

Original Research Article

Effectiveness of behaviour change communication for preventing tobacco use among high school children in rural area, Bengaluru

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ABSTRACT

Background: Adolescents in high school are vulnerable to various health risk behaviors. One of it is tobacco use which is the leading cause of death and disease worldwide today. Educational programs applied in schools can have immense potential in promoting healthy behaviours and help them to refrain from risky behaviours among school going adolescents. The objectives of the study were to assess the prevalence of tobacco use among high school students in the rural field practice area of Vydehi Institute of Medical Sciences and Research Centre, Bengaluru and to evaluate the effectiveness of behavior change communication using life skills education on tobacco use initiation and cessation of use among high school children

Methods: An interventional study was conducted in a randomly selected rural high school. A total of 454 students studying in 8th, 9th and 10th standard participated in the study. Pretested semi structured questionnaire was used to collect data. Intervention was given in the form of life skills education with interactive sessions involving debates, group discussions, role plays, situational analysis on prevention of tobacco use. Follow up was done at intervals of 1 month, 3 months, and 6 months to assess the change in tobacco use prevalence using a questionnaire.

Results: Over all, prevalence of tobacco use was 69 (15.2%) with 50 (11%) being male and 19(4.2%) female students. Prevalence of tobacco use reduced from 69 (15.2%) during pre-intervention to 58 (12.9%), 39 (8.7%), and 33 (7.3%) by the end of one month, three months and six months respectively after the intervention.

Conclusions: There is lack of awareness regarding dog bite and its management among the rural population.

Keywords: Adolescent health, Behaviour change communication, Tobacco use, Life skill education

INTRODUCTION

Adolescence is one of the most important and crucial phases of learning and development of an individual.¹ Adolescents in India constitute to over 23% of the population.² In the recent years, there has been a marked shift in the health problems affecting this age group. Chronic illness including mental and behavioral disorders

is the leading causes of disability.³ Adolescents engage in risk-taking behaviors like sexual experimentation, alcohol, tobacco and other drug use, and risky motor vehicle use, with the anticipation of benefit and without understanding the immediate or long-term consequences of their actions.^{4,5}

The problem of substance abuse has become a global concern and the trend of urbanization has made

adolescents much vulnerable to substance abuse.⁶ Worldwide about 90% of adult tobacco users begin before the age of 18 years and some as young as 10 years and 6 years as reported in India. Tobacco is the single largest preventable cause of death and disease in the world today and recent estimates reveal that 6 million people die due to tobacco every year and this figure will increase to 8.3 million deaths by 2030.^{7,8}

There is a lack of knowledge and awareness amongst adolescents about important health issues and problems that affect them.⁹ Even with much emphasis on adolescent health and services, there have been not many health education programs in schools regarding the prevention of risk behaviors.

Current mortality and morbidity pattern can be changed significantly if children in schools develop good healthy behaviors and practice them throughout their lives. School health education programs, as an opportunity to improve the health of a community should not be over looked. Education in the form of life skills not only helps adolescents from refraining from tobacco use it also helps in overall psychological and emotional development. In view of the above, the present intervention is undertaken to evaluate the effectiveness of behavior change communication in the form of life skill education in preventing tobacco use among high school children in rural area, Bengaluru.

Objectives

1. To assess the prevalence of tobacco use among high school students in the field practice area of Vydehi Institute of Medical Sciences and Research Centre, Bengaluru.
2. To evaluate the effectiveness of behavior change communication using life skills education on tobacco use initiation and cessation of use among high school children.

METHODS

An Interventional study was conducted from June 2012 to June 2013 in a randomly selected High School, in the rural field practice area of Vydehi Institute of Medical Sciences & Research Centre, Bengaluru. All the students studying in 8th, 9th, and 10th classes aged between 12 years to 16 years were included in the study.

Approval for the study was obtained by the institutional ethical committee. Consent for the study was obtained from all the parents and students. All the class teachers were informed about the study

A semi-structured questionnaire was prepared based on WHO Global Youth Tobacco Survey questionnaire. It was pretested and administered to the students to get information on tobacco use, age of initiation and attitudes

about the tobacco use. Anonymity was maintained throughout the study.

BCC intervention was given in the form of life skills education. Repeated interactions were made with the students at regular intervals over a period of three months to impart life skill education for prevention and cessation of tobacco use. Each session was of 45 minutes, small groups consisting of 5-6 students were made in each class. Interventions were given in the form of group discussions, debates, role plays, case studies, situation analysis and lectures. Videos showing the impact of tobacco use were shown to the students. Students who wished to discuss personally regarding prevention or cessation of tobacco use with the facilitator were requested to visit the Sneha Clinic in the Primary Health Center that was run by the medical college. Post intervention data was collected using the same questionnaire after one, three and six months.

Data was analyzed using SPSS version 16 and open Epi version 2.3.

