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ORIGINAL ARTICLE

Prevention of Initiation of Smokeless Tobacco and Non Tobacco Products Consumption Among Students of a Private High School in Puducherry: An Interventional Study

R. Buvaneshwari,^{1,*} R. Narendra Kumar,² S. Ram Pragadeesh,² J. Barathalakshmi,³ R. Surendar⁴ and N. Bhuvaneswari²

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Abstract

Tobacco is dried and fermented leaves. Tobacco epidemic is killing 8 million people a year. Thus, the study is done to assess the frequency of smokeless tobacco and Non tobacco in school students. School based Interventional study conducted among 373 students of 7th to 10th standard in a private high school, in our city. Data collected was entered in Excel and analysis was done using SPSS software version 23.0. Around 362 (97%) students were aware that tobacco usage affects health. Around 58 (16 %) students had consumed non tobacco products and 11 (3%) students had consumed smokeless tobacco ever in their lifetime. After 2 weeks of awareness session on Tobacco use and its effects by the investigator, quit rate was 66% for Non-Tobacco Products & Smokeless Tobacco. There is significant association between awareness about tobacco usage and students who quit Non-Tobacco Products and Smokeless Tobacco after awareness session with p value of <0.039. Post-test results after the awareness session showed that it helped in improving knowledge and developing negative attitude towards Tobacco usage among school students.

Keywords: Tobacco, Smokeless tobacco, non-tobacco products, addiction

*Corresponding Author: R. Buvaneshwari Email: buvaneshwari475@gmail.com

¹Post Graduate, Department of Community Medicine, Sri Venkateswaraa Medical College Hospital and Research Centre, Puducherry, India

²Assistant Professor, Department of Community Medicine, Sri Venkateswaraa Medical College Hospital and Research Centre, Puducherry, India

³Professor and Head, Department of Community Medicine, Sri Venkateswaraa Medical College Hospital and Research Centre, Puducherry, India

⁴Professor, Department of Community Medicine, Sri Venkateswaraa Medical College Hospital and Research Centre, Puducherry, India

Graphical Abstract

Prevention of initiation of Smokeless tobacco and Non tobacco products consumption among students of a private high school in Puducherry – An Interventional study

R. Buvaneshwari⁽¹⁾, R. Narendra Kumar⁽²⁾, S. Ram Pragadeesh⁽³⁾, J. Barathalakshm⁽⁴⁾, R. Surendar⁽⁵⁾ and N. Bhuvaneswari⁽⁶⁾

¹Postgraduate, ²Assistant professor, ³Assistant professor, ⁴Professor & Head, ⁵Professor, ⁶Assistant Professor - Department of Community Medicine, SVMCH &RC

Background

Tobacco consists of dried and fermented leaves, and no form of tobacco is considerable safe. The tobacco use is killing over 8 million people a year around the world. According to the 2022 Monitoring the Future Survey, 4% of 12th graders, 1.7% of 10th graders, and 0.8% of 8th graders used cigarettes in the past month. Hence this study aims at providing intervention at earliest in their school life.

Methods

This study was conducted after obtaining clearance from SRC and IEC (No:112/SVMCH/IEC-Cert/October23 dated on 13.10.2023). All students of 7th -10th standard were included in the study (381). Around 373 students were selected for the study using Convenience Sampling method. After obtaining consent a Pre-validated, Semi-structured questionnaire was used for the study. Results were entered in Microsoft Excel and analysed using SPSS software version 23.0. Quantitative data was expressed in Mean, range and qualitative data was expressed proportion. Chi square test was used to find association (p value <0.05 is significant)

Knowledge		PRE-TEST	POST -TEST
		Frequency (%)	Frequency (%
III effects	Aware about ill effects	362 (97%)	365 (98%)
	Not Aware about ill effects	11 (3%)	8 (2%)
Second Hand Smoking	Heard about SHS / PS	59 (16%)	346 (93%)
/ Passive smoking	Not heard about SHS / PS	314 (84%)	27 (7%)
Effect of Smoking	Only that person	29 (8%)	7 (2%)
	That person & Surrounding person	135 (36%)	34 (9%)
	Environment	38 (10%)	18 (5%)
	Nil	23 (6%)	5 (1%)
	That person & Surrounding person and Environment	148 (40%)	309 (83%)
COTPA Act	Aware about COTPA Act	266 (71%)	360 (97%)
	Not Aware about COTPA Act	107 (29%)	13 (3%)
Effect on Environment	Aware that Tobacco affects Environment	345 (92%)	366 (98%)
	Not Aware that Tobacco affects Environment	28 (8%)	7 (2%)
Quitting Tobacco	Aware that it is possible to quit tobacco	162 (43%)	340 (91%)
	Not Aware that it is possible to quit tobacco	211 (57%)	33 (9%)
Helpline Number for quitting Tobacco	Aware about Helpline number for quitting Tobacco	32 (9%)	361 (97%)
	Not Aware about Helpline number for quitting Tobacco	341 (91%)	12 (3%)

