International Journal of Community Medicine and Public Health
Mukhopadhyay S et al. Int J Community Med Public Health. 2024 Jan;11(1):234-243
http://www.ijcmph.com
pISSN 2394-6032 | eISSN 2394-6040

DOI: https://dx.doi.org/10.18203/2394-6040.ijcmph20234131

Original Research Article

Canvassing the epidemiology of risk behaviors in adolescent school students in a city of eastern Uttar Pradesh

Sujishnu Mukhopadhyay[1,2], Shubham K. Gupta[3]*, Karan Singh[2]

[1]Department of Community Medicine, [2]Malda Medical College and Hospital, Malda Town, West Bengal, India
[3]Department of General Surgery, Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India

Received: 21 October 2023
Revised: 24 November 2023
Accepted: 30 November 2023

***Correspondence:**
Dr. Shubham K. Gupta,
E-mail: dr.skg24@gmail.com

ABSTRACT

Background: Adolescents while learning a new world of complex priorities; may make choices quickly or impulsively without giving legitimate critical thoughts. The aim was to determine the prevalence of risk behaviors among adolescents and its socio-demographic determinants.
Methods: A cross-sectional descriptive epidemiological study done on 427 students enrolled in class IX-XII of schools in eastern Uttar Pradesh recruited via cluster sampling. The questionnaire included questions regarding the participant's profile and risk behaviors. Data analysis was done with SPSS v23 and Chi-Square test.
Results: Mean age was 14.86 years. 33% engaged in a physical fight and 25% sustained injuries more than once in the last one year. 15% were bullied. As a bystander, subjects from higher classes (XI-XII) and female gender seem to have more 'avoiding' tendencies whereas those from lower classes (IX and X) and male gender preferred to 'stand against the bully and physical force to stop them'. 8.2% had to escape from school to avoid physical injury. 54% felt depressed, 17.6% contemplated suicide, and 4.4% attempted suicide. Though depression was predominant among rural girls and poor socio-economic status and academics; suicidal ideation and attempt was more common among boys.
Conclusions: This study highlights the risk behaviours prevalent among Indian adolescents. It falls in the purview of the Government to improve policies, plan and monitor programs to strengthen the upcoming youth.

Keywords: Adolescent, Bully, Depression, Risk behaviour, Suicide, Violence

INTRODUCTION

Adolescence is a transition period between childhood and adulthood, i.e. a phase of life, as the World Health Organization (WHO) defines it, falling in 10-19 years. of age. Adolescence can be a difficult time in life, for making decisions. Teens while learning a new world of complex priorities; may make choices quickly or impulsively without giving legitimate critical thoughts. These decisions are often influenced by a variety of things like parents, peers, sports, academic performances, extracurricular activities, social media and internet. Wrong choices made in teenage can affect them for the rest of their life.[1] The Center for Disease Control (CDC) has identified a number of behaviors that account for most of the deaths and disability among young people.[2]

Talking about the current Indian teenagers, who are deeply influenced by the western culture and lifestyle due to their increased exposure to the internet, media and social networks.[3] Even cities of eastern Uttar Pradesh (UP), which are at cultural crossroads as teenagers are exposed to various western influences which are generally opposite of the area's traditional values. It is

unknown if indiscrete imitation of western culture could be a factor in developing risky behaviors in adolescents and compromising their health. Increasing crimes among adolescents in Uttar Pradesh have been in news headlines recently. Troubled teenage may setup a teen on the wrong pathway and can even seed potent criminal behaviors. This in turn is increasing crimes and depleting the human resources of future India.[4] All this makes adolescents of Eastern UP an ideal subject for such studies.

Therefore, the present study was undertaken with an objective to assess the different risk behaviors of the adolescents studying in grades 9 through 12 in this part of the country and to determine their socio-demographic correlates, if any.

METHODS

This was an observational, descriptive epidemiological study with a community-based cross-sectional study design conducted from August 2022 to February 2023. Students enrolled in class IX through class XII of English medium schools in Mirzapur city of eastern Uttar Pradesh were included in the study.

The exclusion criteria included students/parents of students (in the case of minors); who did not consent to participate in the survey.

As there was no similar type of study conducted previously in this part of the country available in the literature; so, to include the highest optimum sample size, the prevalence of behavioral risk factors was assumed to be 0.5. Considering a 95% confidence level and absolute precision of 0.05, the sample size was calculated based on the formula:

Sample size (n) = $Z\alpha^2 \times p \times (1-p)/E^2$ = 384 (Where $Z\alpha$= 1.96 at that 95% confidence level, p =assumed prevalence rate (0.5), E =absolute precision =0.05).