The frequency distributions of the study subjects according to age, sex, class were analyzed. Data on prevalence of tobacco use and factors influencing the use among students was analyzed. To find out the association of tobacco use with the socio demographic and factors influencing the tobacco use, chi-square test/Fisher exact test was applied. The statistical significance was evaluated at 5% level of significance. To find out significance of improvement in cessation of tobacco use among the students after intervention Mc-Nemar test was used.

RESULTS

In the present study comprising of 454 students aged between 12 to 16 years, 259 (57%) were male and 195 (43%) were female students. Number of students belonging to 8th, 9th and 10th standards were 103 (22.7%), 161 (35.5%) and 190 (41.9%) respectively.

Total number of students who were currently using any form of tobacco was 69 (15.2%), of which 50 (11%) were male and 19 (4.2%) were females (Table 1). Chewable form of tobacco use was seen among 19 (4.2%) female students and 50 (11%) male students used tobacco in the form of smoking, chewing and both(smoking and chewing) (Table 2). Significant association was found between gender and tobacco use. 36 (52%) students were in the age group of 14 and 15 years age group. (Table 1)

Of those who smoked tobacco, 23 (57.5%) and 17 (42.5%) students had initiated before 12 years and 12-15 years respectively. In the past 30 days, 14 (56%) students had smoked less than 1 cigarette and one had smoked more than 6 (16%) cigarettes per day. 18 (45%) of them had stated friends influence in initiating the tobacco

usage followed by curiosity to try something new 14 (35%) (Table 3).

281 (61.9%) students were aware that smoking was harmful for health and 332 (73.1%) said smoke from other people cigarette was harmful (passive smoking). Majority of the students i.e., 405 (89.2%) reported that smoking helps in relaxation and only 19.2% (87) of the study group reported that it was difficult to quit smoking once started. With regard to the awareness about the ill

effects of smoking among the students, 92.7% of them were aware that smoking causes lung cancer followed by heart diseases (87.4%). Knowledge regarding bronchial asthma, bronchitis, and emphysema as being caused by smoking was 25.3%, 6.4%, 1.3% respectively. 65.6% (298) students reported that neither in the class nor at home were they told about the ill effects of tobacco. Significant association was found between current tobacco users and their peers, also with their family members who used tobacco ($p=0.00$) (Table 4).

Table 1: Distribution and association of tobacco use among different age groups and sex.

Age (in years)	Male		Female		Total	
	Yes	No	Yes	No	Yes (%)	No
12	0	8	5	15	5 (7.2)	23
13	8	50	7	58	15 (21.7)	108
14	13	54	5	55	18 (26)	109
15	16	75	2	44	18 (26)	119
16	13	22	0	4	13 (18.8)	26
Total	50	209	19	176	69 (100)	385

$\chi^2=37.064$; p value=0.00; *calculated for tobacco use among male and female.

Table 2: Distribution of type of tobacco use in the past 30 days among male and female students.

Tobacco use	Sex		Total (%)
	Male (%)	Female (%)	
None	209 (46.0)	176 (38.8)	385 (84.8)
Smoking	20 (4.4)	0	20 (4.4)
Chewing	21 (4.6)	19 (4.2)	40 (8.8)
Both (smoking & chewing)	9 (2.0)	0	9 (2.0)
Total	259 (57)	195 (43)	454 (100)

Table 3: Reasons for initiation of smoking tobacco.

Reasons	Number	Percentage (%)
Friends influenced	18	45
To try something new	14	35
Learnt from family members	6	15
Style factor	2	5
Total	40	100

Table 4: Association between tobacco use among students and their peers and family members.

		Tobacco use				Total
		Yes (n)	Percentage (%)	No (n)	Percentage (%)	
Tobacco use among peers	Yes	35	7.7	32	7	67
	No	34	7.5	353	77.8	387
	Total	69	15.2	385	84.8	454
Yate corrected $\chi^2=80.33$ P value =0.01$\times 10^{-5}$						
Tobacco use among family members	Yes	42	9.3	120	26.4	162
	No	27	5.9	265	58.4	292
	Total	69	15.2	385	84.8	454

Yate corrected $\chi^2=22.22$; P value=0.04 $\times 10^{-4}$.

After one month of intervention, of the 448 responses that were received, 17(3.8%) smoked and 34(7.6%) chewed tobacco and 7(1.6%) of them used both forms of tobacco.

At three months of post intervention, 446 completed responses were received and 8 drop outs were there. Number of students who smoked, chewed and used of

both forms of tobacco were 12 (2.7%), 22 (4.9%) and 5 (1.1%) respectively.

After sixth month of post intervention, 447 answered the questionnaire of which, 10 (2.2%) students smoked, and 19 (4.3%) chewed and 4 (0.9%) used both forms of tobacco (Table 5).

Prevalence of tobacco use among the students had decreased significantly with life skills education as intervention, when compared to pre intervention. By the end of six months post intervention, tobacco use among all types of users had reduced to nearly 50% when compared to pre-intervention (from 4.4% to 2.2%).

Prevalence of tobacco use had reduced from 15.2% (69) during pre- intervention to 12.9% (58), 8.7% (39), and 7.3% (33) by the end of one month, three months and six months respectively after intervention.

