

A STUDY ON TOBACCO USE AMONG RURAL ADULTS

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BACKGROUND: Tobacco is one of the leading causes of morbidity and premature death though ironically it is preventable. Recently tobacco use has increased in India where about 3/4ths of population lives in rural areas in whom, level of knowledge and awareness about the deleterious effects of tobacco is very low. A clear understanding of reasons leading to increased tobacco use is very important. In view of this, the present study was undertaken to find out the prevalence, attitudes towards tobacco use, prevalence of certain tobacco related oral health problems and their association with tobacco use. **MATERIALS & METHODS:** This study was as a cross sectional study conducted in 14 villages in Tamilnadu among adults (≥ 19), both males and females and sample size was 654. Simple Random Sampling Technique was employed. A structured questionnaire was developed and house-to-house survey was conducted. Informed consent from the participants and approval of Institutional Ethics Committee of Sri Ramachandra University, Chennai were obtained. **RESULTS:** In this study, 69.6% of the respondents were in the age group of 31-60 years and 57.0% belonged to middle socio-economic status. The overall prevalence of tobacco use (both smoking and smokeless form of tobacco) was 46% (95% CI 42.2% -49.8%) and the highest prevalence of tobacco use was found in the age group of 31-60 years accounting to 48.6% (95% CI 44.0-53.2). 18.6% of current users of tobacco and 2.5% of non users of tobacco had oral ulcers with odds ratio of 8.7 ($p < 0.001$). It was found that only 58.4% of the total study subjects and 56.5% of current users of tobacco were aware of tobacco control Act and 53.5% of the total study subjects and 48.2% of current users of tobacco felt the need to make the Act more strict and stringent. **CONCLUSION:** To reduce the tobacco use in the society, the approach includes increasing the awareness about ill effects, tobacco control policies and treating the individuals with tobacco dependence. Not only is the designing of strict legislation or policies is important but also increasing the awareness about such policies in population especially rural population is very important.

KEY WORDS: Smoking, Smokeless form of tobacco, Tobacco Control Act.

INTRODUCTION: Tobacco is one of the leading causes of morbidity and premature death though ironically it is preventable¹. Throughout most of the human history, tobacco use has been present in one form or the other and it has been used for one reason or the other. In some segments of the society, it is socially accepted. Tobacco has got deleterious effects on all systems of the human body and in spite of knowing this fact, it is used mainly because of addiction².

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In the recent past tobacco use has increased drastically thereby leading the tobacco industry as a major source of revenue to a majority of nations and also a root cause of various catastrophes to human health. Tobacco use has declined in high income, developed countries and increased attention has turned towards its growth in middle and low income countries². The reasons for the above mentioned reversal of scenario may be increased awareness among public, increased and intensified health education programs and political commitment³. These reasons are very important because if a clear understanding of the above mentioned reasons is obtained, they can be modified to our social and cultural needs and can be applied to our population. As our country India is concerned, due to transitional economy and changing life styles, tobacco use is increasing which is of particular concern. In one of the studies, it is estimated that 65% of men and 35% of women consume tobacco³.

World Health Organization (WHO) estimates show that tobacco use will prematurely kill ten million people per year 2020 if current trends are not reversed⁴. Estimates show that tobacco deaths in India may exceed 1.5 million annually by 2020 if necessary steps are not taken to curb the tobacco use⁵. About 3/4ths of Indian population lives in rural areas where the level of knowledge and awareness about the deleterious effects of tobacco is very low. Though there are studies on the prevalence and different patterns of tobacco use, only a very few studies have been done in rural parts of India. In view of this, the present study was undertaken to find out the prevalence of tobacco use in adult population in a rural area, attitudes towards tobacco use, prevalence of certain tobacco related oral health problems and association between tobacco use and certain oral health problems.

MATERIALS AND METHODS: This study was as a cross sectional study with both descriptive and analytical components. It was conducted in 14 villages falling under 3 randomly selected sub-centers under Thirunindravur Primary Health Center (PHC), Thiruvallur district, Tamilnadu which is about 30 kms from Chennai. The data was collected over a period of 3 months extending from 02/03/2008 to 15/06/2008. The study subjects were adults (aged 19 and above), both males and females selected from 3865 families residing in the study area. Sample size was calculated using the formula $1.96^2PQ/L^2$ in which the Limit of accuracy was 15% of probable prevalence and the required sample size was 654. Another 10% of calculated sample size was added to take care of any refusal to participate in the study. Out of 3865 families residing in the selected 14 villages, 720 families were selected by Simple Random Sampling technique. One adult subject (either male or female) was selected from each family by lottery method.