After correcting for a non-response rate of 10%, the final sample size was 423. For data collection, the schools were visited and informed about the risk behaviors survey, its objectives, procedure and benefits. Then, the authorities were requested to voluntarily participate in the survey. Both schools and students were made to feel confident that every reasonable effort would be made to protect their privacy. Permission of participants or their parents (in the case of minors) was obtained by informed consent on a pre-scheduled date.

For sampling, a section-wise list of enrolment in the participating schools having students in class IX to class XII was prepared. The standard procedure of probability proportional to size (PPS) sampling for 20 clusters was followed to recruit 22 students from the selected sections (clusters) of the schools; to make for the intended sample size (20 × 22 = 440). The self-administered, anonymous, predesigned questionnaire was used that was pretested on a similar population (on a cluster selected from a school that was not included in our study population for data collection). It consisted of- questions on participants' profile and various risk behaviours. The second domain i.e. risk behaviors was subdivided into 4 categories-violence and safety (7 items); substance use (3 items); sexual behavior (2 items); depression and suicidal behavior (3 items).

Before beginning the survey, counselling of the participants was done to bring up a fair response from the participants and to reduce chances of incomplete and/or false reporting. A seminar was conducted by the investigator, divided into two sessions: session 1-counselling and administration of questionnaire (30 minutes) and adolescent risk behavior awareness program (20 minutes). The time allotted for completing the questionnaire was 30 minutes. Responses generated from the survey were manually checked for incomplete/inconsistent responses. Thus, out of 440 responses (22×20), 8 and 5 questionnaires were found incomplete and inconsistent respectively.

As a result, a final analysis was done for 427 questionnaires, using Statistical Product and Service Solutions (SPSS) statistics version 23. Then tabulation was done using compiled data sheet and chi square test was performed to find out socio-demographic correlates of the prevalent behaviors. Thus, the interpretation of the database generated is reported here and reasonable explanations for such prevalence are also sorted. Any hypotheses generated from the information were tested to find out if any statistical significance existed; where the significance was taken in case $p<0.05$. Ethical clearance was obtained from the institutional ethics committee before the start of the study.

RESULTS

Out of 440 students recruited by cluster sampling method (20 clusters, each with 22 students), 13 questionnaires were rejected for inconsistent/incomplete responses. The final analysis was done on 427 adolescents enrolled in grades 9 through 12 attending four public schools in Mirzapur city of eastern Uttar Pradesh.

Socio-demographic distribution of the study population

The socio-demographic distribution of the study population has been shown in Table 1. A majority of study subjects (81.1%) were of the age group 14-16 years (14.86±1.13 years). About one-third (34%) were females, 27% belonged to rural settings, more than half (56.2%) were from joint families, and 87.4% perceived high economic status (good or very well off).

34.2%, 35.1%, 15.2% and 15.5% of respondents belonged to class IX, X, XI, and XII respectively. Around 5% of respondents were academically poor and 28.3% had fathers addicted to certain substance use (chewing

tobacco, smoking & alcohol use were noted among father of 84, 29 and 18 participants respectively) (Table 1).

Table 1: Socio-demographics characteristics of the study population.

Socio-demographic variables	Frequency	Percentage
Age (n=427) (years)		
13 and less	50	11.7
14	125	29.3
15	119	27.9
16	102	23.9
17 and more	31	7.2
Gender (n=427)		
Male	282	66
Female	145	34
Class (n=427)		
9	146	34.2
10	150	35.1
11	65	15.2
12	66	15.5
Family type (n=427)		
Joint	240	56.2
Nuclear	187	43.8
Residence (n=427)		
Urban	312	73.1
Rural	115	26.9
Academic performance (n=427)		
Excellent	53	12.4
Good	224	52.5
Average	129	30.2
Poor	21	4.9
Socio-economic status (n=427)		
Very well off	52	12.2
Living comfortably	321	75.2
Just getting by	41	9.6
Hard to manage or poor	13	3.0
BMI for age (WHO classification) (n=427)		
Severe Thinness (z score <-3)	9	2.1
Thinness (z score <-2 but >-3)	30	7.0
Normal (z score between +1 and -2)	337	78.9
Overweight (z score >+1)	44	10.3
Obesity (z score >+2)	7	1.6
Addiction of father (n=427)		
No addiction	306	71.7
Addiction present	121	28.3

Violence and safety

Prevalence

33% of respondents were engaged in physical fights once or more than once in the last 30 days, before the survey.

