Original Article

A cross-sectional study to assess the prevalence of health behaviors and protective factors among schoolchildren in a rural area in West Bengal

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Abstract

Background: Adolescence is the most vulnerable developmental period in one's life. In low to middle-income countries like ours, adolescence living in the rural area face increasing physical and mental health challenges that are not addressed due to ignorance or resource limitation. This study is conducted with the aim of assessing the magnitude of health behavior and protection factor among school children in the study area and to compare the same between boys and girls. **Materials and Methods:** An explanatory sequential mixed method descriptive observational study with cross-sectional study design was conducted on 102 students aged 15-19 years studying in a government school in Amdanga block, West Bengal. Purposive sampling was done for the quantitative part. Global school health survey questionnaire was used. Qualitative study with FGD was done after the quantitative part. **Results:** Out of 102 students, 58 (56.66%) re females and 44 (43.13%) are males, only 10 (9.8%) have consumed alcohol and 14 (13.72%) have consumed tobacco of some form. 15 (14.8%) students were bullied last year. Around 11 (10.8%) students had suicidal thoughts in the last 1 year. Most of them have proper hygiene behavior. Qualitative analysis revealed issues amongst both males and females regarding body image perception etc., **Conclusion:** It is seen that males have more addictive behavior and gets into fighting easily then females. It is found that there are many issues regarding mental and physical health of the adolescents. That needs to be addressed and measure should be taken seriously and proper services like counseling, monitoring, parent's support should be given.

Keywords: Adolescents health problems, GSHS, protectii

Introduction

The transitional period between childhood and adulthood is called adolescence (10–19 years of age).[1] Largest adolescent population is seen in India, approx. 253 million.[2] India will be benefited socially, politically and economically if adolescents are safe, healthy, educated, informed and skilled for development of our country.[3]

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Though this age group is thought to be the healthiest group among the population,[4] but in this period of life he may develop health risk behaviors that may lead to potentially life-threatening consequences.[5] In this period of life, as a child attains puberty major physiological, psychological and emotional changes occurs, he may develop behaviors such as eating disorders, less physical activity, high risk-taking behaviors like drinking, smoking, strenuous relationship with peers and parents, sexual behavior etc., This all may lead to potentially life-threatening consequences in adulthood like NCDs, HIV, accidents.[6]

A good support system from family and friend is very much essential for development of mental health of the adolescents.

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Better understanding of adolescents is very much necessary as it is thought that it is much easier to identify and address the high-risk behaviors of adolescents then later.

Primary care physicians should know about adolescent's health-related issues like their lifestyle, food habits, addiction, mental status, their relationship with their peers as many acute and chronic illness of the adolescents are deep rooted in their health-related behaviors. Most of the adolescents spend the better part of the day in schools. So, the physicians should be conversant with school health program, that was initiated with main objectives are promotion of positive health, prevention of diseases, early diagnosis, treatment and follow up of defects, awakening health consciousness and provision of healthy environment.[7]

But not much studies have been done among the adolescent school-going students in the rural areas to understand the health issues of this school-going adolescent in West Bengal.

Thus, the present school-based cross-sectional descriptive study is conducted based on the concept of GSHS was conducted among the students (Class XI and XII) in West Bengal, with the objectives to assess the magnitude of health behavior and protection factor among school children in the study area and to compare the same between boys and girls.

Material and Methods

This observational descriptive study with cross-sectional study design was conducted in Amdanga block which comes under rural field practice area of R. G. Kar Medical College and Hospital from January 2020 to February 2020.

The sample size was derived by taking the prevalence of (smoking among adolescents) 48% and absolute error of 10%, from the study conducted in Indonesia.[8] Required sample size was 99.

Purposive sampling was used to choose one school from the block. All the student studying in class XI and class XII were selected, those students who were present on that day were included in the study. A sample of 102 students were taken. Assent was taken from the students and permission was also taken from the headmaster.

An explanatory sequential mixed method study was conducted. First part was -quantitative part; second part was -qualitative part.

For the quantitative part Global school health survey questionnaire (GSHS) was used. GSHS has been designed by WHO and the Center for Disease Control and Prevention of US (CDC) in collaboration with UNICEF, UNESCO, and UNAIDS as a global, youth health monitoring surveillance system to provide accurate data on health behaviors and protective factors among students aged 13-17 years.[9] GSHS was translated and retranslated in Bengali. Piloting was done 10 students to increase comprehensibility. Necessary corrections were made.

It was administered among the students and then instructions were given to fill it up. The question papers were anonymous and answers were confidential. It was dropped in a drop box after the stipulated time. The students were given refreshments after that. After filling up, focused group discussion (FGD) was conducted separately among boys and girls. Data entry for the quantitative study was done manually after double checking, data cleaning was done. Analysis was done in R. Firstly; univariate analysis was done followed by bivariate and multivariate analysis. For qualitative part the transcript was prepared then content analysis was done to identify the codes, and domains emerging by an experienced social scientist. COREQ guideline was followed for the same.

