)	Don't know	35	8	43 (12.04% of Total No of Boys)
Total	148	33	181	Total	148	86	275
$\chi^2 = 1.9033$ $df = 2$ $p = 0.386$				$\chi^2 = 5.1731$ $df = 2$ $p = 0.075$			

Table 4 – Relation between academic performance and watching television.

Girls (Numbers)				Boys (Numbers)			
HRS of watching TV/day	Marks in exams%			HRS of watching TV/day	Marks in exams%		
	30–70(%)	>71(%)	Total		30–70(%)	>71(%)	Total
<3	102 (73.91)	35 (72.91)	137	<3	193 (85.78)	46 (68.66)	239
≥3	36 (26.09)	13 (27.09)	49	≥3	32 (14.22)	21 (31.34)	53
Total	138 (100)	48 (100)	186	Total	225 (100)	67 (100)	292
$\chi^2 = 1.01 \quad df = 3 \quad p = 0.80$				$\chi^2 = 10.21 \quad df = 3 \quad p = 0.02$			

affected but did not reach levels of significance in either. The inability to curtail their curiosity about sexual matters and fantasizing probably affects their academic performance. However, further studies are needed to ascertain the nature and source of their anxieties related to sexual matters. These aspects being very subjective it would be prudent to include objective measures of academic performance in future studies.

This study revealed that a majority of the students watched television for only about an hour per day (43.5% for girls and 44.5% for boys), though an overall average of the study sample was 1.69 h/day. This is much lower than the three hours reported for children from the United States of America (USA).^{14,15} We did not find any significant association between duration of television watched and academic performance among girls ($p = 0.80$) (Table 4). This could probably be due to the smaller amount of time spent in watching TV or due to the parental monitoring as most of the TV viewing in our homes occurs in presence of family members so probably there is moderation of the effect. However among boys it was noted that among those scoring more than 71% a larger number were watching television for more than 3 h, as compared to those scoring ≤70% marks. Therefore this finding needs further exploration as many studies abroad have found a very complicated effect of TV on children's academic achievement. While Razel et al suggested that limited viewing time may enhance academic achievement, Hancox et al found in a prospective study that time spent watching TV in childhood is associated with poor educational achievement in young adulthood, which cannot be accounted by students' intelligence or childhood behavioural problems.^{6,16} Some of the mechanisms suggested explaining adverse effect of television viewing could be as simple as due to displacement of learning activity at home, due to attentional or behavioural problems or cognitive

impairment.^{6,17} We had not ascertained if the duration was during school days or on holidays as also the socio economic, intelligence and parental educational levels were not controlled.

Jordon et al in a qualitative study of TV viewing time suggested the following points to help overcome the putative adverse effects of TV on children's physical & sexual health as well as academic achievement. Health practitioners should encourage parental monitoring of all entertainment media that children use, keep TV out of children's bed rooms as a means to control the duration and type of content viewed, turn off TV when it is not considered the primary activity, limit TV viewing on school days, identify and indulge children in non screen in home activities that are pleasurable to them as well as affordable, and finally avoid keeping TV in eating area.¹⁸

Brown et al had found that exposure to sexual contact even in music, movies, television and magazines accelerates White adolescents' sexual activity and increases their risk of early sexual intercourse.¹⁹ In this study we found that the duration of watching television has had no significant association with having sexual contact ($p = 0.99$) (Table 6). It is interesting to note that in those watching English movies and serials, there is an increased association of having sexual contact ($p = 0.0002$, $p = 0.0003$), while in those watching cartoons it is significant but negatively associated i.e. those having sexual contact are less likely to be watching cartoons (Table 5). While various other channels like news, Hindi movies, serials and others have had no significant association. It is likely that as most of the English movies and serials originate from Hollywood they may have up to 64% of sexual content either implicitly/explicitly.²⁰ Portrayal of sexual contact generally involves unmarried couples having sexual intercourse and sexual activity among married couples is rare or mundane.²¹ Collins et al also had reported a strong positive association

Table 5 – Relation between television channels watched and sexual contact status.

Sexual contact	English serials (Numbers)		English movies (Numbers)		Cartoons (Numbers)		Hindi serials (Numbers)		Hindi movies (Numbers)		Others (Numbers)	
	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes	No	Yes
No	353	60	258	154	273	140	351	61	270	143	318	95
Yes	94	41	60	75	106	29	112	23	84	51	98	37
χ^2	16.9547		13.7785		7.3412		0.3887		0.4415		1.0777	
df	1		1		1		1		1		1	
p	0.000		0.000		0.006		0.532		0.506		0.299	

Table 6 – Relation between sexual contact status and number of hours of watching television.

Sexual contact	Number of hours of watching television per day (Numbers)		
	<3 h	≥3 h	Total
No	286	81	367
Yes	92	26	118
Total	378	107	485
$\chi^2 = 0.01$ $df = 1$ $p = 0.99$			

Table 7 – Relation between internet use status and sexual contact status.