10.5% of subjects sustained an injury following a physical fight for which they had to seek medical help more than once, in the last 12 months. Around 18.7% of respondents destroyed objects intentionally, more than once in the last 30 days, before the survey (Table 2).

The prevalence of being bullied 'often' in school or any public place in the last 12 months was reported to be 15% and that of bullying others (often) was 12.2%.

Only 37.5% of respondents preferred to seek the help of some adults to solve bullying-related problems, which apparently is a safer response as a bystander.

About 8.2% of respondents escaped school in the last 30 days before the survey, out of safety concerns (Table 2).

Table 2: Responses of the students to questions about their risk behavior (n=427).

Risk behaviors	Frequency	Percentage
Violence and safety		
Engagement in physical fight in last 30 days		
Never	286	67.0
Once	66	15.5
2-3 times	50	11.7
4-5 times	17	4.0
6 times or more	8	1.9
Sustained injury following a physical fight and visited a doctor for medical help, in last 12 months		
Never	321	75.2
Once	61	14.3
2-3 times	28	6.6
4-5 times	13	3.0
6 times or more	4	0.9
In last 30 days, destroyed objects intentionally		
Never	239	56.0
Once	108	25.3
2-3 times	62	14.5
6 times or more	11	2.6
4-5 times	7	1.6
During last 12 months, been bullied in the school or in any public place		
Never	298	69.8
Occasionally	65	15.2
Often	64	15.0
Bully others verbally/physically/on electronic media		
No, I don't do that	298	69.8
Yes, I do it occasionally to have fun	77	18.0
Yes, I do it often to have fun	52	12.2
Their response, when someone does something wrong or something that he/she don't like: (response as a bystander)		
I seek help of some adult like my parents, teachers etc.	160	37.5
I stand against them and can use physical force if necessary to stop them	140	32.8
I avoid them and carry on with myself	127	29.7
Escaping from school in last 30 days		
No	392	91.8
Yes	35	8.2
Substance use		
Ever smoked a cigarette		
No	418	97.9
Yes	9	2.1
Ever consumed alcohol		
No	416	97.4
Yes	11	2.6
Ever used ganja/charas/bhang/cocaine/any other unlawful intoxication		
No	405	94.8
Yes	22	5.2
Sexual behavior		
Ever had sex with anybody		
No	292	68.4
Yes	4	.9
No response	131	30.7
Ever been physically tortured/ sexually abused		
No	275	64.4

Continued.

Risk behaviors	Frequency	Percentage
Yes	18	4.2
No response	134	31.4
Depression and suicidal ideations		
Ever been depressed, helpless or sad continuously for one week or more, during last 12 months		
Yes	231	54.1
No	196	45.9
Ever seriously thought of committing suicide in last 12 months		
No	352	82.4
Yes	75	17.6
In last 12 months, attempted suicide		
No	408	95.6
Yes	19	4.4

Table 3: Socio-demographic distribution of three items of aggressive behavior- engagement in a physical fight, sustain injury following a physical fight and destroy an object intentionally.

Question	Engagement in physical fight in last 30 days				Sustained injury following a physical fight and visited a doctor for medical help, in last 12 months				In last 30 days, destroyed objects intentionally				Escaping from school in last 30 days			
Response	**Yes**	**No**	**χ^2**	**p**	**Yes**	**No**	**χ^2**	**p**	**Yes**	**No**	**χ^2**	**p**	**Yes**	**No**	**χ^2**	**p**
Class																
9	58 (39.7)	88 (60.3)	11.53	0.009	41 (28.1)	105 (71.9)	5.37	0.14	62 (42.5)	84 (57.5)	1.84	0.607	9 (6.2)	137 (93.8)	2.51	0.473
10	54 (36)	96 (64)			42 (28)	108 (72)			65 (43.3)	85 (56.7)			16 (10.7)	134 (89.3)		
11	17 (26.2)	48 (73.8)			11 (16.9)	54 (83.1)			27 (41.5)	38 (58.5)			6 (9.2)	59 (90.8)		
12	12 (81.8)	54 (18.2)			12 (18.2)	54 (81.8)			34 (51.5)	32 (48.5)			4 (6.1)	62 (93.9)		
Gender																
Male	109 (38.7)	173 (61.3)	11.91	0.001	79 (28)	203 (72)	4.53	0.033	132 (46.8)	150 (53.2)	2.60	0.107	26 (9.2)	256 (90.8)	1.15	0.282
Female	32 (22.1)	113 (77.9)			27 (18.6)	118 (81.4)			56 (38.6)	89 (61.4)			9 (6.2)	136 (93.8)		
Locality																
Urban	90 (28.8)	222 (71.2)	9.13	0.003	66 (21.2)	246 (78.8)	8.36	0.004	137 (43.9)	175 (56.1)	0.007	0.936	21 (6.7)	291 (93.3)	3.31	0.069
Rural	51 (44.3)	64 (56.7)			40 (34.8)	75 (65.2)			51 (44.3)	64 (55.7)			14 (12.2)	101 (87.8)		
Academic performance																
Good/ excellent	94 (33.9)	183 (66.1)	0.80	0.669	57 (20.6)	220 (79.4)	8.01	0.018	110 (39.7)	167 (60.3)	7.88	0.019	17 (6.1)	260 (93.9)	26.5	0.000
Average	39 (30.2)	90 (69.8)			41 (31.8)	88 (68.2)			70 (54.3)	59 (45.7)			10 (7.8)	119 (92.2)		
Poor	8 (38.1)	13 (61.9)			8 (38.1)	13 (61.9)			8 (38.1)	13 (61.9)			8 (38.1)	13 (61.9)		