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Conclusions

This study shows that maximum students were aware about the ill effects & developed a negative attitude towards tobacco use after awareness session. Tobacco uses among family/friends kindle them to take tobacco products. This information must be conveyed to the parents to make a behavioural change among them and their children.

Introduction

A study mentioned that Tobacco use is widely recognized as preventable cause of premature death due to NCDs [1]. Tobacco consists of dried and fermented leaves, and no form of tobacco is considerable safe. WHO states that the reason for tobacco being addictive is Nicotine and tobacco use is a major risk factor for non-communicable diseases, various types of cancer, and many other debilitating health conditions [3].

India stands third in production and consumption of tobacco products in the world. There is a long history of tobacco use in our country. Tobacco is used in a variety of ways in India; its use has unfortunately been well recognized among the adolescents [2]. The tobacco use is killing over 8 million people a year around the world. In which around 7 million are the result of direct tobacco use while 1.3 million are the result of non-smokers being exposed to second-hand smoke [3].

2019 - India Global Youth Tobacco Survey shows that 8.5% of the young age group consume tobacco products. Also, Highest current use of any tobacco was in Arunachal Pradesh & Mizoram (58% each) and lowest in Himachal Pradesh (1.1%). 4.1% of students (4.6% of boys and 3.4% of girls) currently used smokeless tobacco [4].

In Puducherry 14.7% of men, 0.1% of women and 7.2% of all adults currently smoke tobacco. 4.5% of men, 4.9% of women and 4.7% of all adults currently use smokeless tobacco. **NIDA** (National Institute on Drug Abuse) strongly mentions that people who use tobacco has initiated it during adolescence by non - tobacco substance chewing. According to the 2022 Monitoring the Future Survey, 4% of 12th graders, 1.7% of 10th graders, and 0.8% of 8th graders used cigarettes in the past month [5].

For today's adolescents and young adults, consumption, including the use of tobacco and nicotine products, is all about showing their unique identity. (6) Various factors have been implicated for the uptake of the habit including inadequate knowledge and unfavourable attitude. (7) In India, bidis—tobacco hand-rolled and wrapped in

dried leaves of particular trees—and cigarettes are the most common smoking products. Khaini, gutkha or pan masala (a powdered mixture of scented tobacco, lime, and areca nut wrapped in a betel leaf), chewing pan (a mixture of lime, areca nut pieces, tobacco, and spices), and mishri (a type of toothpaste applied to the gums) are examples of smokeless tobacco use. (8) Limited data are available regarding interventional studies conducted for the prevention of initiation of Smokeless tobacco use in India. Targeting the children before initiation of tobacco use is the most effective way of preventing SLT use. Hence this cross-sectional study is planned and conducted to Assess the frequency of smokeless tobacco and Non tobacco products consumption among students and to provide a school-based intervention to bring out behavioural changes among 7th to 10th standard students of a selected private high school

Operational Definition: (National Cancer Institute)

Smokeless tobacco is tobacco that is not burned. It is also known as chewing tobacco, oral tobacco, spit or spitting tobacco, dip, chew, and snuff. Most people chew or suck (dip) the tobacco in their mouth and spit out the tobacco juices that build up, although "spitless" smokeless tobacco has also been developed. Nicotine in the tobacco is absorbed through the lining of the mouth.

Chewing tobacco, which is available as loose leaves, plugs (bricks), or twists of rope. A piece of tobacco is placed between the cheek and lower lip, typically toward the back of the mouth. It is either chewed or held in place. Saliva is spit or swallowed.

Snuff, which is finely cut or powdered tobacco. It may be sold in different scents and flavors. It is packaged moist or dry; It is available loose, in dissolvable lozenges or strips, or in small pouches similar to tea bags. Some people inhale dry snuff into the nose.