A structured questionnaire was developed using Global Youth Tobacco Survey (GYTS) as basis and necessary changes were done to suit the objectives of this study. House-to house survey was conducted and the questionnaires were filled using personal interview method. Informed consent was obtained from the participants. Subjects who have completed 19 years and above, those who were mentally sound at the time of the interview (who were able to make rationale decisions) and those who were willing to give consent were included in the study. Those subjects who were in an inebriated condition at the time of the interview and those who were not willing to give consent were excluded from the study.

A 15 day training was undertaken in the Department of Public Health Dentistry, Sri Ramachandra Dental College, Chennai to develop skills in identifying and diagnosing certain tobacco related oral health problems. The data was collected in a pre-tested proforma and analyzed using statistical program SPSS 15. Frequencies, proportions and 95% confidence

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interval were calculated. Sub-group analysis was done for the prevalence and chi-square test was calculated as statistical test of significance. Odds ratio was calculated with 95% confidence interval to find the association between tobacco users and tobacco related oral health lesions. This study was approved by Institutional Ethics Committee of Sri Ramachandra University, Chennai.

RESULTS: The study was done on 654 subjects, of which majority of the respondents were in the age group of 31-60 years (69.6%) and belonged to middle socio-economic status (57.0%). This study shows that 74.8% of the respondents had education up to secondary level and 75.5% of the respondents were males. Table 1 depicts the socio demographic characteristics of the study population. The overall prevalence of tobacco use (both smoking and smokeless form of tobacco) was 46% (95% CI of 42.2% to 49.8%) and the highest prevalence of tobacco use was found in the age group of 31-60 years accounting to 48.6% (95% CI 44.0 to 53.2). The prevalence of tobacco use was much higher among males (53.4%) compared to females (23.1%) and the difference was found to be statistically significant ($p < 0.05$). Out of 301 current users of tobacco, 38 subjects (12.6%) were using both smoking and smokeless form of tobacco. The most common form of tobacco consumption in smoking form was beedi (54.6%) and in smokeless form it was Pan Masala (44.9%). On comparing the prevalence of current smoking between males and females, it was found that all the smokers were males and none of the females smoked but the prevalence of current users of smokeless form of tobacco was 25.9% and 23.1% among males and females respectively. Table 2 shows the details regarding the prevalence of tobacco use in different groups.

It was found that 18.6% of current users of tobacco and 2.5% of non users of tobacco had oral ulcers with odds ratio of 8.7 which was found to be statistically significant ($p < 0.001$). Only 0.3% of non tobacco users had Sub-mucosal Fibrosis and 13.6% of current users of tobacco had Sub-mucosal Fibrosis and the odds ratio was calculated to be 55.5 which was found to be statistically significant ($p < 0.001$). In case of leucoplakia, 41.9% of the current tobacco users and only 3.4% of non users of tobacco had leucoplakia with odds ratio of 20.5 which was found to be statistically significant ($p < 0.001$). Table 3 shows the details about the association between tobacco use and certain oral health problems. Among current smokers, the most important reason to start smoking was "for Fun" accounting to 42.5% followed by "Peer pressure" accounting to 39.7%. Majority of smokeless form of tobacco users (35.8%) stated that they started using it for a wide variety of reasons like tooth ache, for common cold, as an attempt to stop smoking etc.. About 48.3% of current smokers and 31.6% of current users of smokeless form of tobacco have tried in the past to quit the habit and in both the groups; the most important reason to quit was "to improve health". Table 4 shows the details about the various reasons to start and quit the usage of different types of tobacco. Regarding the awareness of "Tobacco Control Act", it was found that only 58.4% of the total study subjects and 56.5% of current users of tobacco were aware of the Act. It was found that 53.5% of the total study subjects and 48.2% of current users of tobacco felt the need to make the Act more strict and stringent.