Socio-demographic correlation

Both physical fight and sustaining injuries following a physical fight were more prevalent among male subjects, from rural locality and with poor academic performances ($p<0.05$) (Table 3). Both being bullied and bullying others were more likely among the male gender, subjects belonging to urban settings, and low socio-economic status (SES). As a bystander, subjects from higher classes (XI-XII) and female gender seem to have more 'avoiding' tendencies whereas those from lower classes (IX and X) and male gender preferred to 'stand against the bully and opt physical force to stop them'. Thereby, explaining the finding that boys are more likely to pick up physical fights and sustain injuries following a fight (Table 4).

Substance use

Prevalence

2.1% had smoked a cigarette at least once in their life, 2.6% had consumed alcohol at least once in their life and

5.2% had ever used an illicit substance with bhang being the most commonly reported illicit substance from the category (Table 2).

Table 4: Socio-demographic distribution of three items of aggressive behavior- bullying, victim of bully and role as a bystander.

Question	During last 12 months, been bullied in the school or in any public place					Bully others verbally/physically/on electronic media					Response as a Bystander				
Response	Often	Occasionally	Never	χ^2	p	Often	Occasionally	Never	χ^2	p	I avoid them and carry on with myself	I stand against them and can use physical force if necessary to stop them	I seek help of some adult like my parents, teachers etc.	χ^2	p
Class															
9	18 (12.3)	25 (17.1)	103 (70.5)	12.87	0.045	17 (11.6)	23 (15.8)	106 (72.6)	3.76	0.708	32 (21.9)	52 (52)	62 (42.5)	13.43	0.037
10	33 (22)	21 (14)	96 (64)			15 (10)	28 (18.7)	107 (71.3)			44 (29.3)	55 (36.7)	51 (34)		
11	3 (4.6)	9 (13.8)	53 (81.5)			10 (15.4)	11 (16.9)	44 (67.7)			24 (36.9)	14 (21.5)	27 (41.5)		
12	10 (15.2)	10 (15.2)	46 (69.7)			10(15.2)	15 (22.7)	41 (62.1)			27 (40.9)	19 (28.8)	20 (30.3)		
Gender															
Male	49 (17.4)	58 (20.6)	175 (62.1)	25.86	0.000	33 (11.7)	65 (23)	184 (65.2)	14.19	0.001	73 (25.9)	110 (39)	99 (35.1)	15.19	0.001
Female	15 (10.3)	7(4.8)	123 (84.8)			19 (13.1)	12 (8.3)	114 (78.6)			54 (42.5)	30 (21.4)	61 (38.1)		
Locality															
Urban	48 (15.4)	49 (15.7)	215 (68.9)	0.43	0.808	40 (12.8)	60 (19.2)	212 (67.9)	1.88	0.391	95 (30.4)	99 (31.7)	118 (37.8)	0.626	0.731
Rural	16 (13.9)	16 (13.9)	83 (72.2)			12 (10.4)	17 (14.8)	86 (74.8)			32 (27.8)	41 (35.7)	42 (36.5)		
Economic status															
High	54 (14.5)	55 (14.7)	264 (70.8)	1.37	0.505	45 (12.1)	67 (18)	261 (70)	0.054	0.974	107 (28.7)	128 (34.3)	138 (37)	3.39	0.184
Low	10 (18.5)	10 (18.5)	34 (63)			7 (13)	10 (18.5)	37 (68.5)			20 (37)	12 (22.2)	22 (40.7)		

Table 5: Socio-demographic distribution of three items of substance use- cigarette smoking, alcohol consumption and any illicit drug use.