Materials and Methods

This study was conducted after obtaining clearance from Scientific Research Committee and Institutional Ethics Committee (No:112/SVMCH/IEC-Cert/October23 dated on 13.10.2023). the Before conducting study, permission was sought from the school authority after explaining the background, objectives of the study, confidentiality of identity. A School based Interventional study was done among 7th to 10th standard students of Rural in our city. All students of 7 th -10 th (7 th +8 th +9 th +10 th =140+81+85+75) standard was included in the study (381). Those who did not give consent /assent and who were absent on the day of study were excluded. Around 373 students were selected for the study using Convenience Sampling method. Informed written consent from parents and the Assent from students were obtained a day prior to the start of the study.

A Pre-validated, Semi-structured questionnaire was used for the study. This includes a pretest question regarding the use of Smokeless tobacco and Non tobacco products among them to assess their Knowledge, Attitude and Practice regarding tobacco usage. After the Pretest, Health awareness was given on Tobacco use and its ill effects using Power point presentation. After 2 weeks, Post test was conducted among same students and the results were entered in Microsoft Excel and analysed software version 23.0. using SPSS Quantitative data was expressed in Mean, range and qualitative data was expressed proportion. Chi square test was used to find association and p value <0.05 was considered as significant.

Table 1. Distribution of study participants based on selected Socio-Demographic Characteristics (N=373)

Socio-Demographic	Frequency (Percentage)	
Characteristics		
Age (in years)		
< 13	151 (40.4%)	
> 13	222 (59.6%)	
Gender		
Male	213 (57.1%)	
Female	160 (42.9%)	
Standard of Education		
7 th	140 (37.6%)	
8 th	81 (21.7%)	
9 th	78 (20.9%)	
10 th	74 (19.8%)	

Results

Table 1 shows the socio demographic characteristics of the students involved in the study. The students were in the age range of 11-15 years. Out of 373 participants, majority 59.6% (222) of them were > 13 years. Majority of the participants were male 213 (57.1%) and the remaining 160 (42.9%) were female. Student's distribution was slightly higher 140 (37.6%) in the 7th standard and almost equal (~20%) in the 8th, 9th and 10th standards (Table 1).

Table-2 shows that among 373 participants, 362 (97%) were already aware about ill effect of tobacco usage in the pretest. Knowledge about Second Hand Smoking (SHS) / Passive Smoking was 59 (16%) in the pretest and it increased to 346 (93%) during post-test. Majority participants 309 (83%) learned that Smoking affects the person who smokes and the surrounding person and also Environment in post-test when compared to pre-test 148 (40%). Knowledge about COTPA Act improved in the post-test 360 (97%) when compared to 266 (71%) in the pretest. Pre-test results shows that 345 (92%) were already aware that Tobacco affects Environment. Following awareness talk 340 (91%) has accepted it is possible to quit tobacco for an addicted person which was 162 (43%) during pre-test. Only 32 (9%) knows the helpline number for quitting tobacco in pre-test and it increased to 361 (97%) in post-test (Table 2).

Figure 1 shows out of 373 students, post test results showed 329 students (88.2%) were made aware that tobacco usage can cause various III effects like Mouth cancer, Lung cancer, Heart attack, Ulcer, Leukoplakia after the awareness session (Figure 1)

Table 3 determines the association after 2 weeks following awareness session between awareness about Ill effects of Tobacco usage and quit rate of NTP / SLT, the post-test results showed 66% of students who were using NTP/STP had quit it's use when compared 34% of students who did not quit and this proportion was statistically significant with p value < 0.039. (Table 3).

Figure 2 describes that students have developed Negative attitude towards Tobacco usage in any form after the awareness session (Figure 2).

Table -2: Comparison of Knowledge between pre-test and post-test among students (N=373)

Knowledge		PRE-TEST	POST -TEST
		Frequency	Frequency
		(Percentage)	(Percentage)
Ill effects	Aware about ill effects	362 (97%)	365 (98%)
	Not Aware about ill effects	11 (3%)	8 (2%)
Second Hand Smoking	Heard about SHS / PS	59 (16%)	346 (93%)
/ Passive smoking	Not heard about SHS / PS	314 (84%)	27 (7%)
Effect of Smoking	Only that person	29 (8%)	7 (2%)
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	Not Aware that it is possible to quit tobacco	211 (57%)	33 (9%)
Helpline Number for quitting Tobacco	Aware about Helpline number for quitting Tobacco	32 (9%)	361 (97%)
<u> </u>	Not Aware about Helpline number for quitting Tobacco	341 (91%)	12 (3%)

^{*}SHS – Second Hand Smoking, PS – Passive Smoking, COTPA – Cigarettes and Other Tobacco Products Act