DISCUSSION: The rural population from which the study subjects were selected formed a heterogeneous lot because of varied socio cultural background, educational status and occupations. This ensures to a great extent the external validity of the study. The prevalence of tobacco use (both smoking and smokeless forms) in this study is 46% which is similar to the

study conducted in Gujarat⁶. The results of this study differ with the results of the study conducted by S.V.Subramanian et al⁷ wherein the overall prevalence of tobacco consumption was 32.9%. This may be because the study conducted by S.V Subramanian et al included both urban and rural population whereas the present study included only the rural population but when the prevalence of tobacco use among rural population alone is considered, it is close to the present study's overall prevalence. This study shows that tobacco use starts at a young age and as the age advances, the prevalence rate is increasing with the highest prevalence of tobacco use (48.6%) in the age group of 31-60 years which is similar to a study conducted by Rani et al⁸. The prevalence of tobacco use among males and females in the current study differs with NFHS-3 survey where the prevalence of tobacco use in rural population is 61% in males and 13% in females. This may be because NFHS survey includes the whole country which means in some areas prevalence may be very high and in some areas prevalence may be very low. In this study the prevalence of tobacco use was 53.4% among males and 23.1% among females and these results are in concordance to the study conducted by D.V.Bala et al⁶. In the present study it was found that all smokers were males and none of the females smoked but on comparing the prevalence of current users of smokeless form of tobacco in both sexes, it was observed that 25.9% of males and 23.1% of females were current users of smokeless form of tobacco. Similar to other studies conducted in India, this study also shows that the prevalence of tobacco use increases as the Standard of Living Index goes down^{7,8}. Our study shows that there is a strong inverse relation between educational status and tobacco use and this is similar in study conducted by D.V Bala et al⁶.

Oral diseases continue to be one of the major health problems both in developed and in developing countries and the most common oral diseases are dental caries, periodontal disease, tooth loss, oral mucosal lesions, oro-dental trauma, oro-pharyngeal cancers and HIV/AIDS related oral diseases. In the present study, certain oral Mucosal lesions like Oral ulcers, Sub Mucosal Fibrosis and Leucoplakia were studied. In the present study, it was found that the prevalence of oral ulceration, Sub-mucosal Fibrosis, and leucoplakia were higher among tobacco users than non users and it is similar to a study conducted in Manipal⁹. All the oral health problems studied in this study showed high prevalence among males than in females which is similar to a study conducted in Chennai¹¹. Similar to other studies, the present study also showed a statistically significant association between tobacco use and certain oral health problems^{11,12,13}. Our study shows that Sub-mucosal Fibrosis is more prevalent among those who use smokeless form of tobacco and leucoplakia is more prevalent among smokers. These findings are in concordance with a study conducted in Chennai¹¹. The most common reason given to start smoking in this study was "For Fun" (42.5%) but a large proportion of smokeless form of tobacco users (35.8%) said that they started it for various reasons like to get relief from tooth ache, common cold, to fight dehydration while working in fields, as an alternative to quit smoking etc.. These reasons are not similar to the reasons mentioned in a study conducted in Gujarat¹² which was conducted among urban college students where the most common reason to start was " For the sake of adventure". Percentage of tobacco users who tried to quit the habit in the present study (48.3% of smokers and 31.6% of smokeless form of tobacco users) is lower than the percentage of the study subjects who tried to quit in the study conducted by Dhirendra N Sinha et al¹³ (59.1%) among students. This may be due to the fact that present study comprises of rural population with lower range of educational status and awareness. In the present study, of the smokers who tried to quit the habit, for 69% of them, the reason was to "Improve health". All the current smokers were aware of the fact that smoking is harmful to

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health and also all of them felt that discontinuing the habit will be good and will lead to improve their health and socio-economic conditions. Out of current users of smokeless form of tobacco who had tried to quit the habit, for 79% of them, the reason was “to improve health”. Out of all the current users of smokeless form of tobacco, 97.6% of them felt it is harmful to health but 2.4% felt it is not harmful to health. This is mainly because of lack of awareness about the ill effects of different types of tobacco.

In the present study 58.4% of the total study subjects were aware of “Tobacco Control Act” and 53.5% felt the need to strengthen the Act and make it more stringent which is not in concordance to a study conducted among school personnel by Dhirendra N Sinha et al¹⁴ wherein it was found that 97.6% of study subjects were willing to have a strict policy. It is very clear that not only is the designing of such strict policies is important but also increasing the awareness about such policies in the population, especially in the rural population is very important.

CONCLUSION: Given that tobacco harms every organ in the human body coupled with its addictive properties, it is dangerous psycho active drug. To reduce the tobacco use in the society, the approach includes increasing the awareness about ill effects, tobacco control policies and treating the individuals with tobacco dependence. This approach of treating tobacco dependence at the individual level is difficult and results may not be encouraging. So the most appropriate approach to reduce the prevalence of tobacco use will be intensive health education programmes to vulnerable groups like rural population, school based tobacco prevention programs, banning tobacco products in public places, stopping the tobacco companies from different marketing strategies like giving advertisements in mass media, sponsoring events like sports etc. Health professionals and communities need to take on the active support role in helping individuals and communities to stop tobacco use and advocate strong legislation. Not only is the designing of strict legislation or policies is important but also increasing the awareness about such policies in population especially rural population is very important. Only then will this scourge of humanity will stop taking its toll.