Mc Nemar's test was applied to find the significance of improvement in the behavior, i.e., reduction of tobacco use in the past month by the students. It was applied between the initial assessment and post intervention after one month, three months and six months. These results of improvement between were found to be statistically significant ($p=0.0005$) (Table 6).

Table 5: Comparison between types of tobacco use behavior during pre and post intervention.

	Didn't use	Tobacco use			Total
		Smoke	Chew tobacco	Both	
Pre test	385 (84.8%)	20 (4.4%)	40 (8.8%)	9 (2.0%)	454
One month	390 (87.1%)	17 (3.8%)	34 (7.6%)	7 (1.6%)	448
Three month	407 (91.3%)	12 (2.7%)	22 (4.9%)	5 (1.1%)	446
6 month	414 (92.6%)	10 (2.2%)	19 (4.3%)	4 (0.9%)	447

Table 6: Number of tobacco users during the follow up.

Pre-intervention	One month post intervention		Three months post intervention		Six months post intervention	
	Non- users	users	Non- users	users	Non- users	users
Non- users	380	0	379	1	380	0
Current users	10	58	28	38	34	33
Total	390 (87.1%)	58 (2.9%)	407 (91.3%)	39 (8.7%)	414 (92.3)	33 (7.4%)
	Mid p value =0.0009		McNemar =25.14; p value =0.005×10 ⁻⁴		Mc Nemar =25.14; p value =0.005×10 ⁻⁴	

Few students had dropped out of the study because of absence in the class at the time of assessment. 1 non-users of tobacco at the time of pre intervention had used tobacco at third month of assessment. This could be due to irregular usage or could be as a result of attempts made to quit tobacco. Over all, when compared to initially assessment the number of tobacco users reduced to 7.4% (33) from 15% (69).

DISCUSSION

In the present study, prevalence of current tobacco users was found to be 15.2% which was similar to a study done by Bhojani et al where they reported an overall prevalence of 15.1%.¹⁰ Study done by Tseringet et al in Kolkata also showed similar prevalence rate of 14.29% tobacco usage among rural students.¹¹ Tobacco use in any form was significantly more among males than females in this study which is consistent with the study done by Gururaj et al who found 8% among males and 2.1% among females.¹² Use of smokeless form of tobacco was found to be higher among female students in the present study when compared to a study done by Gururaj et al

(1.4%).¹² Usage of smokeless form of tobacco was found to be higher in a study done by Shruthi et al (17.9%) than our study.¹³

The results of present study were consistent with another study done by Narain et al, where the age of initiation of tobacco was less than 11 years.¹⁴

Peer pressure has been found to be the most common reason for initiation of smoking even in Muttappallymyalil et al study.¹⁵ Significant association was found between tobacco use among the students and their friends and family in the present study was similar to studies done by Bhojani et al and Muttappallymyalil et al ($p=0.01$).^{10,15} Another study done by Mukherjee et al also showed similar association.¹⁶

In the present study, it is seen that tobacco use increases with age from 10% (12) among 13 years old to 33.33% among 16 years. Tobacco use was observed to be more among less than 12 years (17.9%). This was found to be statistically significant ($p=0.02$). Similar results were seen in a study done by Kelkar et al where the prevalence

increased with increase in age from 2.1% at <14 years to 9.8% at 18 to 20 years of age.¹⁷

Philip et al in their study specially designed to reduce tobacco use among school children in Kerala reported a sharp decline in the prevalence of tobacco use after the intervention to 4.68% from 9.85% before intervention. Thus tobacco use has been decreased to nearly half after the intervention. Around 34% of children has reported that they positively influenced their parents and well-wishers to quit tobacco. Similar improvements were found in the present study. Also, Crone et al in their study found that after intervention the proportions of smokers had increased significantly less in the intervention group than in the control group (2.6% and 7.9%, respectively).¹⁸

Soria-Esojo et al in their study found prevalence of smoking to be 27.8%. After intervention, 78% said the program had not directly influenced their smoking, 84.3% said they had become more conscious of the detrimental effects of tobacco, 66.8% planned on not smoking in the future, and 91% gave the opinion that more discussions on smoking should be given and that the program had been quite interesting.¹⁹

Consistent efforts to educated adolescents in the schools about the ill effects of smoking and teaching them the skills to understand and tackle the peer pressure using life skills can go long way in improving the health of productive population of the country.

Limitations of the study

Few drop outs were found in the study, as they were absent during subsequent assessments. Effectiveness of the intervention was studied only in one school which limits the effectiveness of the intervention to this school.

CONCLUSION

The intention of the study was to prevent the initiation of the tobacco use among the students and change the behavior of students who are using any form of tobacco. Health education in the form of skill based training helps in prevention of initiation of tobacco use and also in reverting back to healthy behaviors. This not only increases the knowledge about the ill effects of tobacco but also helps them develop skills to handle day to day stress. Since behaviors develop over time, repeated interventions have to be given to prevent development of risky behaviors in future.

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