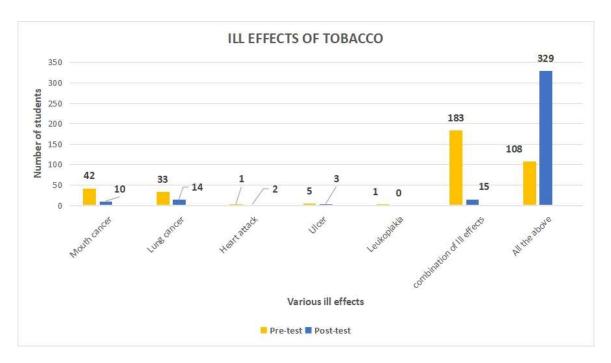


Figure 1. Pre-test and post-test comparison of Knowledge about Ill effects of Tobacco usage (n=373)

Table 3. Association between awareness about Ill effects of Tobacco usage and Number of students who quit NTP / SLT in post-test (N=69)

	1	1	()	
Awareness of Ill effects of	Quit use of NTP / SLT		Significance	
			P value (chi- square)	
Tobacco usage	Yes	No		
Yes	43 (66%)	22 (34%)	0.039 (6.509)	
No	2 (50%)	2 (50%)		
	_ (5 5 7 5)	2 (0 0 / 3)		

^{*}Using chi square, significant if p value is < 0.05

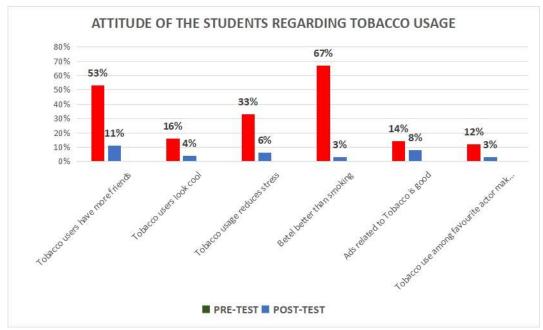


Figure 2. Attitude of the students regarding Tobacco usage (N=373)

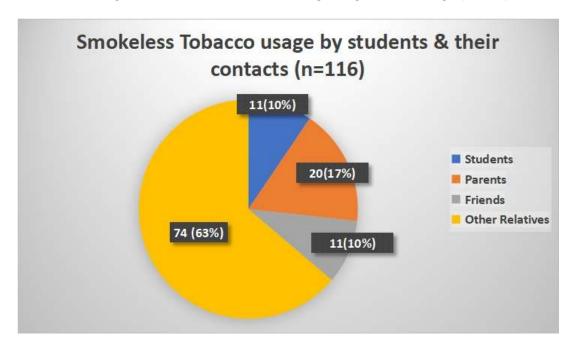


Figure 3. Smokeless Tobacco usage by Students and their Contacts (n = 116)

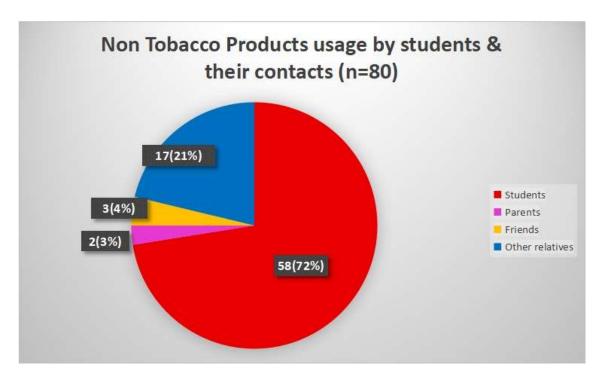


Figure 4. Non-Tobacco Products usage by Students and their Contacts (n=80)

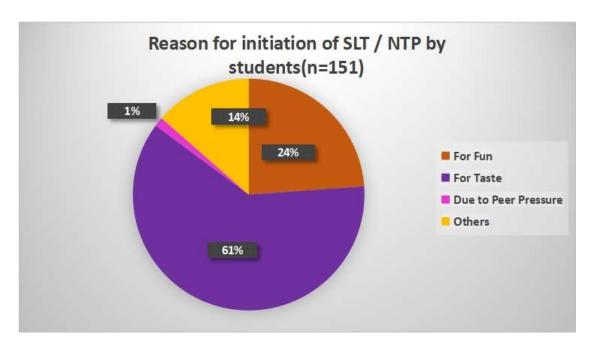


Figure 5. Reason for Initiation of Smokeless Tobacco and Non-Tobacco Products (n=151)

Figure 3 shows the use of smokeless tobacco by students and their contacts (n=116). It was found that 74 (63%) was among relatives, 20 (17%) by parents followed by 11 (10%) by friends and 11(10%) by students themselves (Figure 3).