Question	Ever smoked cigarette				Ever consumed alcohol				Ever used illicit drugs			
Response	Yes	No	χ^2	p	Yes	No	χ^2	p	Yes	No	χ^2	p
Gender												
Male	8 (2.8)	274 (97.2)	2.14	0.284	11 (3.9)	271 (96.1)	5.80	0.019	20 (7.1)	262 (92.9)	6.39	0.010
Female	1 (0.7)	144 (99.3)			0 (0)	145 (100)			2 (9.1)	143 (98.6)		
Locality												
Urban	5 (1.6)	307 (98.4)	1.43	0.259	7 (2.2)	305 (97.8)	0.51	0.497	14 (4.5)	298 (95.5)	1.05	0.326
Rural	4 (3.5)	111 (96.5)			4 (3.5)	111 (96.5)			8 (7)	107 (93.0)		
Academic performance												
Good/Excellent	3 (1.1)	274 (98.9)	6.6	0.028	3 (1.1)	274 (98.9)	10.82	0.004	11 (4)	266 (96)	2.58	0.275
Average	4 (3.1)	125 (96.9)			5 (3.9)	124 (96.1)			10 (7.8)	119 (92.2)		
Poor	2 (9.5)	19 (90.5)			3 (14.3)	18 (85.7)			1 (4.8)	20 (95.2)		
Addiction of father												
Addicted	6 (66.7)	115 (27.5)	6.65	0.018	10 (90.9)	111 (26.7)	21.77	0.000	11 (50)	110 (27.2)	5.36	0.028
Not addicted	3 (33.3)	303 (72.5)			1 (9.1)	305 (73.5)			11 (50)	295 (72.8)		

Socio-demographic correlation

The proportion of substance use was higher among males, academically poor performers, rural locality and high Socio-economic status (SES).

A statistically significant proportion of those who ever used cigarettes, alcohol, or illicit drug had an addicted father (Table 5).

Sexual behavior

Prevalence

Only 4 out of 427 (0.9%), admitted to having had sexual intercourse in their life. 4.2% of subjects were physically tortured or sexually abused.

Almost 30% of the subjects did not respond to questions that addressed sexual risk behaviors, parents and school administration in most of the cases agreed to consent only if such questions were not addressed to their children, while in the rest of the cases, subjects felt uncomfortable while answering such questions hence did not respond (Table 2).

Depression and suicide

Prevalence

Around 54% of students felt depressed, helpless, or sad continuously for a week or more, during the last 12 months, before the survey. While 17.6% of respondents seriously thought of committing suicide, 4.4% actually attempted suicide in the last 12 months, before the survey (Table 2).

Table 6: Socio-demographic distribution of depression, suicidal ideation and suicidal attempt.

Question	Ever been depressed, helpless or sad continuously for one week or more, during last 12 months				Ever seriously thought of committing suicide in last 12 months				In last 12 months, attempted suicide			
Response	**Yes**	**No**	**χ^2**	**p**	**Yes**	**No**	**χ^2**	**p**	**Yes**	**No**	**χ^2**	**p**
Class												
9	66 (45.2)	80 (54.8)	9.27	0.026	20 (13.7)	126 (86.3)	12.26	0.007	7 (4.8)	139 (95.2)	0.692	0.913
10	94 (62.7)	56 (37.3)			39 (26.0)	111 (74)			8 (5.3)	142 (94.7)		
11	34 (52.3)	31 (47.7)			6 (9.2)	59 (90.8)			2 (3.1)	63 (96.9)		
12	37 (56.1)	29 (43.9)			10 (15.2)	56 (84.8)			2 (3)	64 (97)		
Gender												
Male	148 (52.5)	134 (47.5)	0.87	0.350	53 (18.8)	229 (81.2)	0.87	0.352	14 (5)	268 (95)	0.518	0.472
Female	83 (57.2)	62 (42.8)			22 (15.2)	123 (84.8)			5 (3.4)	140 (96.6)		
Locality												
Urban	161 (51.6)	151(48.4)	2.91	0.088	55 (17.6)	257 (82.4)	0.003	0.954	11 (3.5)	301 (96.5)	2.33	0.127
Rural	70 (60.9)	45 (39.1)			20 (17.4)	95 (82.6)			8 (7)	107 (93)		
Academic performance												
Good/ excellent	126 (45.5)	151 (54.5)	23.9	0.000	36 (13)	241 (87)	13.83	0.001	11 (4)	266 (96)	5.03	0.081
Average	89 (69)	40 (31)			31 (24)	98 (76)			5 (3.9)	124 (96.1)		
Poor	16 (76.2)	5(23.8)			8 (38.1)	13 (61.9)			3 (14.3)	18 (85.7)		
Subjective economic status												
High	195 (52.3)	178 (47.7)	3.93	0.047	61 (16.4)	312 (83.6)	2.98	0.084	18 (4.8)	355 (95.2)	0.981	0.322
Low	36 (66.7)	18 (33.3)			14 (25.9)	40 (74.1)			1 (1.9)	53 (98.1)		