Sexual contact	Unsupervised internet use					
	Girls (Numbers)			Boys (Numbers)		
	No	Yes	Total	No	Yes	Total
No	25	28	53	54	32	86
Yes	6	15	21	16	26	42
Total	31	43	74 (32.31%)	70	58	128 (35.85%)
$\chi^2 = 0.2299$ $df = 1$ $p = 1.441$				$\chi^2 = 5.9841$ $df = 1$ $p = 0.014$		

between the content of sexually laden programs and earlier initiation of sexual activity and that this is independent of duration of watching television.¹ We did not find any study that ascertained the amount of such portrayal in Hindi movies/serials but generally it is understood that they have lesser sexually implicit/explicit content. However, this aspect needs further research. Chandra et al also reported a prospective link between exposure to sexual contact on television and getting pregnant before the age of 20 yrs.²²

However, as we had not ascertained the timeline between exposure to such channels and sexual contact, we are not sure if exposure led them to sexual activity or the other way round. Studies have shown that adolescents who frequently watch such content and have fewer alternative sources of sexual norms such as parents, friends; get easily influenced by them and are encouraged to indulge in sexual activity as they consider it the normal social norm.^{23–25} Chaves et al had also in an extensive review of studies on media and sexual activity, found a significant association between frequency of sexual content in TV programs viewed and likelihood of initiation of

sexual intercourse as well as progressive engagement in more advanced non-coital sexual behaviour.²⁶

One of the strongest protective factors against early sexual behaviour was clear parental communication about sex.¹⁷ It is generally believed that Indian parents have lot of inhibition/reservation and are averse to discussing sexual matters with their children. Thus in the present study it was found that only 34.7% of girls and 22.74% boys reported having discussed sexual matters with parents (Table 8). We did not find any significant association between parental discussion and having sexual contact among either gender ($p = 0.249$ for girls and $p = 0.089$ for boys) (Table 8). However interpretation of such association may be fallacious because of small number of adolescents having access to parental discussion. This figure is much higher than reported by Sathe and Sathe (20% for girls and 10% for boys).¹⁰ Studies from other countries have shown that greater and better the quality of communication between parents and adolescents on matters related to sex, better it is in delaying initiation of sexual activity and avoiding risky sexual behaviour, especially when it is combined with strict monitoring of their watching television, internet use and discussing issues depicted therein.^{1,8,9,20}

We had in our study asked students about their accessibility to internet without any parental monitoring, and found only 32.31% of girls and 35.85% boys responding to it. Among those who responded we found a significantly larger number of boys having unmonitored internet access also engaged in sexual activity ($p = 0.0144$) (Table 7), while no such association was found among girls. It is common for adolescents to get inadvertently exposed to sexual contact on internet especially while surfing the net, or on opening emails or clicking on links in email and most occur while surfing at home.²⁷ In a review of various studies on impact of media on sexual attitudes and behaviour no studies were identified that have examined the effects of internet use.²⁶ This study's findings are thus important though it is pertinent to note that the nature of internet use, duration, place of use, frequency of use and whether they were exposed to sexually implicit/explicit content or not, were not ascertained. This calls for future studies to ascertain more information in this regard. Increasing ease of accessibility of internet makes complete control of access to internet difficult to achieve. Suggestion of Braun Courville et al that sexually explicit websites can serve an educational purpose and create an opportunity for adults to engage adolescents in discussions about sexual health and consumption of internet material is thus very valuable.³

Table 8 – Relation between sexual contact status and parental discussions on sexual matters.

Girls (Numbers)				Boys (Numbers)			
Sexual contact	Parental discussion on sexual matters			Sexual contact	Parental discussion on sexual matters		
	No	Yes	Total		No	Yes	Total
No	123	60	183	No	149	36	185
Yes	20	16	36	Yes	65	27	92
Total	143	76 (34.70%)	219 (95.63%)	Total	214	63 (22.74%)	277 (77.59%)
$\chi^2 = 1.3263$ $df = 1$ $p = 0.249$				$\chi^2 = 2.8797$ $df = 1$ $p = 0.089$			

Conclusion

The current study to the best of our knowledge has been the first one in India that studied the interaction of television viewing by adolescents, their academic achievements & sexual activity, parental discussion on matters related to sexual activity. The study showed significant association of having sexual contact with academic achievement and internet use but only among boys. There was no significant association between the duration of television viewing/internet use on either academic achievement or sexual activity. Importantly parental discussion on matters related to sexual activity with their adolescent children seems to have not affected their having increased sexual activity, this may have been influenced by the fact that only a limited number of parents discussed sexual matters with their children. Further prospective and detailed studies are warranted as limitation of this study was being a cross sectional study.

Intellectual contributions of authors

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Conflicts of interest

All authors have none to declare.

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