Ethical clearance was taken from ethical committee of R. G. Kar Medical College and Hospital (memo no- RKC/264)).

Results and Discussions

The present cross-sectional study covered six domains of the important health risk behaviors among 102 school-going adolescents (15-17). Boys 58 [55.3%], Girls: 44 [44.7%]

Tobacco, alcohol and other substance use

Table 1 shows prevalence of consumption of alcohol, tobacco and drug was found to be 9.8%, 13.85% and 3% respectively. Higher prevalence was found among male students. The results were statistically significant ($P < 0.05$). It was found that on 1-2 occasions and less than one glass, most of them had consumed alcohol. And only one has consumed daily. Four out six student who consumes alcohol has procured from friends. Two students had drunken episode (1–2 times) and one student had violence related to alcoholism. Out of 9 students (8.8%) 5 male students have smoked for 6–9 days in the last month. 25 students have said their father (or any other male guardian) are smoker. And they have procured it mainly from their friends.

Violence and unintentional injury issue

Fifteen percent students have fought with some one of equal strength at least once. Overall prevalence was higher among boys (29.5%) than girls (5.3%). And prevalence of physical abuse was seen more among boys.

Among 41 (40.9%) students who had unintentional injury, prevalence was more among boys (47.72%) then girls (35.08%). Only 14.5%, that is 15 students (8 boys and 7 girls) has reported to have been bullied in the last 1 month. Reason of bullying being body shaming followed by religion.

Mental health

Out of 102 students 65 (63.7%) of them felt lonely in the last 30 days. Prevalence of feeling of loneliness was almost equal among boys (65.9%) and girls (64%).

Table 1: Distribution of variables among study population

Variables	Sex		Total (*n*=102)	Tests of association
	Girls (*n*1=58)	Boys (*n*2-44)		
Age (in years)				
15	5 (55.46%)	4 (44.4%)	9	*P*=0.3
16	20 (64.5%)	11 (35.5%)	31	
17	26 (55.3%)	21 (44.7%)	47	
18	6 (60%)	4 (40%)	10	
19	1 (20%)	4 (80%)	5	
Class				
11	37 (58.7%)	26 (41.3%)	63	*P*=0.
12	21 (53.8%)	18 (46.2%)	39	
Alcohol starting age				
Never	56 (96.6%)	36 (81.3%)	92 (90.2%)	*P*<0.05
<16 years age	1 (1.7%)	3 (6.8%)	4 (3.9%)	
>/= 16 years age	1 (1.7%)	5 (11.4%)	6 (5.9%)	
Tobacco starting age				
Never	55 (96.5%)	32 (72.7%)	87	*P*<0.05
<16 years	1 (1.8%)	6 (13.6%)	7	
>/= 16 years age	1 (1.8%)	6 (13.6%)	7	
Guardian of the student using tobacco (multiple response)				
Nobody	36	27	62	*P*=0.254
Father/male guardian	20	19	39	
Mother/female guardian	1	1	2	
Do not know	1	2	3	
Addiction of any form				
Never	57 (100%)	42 (95.5%)	99 (97%)	*P*<0.05
At least once	0	3 (4.5%)	3 (3%)	
No of times the student fight with someone of equal strength in the last year				
Never	54 (94.7%)	32 (70.5%)	86 (84.3%)	*P*<0.05
At least once	3 (5.3%)	13 (29.5%)	16 (15.6%)	
No of times students were Physically abused				
0	55 (93.1%)	30 (68.2%)	89 (87.2%)	*P*=0.547
1	3 (5.2%)	10 (22.7%)	13 (12.7%)	
>1	1 (1.7%)	4 (9.1%)	5 (5%)	
No of students bullied in last 30 day				
Never	50 (87.7%)	37 (84%)	87 (85.3%)	*P*=0.114
1-2 day	5 (8.7%)	8 (16%)	13 (12.7%)	
10-19 days	2 (3.5%)	0	2 (1.9%)	
No of times the student felt alone in last 30 days				
Never	22 (37.9%)	17 (38.6%)	37 (35.2%)	*P*=0.772
Rarely	11 (18.9%)	12 (27.3%)	23 (22.5%)	
Sometimes	20 (34.5%)	12 (27.3%)	32 (31.3%)	
Most of the times	2 (3.4%)	3 (6.8%)	5 (4.9%)	
Everyday	3 (5.3%)	2 (4.5%)	5 (4.9%)	
No of students having suicidal wish in last 1 year				
Yes	10 (17.24%)	1 (2.3%)	11 (10.7%)	*P*<0.05
No	48 (82.75%)	43 (37.7%)	91 (89.3%)	
No of times students has not been able to sleep in last 1 year				
Never	20 (34.5%)	19 (43.2%)	39 (38.2%)	*P*=0.421
Rarely	17 (29.3%)	14 (31.8%)	31 (30.4%)	
Sometimes	15 (2.6%)	11 (2.5%)	27 (26.5%)	
Most of times	3 (5.2%)	0	3 (2.9%)	
Everyday	3 (5.2%)	0	2 (2%)	
No of students who talk to their parents to seek support				
Yes	22 (39.3%)	1 (2.3%)	23 (22.5%)	X^2=18.360
No	34 (60.7%)	43 (97.7%)	76 (74.5%)	*P*<0.05
No of students having close friends				
0	32 (55.2%)	10 (22.7%)	42 (41.2%)	X^2=11.412