Socio-demographic correlation

The occurrence of depression was higher among females, rural localities, academically poor students, and belonging to low SES. The suicidal behaviors (ideation and attempt), on the other hand, were more likely in the male gender, academically poor, and low socio-economic group.

Class 10 and 12 students were more likely to be depressed and have suicidal ideation than the other two classes ($p<0.05$) (Table 6).

DISCUSSION

In an attempt to determine the prevalence of risk behaviors in Mirzapur city of eastern Uttar Pradesh, we found that aggression and depression were more prevalent behaviors among our study group.

Aggression and bullying

The prevalence of picking up physical fights among our subjects (33%) was much more than those of the youth risk behavior surveillance system (YRBSS) 2015 survey (22.6%), conducted in the US but was comparable with the YRBSS-2011 survey (32.8%).[5] This finding suggests that Indian adolescents stand where the adolescents of the United States were 5 years back, as far as physical fighting is concerned. But the future trend of picking up physical fights in Indian adolescents depends upon how we react to this observation.

Interestingly, sustaining injuries following a fight was much higher among Indian adolescents, as evident from this study (24.8%) and many others as compared to those in the US (3%).[5,6] A probable explanation for this observation may be the fact that school administration and law enforcement for juvenile delinquencies are quite

strong in the United States than in India, thus reducing the severity of the fights among US adolescents.

Both physical fight and sustaining injuries were highly prevalent among male subjects, from rural localities and with poor academic performances ($p<0.05$) as reported in other research.[6] The proportion of destroying objects intentionally more than once in the last 30 days was found to be higher in the eastern part of UP as compared to the study conducted by Mukhopadhyay et al in West Bengal (18% versus 13%).[6]

As far as bullying is concerned, the prevalence of being bullied and bullying others was found to be 30% each. Both of these behaviors were more likely among the male gender, subjects belonging to urban settings, and low SES. In our study bullying was more prevalent among Class 10 and 12 students and males were bullied more often than females, though the contrary was evident from other literature, worldwide.[5,7] Subjects from higher classes (XI-XII) were more likely to boss around, with male predominance as reported by other studies.[5]

As a bystander, subjects from higher classes (XI-XII) preferred to 'avoid' the bullying activity going around in their vicinity, thereby indirectly boosting such activities. Subjects from lower classes, on the other hand, preferred to 'stand against the bully and may use physical force to stop them', thereby indulging themselves in further danger of being bullied and picking up a physical fight. 'Avoiding' tendencies seems to be higher among the girls, contrary to which boys preferred to 'stand against the bully and use physical forces to stop them' ($p=0.00$); Thereby, explaining the fact that boys are more likely to pick up physical fights and sustain injuries. Only around 37.5% of students preferred to 'seek help from some adult' to solve the problem of bullying as a 'bystander', which apparently is a much safer way.[7]

The proportion of subjects escaping from school (out of safety concerns) in the last 30 days was slightly higher in our survey than in YRBSS 2015 survey reports (8.2% versus 5.6%).[5] The obvious reason is the higher prevalence of physical fights, sustaining injuries, and bullying in our subjects than in YRBSS subjects.

Substance use

As compared to other parts of India, the proportion of cigarette smoking, alcohol consumption and illicit drug use among the subjects was low in our study.[6,8-11] More conservativeness and lesser influence of urbanization and industrialization on eastern UP might be a probable explanation for the low prevalence. Alternatively, many of the reviewed studies included school dropouts or adolescents who never even went to school, as a result of which they reported higher prevalence.[8,9]

Ever-used illicit substance (5.2%) was more prevalent than ever-smoked cigarette (2.1%) or consumed alcohol (2.6%) with 'bhang' being the most reported illicit substance used from the category. The obvious explanation for this unusual finding is the association between 'bhang', Holi celebration and consumption traditional drink 'thandai' exclusive to this part of the country.