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Table 1: Socio Demographic characteristics of the respondents.

VARIABLES	NUMBER (n)	PERCENTAGE (%)
Age		
19-30	137	20.9
31-60	455	69.6
>60	62	9.5
Sex		
Males	494	75.5
Females	160	24.5
SLI		
High	91	13.9
Middle	373	57.0
Low	190	29.1
Education		
Illiterate	117	17.9
Primary & Secondary Education	489	74.8
Diploma & above	48	7.3
Occupation		
Unemployed	33	05
Housewives	22	03.4
Semi-skilled & Skilled	419	64.1
Professionals	180	27.5

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Table 2: Details regarding the prevalence rates of tobacco use.

Variables	Number (n)	Smoking			Smokeless form of Tobacco			Overall Prevalence		
		Prevalence	95% C.I	Pvalue	Prevalence	95%C.I	P value	Prevalene	95%C.I	P value
Age Group										
19-30	137	23.4	16.3-30.5	>0.05	29.2	21.6-36.8	>0.05	43.1	38.4-51.4	>0.05
31-60	455	28.6	24.4-32.7		25.5	21.5-29.5		48.6	44.0-53.2	
>60	062	19.4	09.6-29.2		14.5	08.8-14.5		33.9	22.1-45.7	
Sex										
Males	494	35.2	29.3-41.1		25.9	22.0-29.8	>0.05	53.4	49.0-57.8	<0.05
Females	160	00	00		23.1	16.6-29.6		23.1	16.6-29.6	
SLI										
High	091	16.5	08.9-24.1	<0.05	08.8	02.9-14.6	<0.05	22.0	13.5-30.5	<0.05
Middle	373	24.1	19.8-28.4		22.8	18.6-27.1		42.6	37.6-47.6	
Low	190	36.3	29.5-43.1		37.9	31.0-44.8		64.2	57.4-71.0	
Education										
Illiterate	117	20.5	13.2-27.8	<0.05	31.6	23.1-40.0	<0.05	48.7	39.6-57.8	<0.05
Primary & secondary education	489	29.4	25.4-33.4		25.6	23.2-40.0		48.3	43.8-52.8	
Diploma & above	048	12.5	03.1-21.9		06.3	-0.6-13.2		16.7	06.1-27.3	
Occupation										
Unemployed	033	21.2	07.3-35.1	<0.05	21.2	07.3-35.1	>0.05	39.4	22.7-56.1	>0.05
Housewives	022	00	00		36.4	16.3-56.7		36.4	16.5-56.7	
Semi skilled & skilled	419	26.3	22.2-30.4		23.9	19.0-27.2		44.6	39.9-49.3	
Professionals	180	31.7	24.8-38.6		27.8	21.3-34.3		51.7	44.4-59.0	

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Table 3: Association between Tobacco use and Certain Oral Health Problems.

Oral Health Problems	Prevalence in the current users of tobacco		Prevalence in Non-users of tobacco		Odds Ratio	95% C.I	P value
	Number (n)	Percent %	Number (n)	Percent %			
Oral Ulcers	56	18.6	09	2.5	8.7	4.2-17.9	<0.001
Sub-Mucosal Fibrosis	41	13.6	01	0.3	55.5	7.5-406.1	<0.001
Leucoplakia	126	41.9	12	3.4	20.5	11.0-38.0	<0.001

Table 4: Details regarding various reasons to start and quit the usage of different types of tobacco

Reasons	Current Smokers		Current users of smokeless form of tobacco	
	Number (n)	Percent (%)	Number (n)	Percent (%)
Reasons to start the habit				
Influence of a role model	02	1.1	03	1.8
Peer Pressure	69	39.7	39	23.6
Mental tensions	06	03.4	06	03.6
Started as Fun	74	42.5	58	35.2
Other Reasons (Ex: tooth ache, common cold etc.,)	23	13.3	59	35.8
Reasons to quit the habit				
To improve the health	58	69	40	77.0
Advice of family & friends	03	03.6	03	05.7
To save money	02	02.4	00	00
Other reasons (Ex: fear of god, fear of medical complications etc.,)	21	25.0	09	17.3