Contd...

Table 1: Contd...

Variables	Sex		Total (*n*=102)	Tests of association
	Girls (*n*1=58)	Boys (*n*2-44)		
At least 1	26 (44.8%)	34 (77.3%)	60 (58.8%)	*P*<0.05
Relationship between sex of the student and students encountered sexual relationship (*n*=99)				
Yes	0	4 (9.5%)	4 (4%)	X^2-5.657
No	57 (100%)	38 (90.5%)	95 (96%)	*P*<0.05
No of students not taken proper food due to unavailability in last 30 days				
Not a single day	46 (79.3%)	28 (63.6%)	74 (72.5%)	*P*<0.05
Rarely	10 (17.2%)	16 (36.4%)	26 (25.5%)	X^2=6.880
Most of the days	2 (3.5%)	0	2 (2%)	
Distribution of students regarding knowledge if AIDS				
Yes	56 (96.6%)	41 (93.2%)	97 (95.1%)	*P*=0.650
No	2 (3.4%)	3 (6.8%)	5 (4.9%)	
Hygienic practices in last 30 days				
Did not brush teeth everyday	0	1 (2.2%)	1 (0.9%)	*P*=0.519
Did not handwash everyday	5 (8.7%)	9 (20.4%)	14 (13.7%)	*P*=0.235
Did not hand wash every day after latrine	3 (5.2%)	4 (7.01%)	7 (6.8%)	*P*=0.106
Did not use soap everyday	24 (42.1%)	27 (47.3%)	51 (50%)	*P*=0.081

Table 2: Summary of FGD content analysis

Male
Some of the male students had problems regarding addiction, they often considered that "Drinking Beers" is not an addiction. They usually got started a behavior by peer pressure and during festival nights. Also smoking cigarettes was found to be a "Male thing"
There was problem of Body image perception, many of them thought that he/she was too thin or too fat, and that gave rise to in confidence.
Some of them watched pornographic materials, but reports to have no serious addiction to that. Also, they had confusion regarding sexual behaviors like nightfall, which many of them discussed among themselves
Females
They mostly had problem regarding starting of menstruation and did not know where to discuss about that. Some of them discussed with near relatives, mostly with friends and they were also not sure of what to use during menstruation and how to use that and dispose that.
They were also having infections in reproductive tracts, and was confused where to consult in case of these problems.

17.5% girls (10 girls out of 57) had suicidal wish. And only 2.4% (1 out of 44) boys had the same. This finding was statically significant ($P < 0.05$). 3 girls had planned suicide and 1 has attempted suicide.

Protective factors

Again among 99 students who have answered about parental support, 22 girls (39.3%) are closer to their parents than boys (2.3%).

Nutrition and life style

Prevalence of high-risk behavior was more in girls than boys. Overall dietary pattern was good among the children (approx. 90%) and only 12% consumes cold drinks and 41% consumes junk food. Prevalence of Vegetable and fruit consumption was lesser and consumption of junk foods were higher in girls.

Absenteeism in males were found to be statistically significantly more than their female counterpart.

Female students, around 63%, were found to be having more sedentary life style and is having increasing risk of spending a greater number of sedentary hours/day than their male counterpart (46%). the findings are statistically significant ($P < 0.05$).

Hygiene

In the domains of personal hygiene practice and physical activity, male students had higher risk behavior pattern.

Knowledge about AIDS

Majority of the students i.e., 95.1% has knowledge of AIDS. And only 6.8% boys and 3.4% girls have no knowledge. But only 18.4% were taught about this. Though majority of them know about AIDS, but 66%, (74.4% boys, 59.3% girls) had no knowledge of how to be protected against AIDS.

After correlation analysis, it was further found out that there is significant association between starting age of smoking of the students and smoking habit of parents. That is if there is a person who smokes in the family the students get addicted to tobacco in their earlier years of life.