Like other studies both from India and abroad, the proportion was higher among males, academically poor performers and high Subjective economic status (SES). But the proportion of substance use was higher among the rural subjects than the urban ones, like Sharma et al and Dasgupta et al and unlike Mukhopadhyay et al.[6,10,11]

A statistically significant proportion of those who ever used cigarettes, alcohol, or illicit drug had an addicted father. This finding was like the work done by Saringi et al and Sharma et al.[8,10] The reasons suggested by various literatures for increased substance use are peer pressure, curiosity and/or impression of a role model.[8-10]

Sexual behavior

Unlike the study conducted by Mukhopadhyay et al, where the prevalence of sexual risk behavior is shown to be as high as 8.5% (versus 41.2% of US YRBSS 2015 report), the proportion of students of grades 9 through 12 involved in sexual risk behaviors in our survey was found to be 0.9% (4 in 427).[5,6] This apparently low prevalence can be attributed to a high 'did not respond' rate (30.7%).

During data collection, we found that the school administration in one out of four public schools (i.e. 25% of subjects) included in the study were not ready to consent us to address sexual risk behavior questions, even after counselling and confidentiality contract.

From our conversation three reasons became evident. Firstly, they did not want their students to be questioned on sexual behaviors because they think it to be adult issues and were thus feeling protected. Secondly, they were afraid if the positive response comes from students of their school (as the questionnaire was self-administrable), then what reputations they will look forward to. Thirdly, even while discussing the subject of sexual behavior, surprisingly well-educated authorities of English medium ICSE/CBSE schools address the whole issue of sexual behavior with some stigma and thus it was hard to persuade the rest of the three schools for giving consent to enquire for such behaviors among their subjects.

The rest of the non-response rate (5.7%) may attribute to study subjects for obvious reasons- either they have something to conceal or they feel uncomfortable to answer to- did you ever have sexual intercourse? The former appears to be a logically better explanation.

Hence in a nutshell, bringing teenagers into a comfort zone for them to open up for discussing their sexual

behaviors and getting consent for participation from parents (securing their children from exposing to so-called "adult issues") and school administration (concerned about the outcome of the study and prestige of their institution) are most common hurdles limiting the availability of literature addressing sexual risk behaviors from India.[12,13]

Depression and suicidal behavior

As compared to US adolescents, the proportion of depressed students was higher in this part of India. The proportion of suicide ideation was comparable with those in the US but that of suicide attempts was almost half of that reported from YRBSS 2015.[5] Studies conducted by Sharma et al were comparable but those by Mukhopadhyay et al reported a lower prevalence than ours.[6,14]

The occurrence of depression was higher among females, in rural localities, academically poor students, and belonging to low SES, like findings reported by other Indian literature.[6,15] The suicidal behaviors (ideation and attempt), on the other hand, were more likely in the male gender, unlike the literature from other parts of India. However, an association between these behaviors and poor academic achievements and low socio-economic groups was evident from various literature across India.[6,14,15] Also, it was found that class 10 and 12 students were more likely to be depressed and have suicidal ideation than the other two classes. A possible explanation may be the academic pressure of performing better in Boards exams, which might be frustrating. Bullying itself can be a contributing factor.[16]

Like any other study, the current study was not free of limitations. This study was cross-sectional in nature and, therefore, it was not possible to ascribe causality to the associations found significant. It would be interesting to find out the multi-collinearity between prevalent risk behaviors, but it was not within the purview of the current study and should be investigated in future studies. In this study, the findings and their interpretations were restricted to school-going adolescents only. Further studies are needed to cover the groups of adolescents who are out of school, as the prevalence of health risk behaviors is likely to be higher among such adolescents. In this study, self-reported data was relied upon, which has the likelihood to be subjected to recall bias. All attempts were made though to minimize the bias by using a pretested questionnaire and limiting the duration for recall-based responses for the past 7 or 30 days.

Moreover, qualitative research methods like focused group discussions can be utilized to better understand the reasons for prevalent risk behaviors. This is particularly important while eliciting data related to sensitive issues like sexual behavior and substance use among Indian adolescents where the possibility of response bias cannot be eliminated probably due to the stigma associated with these behaviors.

In a country such as India with wide socio-economic disparities and cultural as well as nutritional diversity, the generalizability of figures to the entire nation is limited and warrants multicentric study. Nevertheless, the stats drawn from this study definitely reflect the risk behaviors prevalent among adolescents from this part of India.