Figure 4 determines the Usage of Non-Tobacco Products among students and their contacts (n=80). Results shows that 58 (72%) students use NTP, 17 (21%) by relatives, 3 (4%) by friends and 2 (3%) by parents (Figure 4).

The reason for initiation of NTP/SLT by students is explained in Figure-5 (n=151). It shows that majority of students 94 (61%) had tried it for taste, 37 (24%) for fun, 2(1%) due to peer pressure and 18 (14%) due to other causes (Effect of mass media/social media, since it is easily available, Because of family members compulsion) (Figure 5).

Discussion

People in India are addicted to nicotine in various forms. This study focuses on the KAP related to tobacco use and the impact of the interventions on KAP. Among 373 students participated the mean age was 13 years whereas another study done by Patel PR et al (4) found that the Mean age for use of tobacco products was 9 years. Majority were boys 57 % (213) and 43% (160) were girls. Of 373 students 365 (98%) felt that it was harmful to health in post-test which is similar to study done by Rangey et al. [9] was around 84%. Parental use of Smokeless Tobacco and Non-Tobacco products were second highest among family members and friends which supports the results of study done by Ravishankar et al. [10] where it states that Parental Tobacco status especially place of use had a significant influence on adolescents experimenting tobacco.

Majority of students 79% came to know about Tobacco from social media /

Mass media that is similar to study done by Rangey et al. [9] that showed around 78% had seen tobacco warnings in media. 98% (366) students accepted that Tobacco contribute to Environment pollution and contamination in post-test.

Long term use of Non tobacco products may lead a path to consumption of tobacco products in future. But in our country NTP consumption is not restricted for any particular age groups and it is accepted as social habit. Here in this study the NTP intake among 373 participants was 16% (58) compared to study done by Patel et al. [4] where the NTP consumption rate is 36.5%.

The reason for initiation of NTP and SLT in our study is for taste (61%) followed by for fun (24%). Study by Patel et al. [11] concluded that reason for initiation of tobacco as Economic problems (66.8%) followed by problems in family (64.7%) and problems with friends or near one (60.3%).

In a study of Patel et al. [4], it was found that the quit rate of SLT and NTP was 48.5% after intervention. In our study the quit rate was 66% after awareness session. Varying quit rate in our study as compared to other study could be due to level of understanding of students which invariably depends on their intellectual abilities and high-level advent of social media in students' life.

Conclusion

This study shows that maximum students were aware about the ill effects of tobacco usage and students developed a negative attitude towards tobacco use after awareness session. Tobacco uses among family/friends kindle the students to take tobacco products. This information must be conveyed to the parents to make a behavioural change among them and their children. School-based tobacco (smoking

and smokeless) prevention programs for community awareness can be planned only if we know the current frequency of student's using it and their knowledge regarding tobacco. This study will help in implementation of Policy, Planning and creating Tobacco free Environment that helps in reducing the morbidities related to tobacco.

Limitations of the Study

The study was conducted only in one private school of Rural in our city so generalisability of results to Government schools and Urban in our city could be compromised. There could be under reporting of its usage as tobacco use is a sensitive issue to be reported at the first instance.

Strength of the Study

Since the initiation of SLT and NTP begins in their school life, this study is an opportunity to create awareness among budding students as early as possible in their life

Recommendation

- 1. It is recommended to increase the number of tobacco awareness programmes in schools and colleges.
- 2. Addictions to drugs and other substances like Tobacco, Alcohol and their ill effects should be added in their curriculum as a part of school-based education.
- 3. Specific training for teachers in Tobacco cessation program and knowledge of smokeless tobacco should be done as they play a pivotal role in molding a child's behaviour.
- 4. Involvement of parents in the schoolbased tobacco cessation programme as parental smoking is not only

- detrimental to the parents but also to the children.
- 5. Author Contribution Reinforcement of the message regarding the prevention of initiation of SLT and non-tobacco products among adolescents is indeed need for the country. This study will thus carve the path for policy making and implementation in future.

Statements and Declarations Conflicts of interest

The authors declares that they do not have conflict of interest.

Funding

No funding was received for conducting this study.

Ethics approval

Research Committee and Institutional Ethics Committee (No:112/SVMCH/IEC-Cert/October23 dated on 13.10.2023).

Human and animal rights

This article does not contain any studies with human participants or animals performed by any of the authors.

Informed consent

For this type of study formal consent is not required.

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