Also, there is an association between female sex and suicidal tendencies. That is females have higher suicidal ideation (OR-13.826 with 95% CI between the range 1.359 to 140.681, $P = 0.026$). Also female students have more close friends (OR-6.982, 95% CI between 2.131 and 22.879, $P = 0.001$) and they have good relationship with their parents (OR-39.816, 95% CI is in between 4.392-360.983, $P = 0.001$) than their male counterparts.

Qualitative results: The FGD of boys and girls were done. The results emerging are:

Table 2 shows all the students said that if a structured school health education program was designed and delivered to them,

with counseling classes of boys with male teachers and girls with female teachers that would have been most useful.

Discussion

Adolescence is a very critical time in one life. In this transitional phase, children want to be identified as adults. During adolescence, teenagers start to make individual choices and develop personal lifestyles. Many of these lifestyle choices are related to risk behaviors resulting in disease outcomes.

Present study found 9.8% prevalence of smoking. Which is in contrast to the study by Bagchi NN, *et al*.[10] they found that the prevalence of smoking was found to be 37% among males and 13.5% among females, with overall prevalence was 29.6%. But in a recent study by Christian *et al*., it was found 7.9% of students smoked tobacco or any form of tobacco.[11]

In the present study, prevalence of males was found to be much more than the girls. Also, prevalence of boys having addiction of some other forms are more than girls. Logistic regression has shown that presence of parents who smokes or drink influences them a lot. These findings are similar to the study conducted by Yue *et al*.[12] they found that adolescent boys have much more affinity towards substance abuse. This may be because boys get a lot of independence in their family. And it is easier for them procure those substance from shops or friends.

In the present study it was found that 17.5% students (girls) have suicidal thoughts and one of them has attempted suicide. The findings are in consistent with findings of a study conducted in two school of South Delhi, by Sharma *et al*.[13] they found 15.8% had thought of attempting suicide mostly in females than males. Another study by Amu H, *et al*.[14] showed that the prevalence of mental distress was 21.2%. More in females and older adolescents. Females were found to have more suicidal thoughts then their male counterpart.

Majority of adolescent, almost 63%, has felt lonely (of various levels). The prevalence being equal in both males and females. These is found in various studies. (14)

Dietary pattern overall was good among both boys and girls. Vegetable and fruit consumption was found to be relatively better among boys (78%) and consumption of junk foods were seen more among girls. The present finding is in contrast to the study conducted by Rathi *et al*.[15] In their study they compared the dietary pattern between rural and urban school they found poor dietary intake of adolescents in urban schools. This may be because in rural are there is better access to vegetables and fruits, as most of the families have kitchen garden or farm. Yet in another study in sub-Saharan countries by Berhane Y, *et al*.[16] they found high prevalence of inadequate fruit consumption (57–63%) and moderate prevalence of inadequate vegetable consumption (21–31%), which is in contrast to our study.

Qualitative analysis revealed mainly the mental health of the children. The female students face a lot of issues regarding there body image perception, menstruation related issues and genital infection and the male students feels that they look more masculine in front of their peers if they smoke or drink.

Conclusion

Adolescence is a crucial time that affects health and behavior in adulthood.

The results of the present study suggest that the prevalence of health risk behaviors and protective factors among high school students in the Amdanga block, West Bengal.

The study gives a baseline idea that health risk behaviors like smoking, drinking and drug addiction is pretty prevalent in this rural school going students mainly among the boys.

a) Mainly the students whose family members are having drinking and smoking habits have shown affinity towards these health risk behaviors.
b) Also, prevalence of students getting involved in fighting is also high. Few of those students were injured too. Reasons noticed were mainly cause of body shaming and religion discriminations.
c) A very noticeable prevalence of suicidal thoughts has also been found mainly among the girls.
d) Among the protective factors, more than three fourth of the students have been found to have good dietary practice, good hygiene maintenance, having knowledge about HIV/AIDS.
e) But more than half of the students don't seek or get parental support and also they don't have close friends. This is quiet disturbing for those students mental and emotional health.

Key message and recommendation

There is an urgent need for interventions such as 1) effective preventive program to be implemented to decrease the prevalence of risk behaviors to an acceptable level and to increase awareness about the harmful effects of drugs and building coping abilities, 2) Strictgovernment policies should be made to address the addiction problems of the adolescent. 3) health education as a school subject in the Education Curriculum should be introduced

Strength and limitations

An explanatory mixed method study was conducted, i.e., both quantitative and qualitative study was done on the adolescents, this has provided a rich information on the adolescent health related issues.

Due to resource restrain, only one school as selected by purposive sampling. So, generalization of the result may not be possible. A larger study would have been a better idea.

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Conflicts of interest

There are no conflicts of interest.

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