CONCLUSION

The current study draws attention towards the spectrum of societal as well as health risk behaviors prevalent among the Indian adolescents. It falls, therefore in the purview of the government to improve and support adolescent health related policies and legislation, inform professional development, plan and monitor programs, to strengthen the upcoming youth for the sake of building a healthy crime free society. A comprehensive strategy is hence needed to curb the problem.

Recommendations

Various interventions can be directed towards behavior change communication in order to reduce and prevent the development of prevalent risk behaviors on one hand and to inculcate and promote healthy behaviors on the other. These interventions may include:

Child-focused interventions designed to directly enhance children's social, emotional, and cognitive competence by teaching appropriate social skills, effective problem-solving, anger management, and emotional language.

Training teachers and guiding the parents to foresee, understand and take care of adolescents with such behaviors considering the criticality of the problem. Providing adolescents 'safe space' to talk about such issues and to seek help including the role of counselor/behavior therapist cannot be overemphasized.

Role of government is not just vociferating loudly about the legislation but also ensuring its smooth implementation and considering the need for mandatory annual surveillance for assessment of adolescent risk behavior as routinely done in the United States. This in turn will direct the government in planning the strategies to strengthen the upcoming youth for the sake of building a healthy crime free society.

ACKNOWLEDGEMENTS

We are grateful to the students, parents and school authorities who consented to participate in present study and cooperated to best of their abilities in carrying out this study. It would have not been possible without their support and trust.

Funding: No funding sources

Conflict of interest: None declared
Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. Terzian MA, Andrews KM, Moore KA. Preventing Multiple Risky Behaviors: An Updated Framework for Policy and Practice. In: Scarupa HJ, ed. Child Trends. Washington; 2011.
2. Centers for Disease Control and Prevention. "Healthy Youth! Health Topics: Six Critical Health Behaviors", 2007. Available at https://www.lifeskillstraining.com/wp-content/uploads/2020/08/Unit1.pdf. Accessed on 17 August 2023.
3. Bhargava A, Rani M. The influence of social media on Indian teenagers. Int J Sci Technol Manage. 2015;4(1):246-52.
4. Dreze J, Khera R. Crime, gender and society in India: insights from homicide data. Popul Dev Rev. 2000;26(2):335-52.
5. Kann L, McManus T, Harris WA, Shanklin SL, Flint KH, Hawkins J, et al. Youth risk behavior surveillance- United States, 2015. MMWR Surveill Summ. 2016;65:1-174.
6. Mukhopadhyay DK, Mukhopadhyay S, Sinhababu A, Biswas AB. Are the adolescent behaviours too risky? A school based study in a district of West Bengal. J Trop Paediatr. 2012;58:496-500.
7. Salmivalli C, Lagerspetz K, Björkqvist K, Österman K, Kaukiainen A. Bullying as a group process: Participant roles and their relations to social status within the group. Aggress Behav. 1996;22:1-15.
8. Sarangi L, Acharya HP, Panigrahi OP. Substance abuse among adolescents in urban slums of Sambalpur. Indian J Community Med. 2008;33(4):265-7.
9. Bansal RK, Banerjee S. Substance use by child labourers. Indian J Psychiatr. 1993;35:159-61.
10. Sharma R, Grover VL, Chaturvedi S. Tobacco use among adolescent students and the influence of role models. Indian J Community Med. 2010;35:272-5.
11. Tsering D, Pal R, Dasgupta A. Tobacco use among high school students of West Bengal, India. Indian J Community Med. 2008;33(3):207-8.
12. Mahajan P, Sharma N. Parents' attitude towards imparting sex education to their adolescent girls. Anthropologist. 2017;7(3):197-9.
13. Dhoundiyal M, Venkatesh R. Knowledge regarding human sexuality among adolescent girls. Indian J Pediatr.2006;73:743.
14. Sharma R, Grover VL, Chaturvedi S. Suicidal behavior amongst adolescent students in south Delhi. Indian J Psychiatr. 2008;50:30-3.
15. Bansal V, Goyal S, Srivastava K. Study of prevalence of depression in adolescent students of a public school. Indust Psychiatr J. 2009;18(1):43-46.
16. Klomek AB, Kleinman M, Altschuler E, Marrocco F, Amakawa L, Gould MS. High school bullying as a risk for later depression and suicidality. Suicide Life-Threat Behav. 2011;41:501-16.

Cite this article as: Mukhopadhyay S, Gupta SK, Singh K. Canvassing the epidemiology of risk behaviors in adolescent school students in a city of eastern Uttar Pradesh. Int J Community Med Public Health 2024;11:234-43.