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Original Article

Dentistry Section

Tobacco Menace and Challenges in Quitting Tobacco in an Indigenous Population of Tamil Nadu: A Cross-sectional Survey

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ABSTRACT

Introduction: Tobacco usage is one of the leading causes of preventable death and morbidity all over the world. Many indigenous cultures are known to use tobacco as part of their religious or traditional rites. Such practices are usually initiated at a very young age and maintained lifelong in addition to being transmitted from generation to generation.

Aim: The aim of the present study was to evaluate tobacco use practices, awareness on health hazards of tobacco use, practice, success of quit attempts, and knowledge on tobacco cessation aids among a tribal population of Narikuravars in Chennai, Tamil Nadu.

Materials and Methods: A cross-sectional survey using a self-styled 14-item questionnaire was conducted from November 2018-December 2018 in two clusters of Narikuravar population in Chennai, Tamil Nadu. The questionnaire consisted of four parts. The first part consisted of three items to assess the awareness of health hazards of tobacco use, the second part consisted of two items to assess current tobacco use practices, the third part consisted of six items to assess quitting practices and factors that were challenging or led to relapse, the last item in this part of the questionnaire was partly open ended and assessed whether participants had motivated any other person to quit using tobacco and what were the reasons they cited in asking others to quit. The fourth part of the questionnaire consisted of three items to assess the awareness on the availability of professional help to aid in quitting tobacco, awareness on cessation aids and awareness on tobacco control laws in India. In addition to this the questionnaire also included assessment of demographic details such as gender, age, education status and occupation. A total of 130 participants over 15 years of age were included in the study following a cluster sampling technique. The principal investigator administered the questionnaire using face-to-face interviews. All the data were entered into Micro Soft Excel and frequency distributions for all the variables was tabulated.

Results: In this study, 56.2% of tribal people aged over 15 years were users of tobacco in smoking or smokeless form. Natural tobacco preparation with tobacco leaf, betel leaf, areca nut and slaked lime was the most common form of tobacco used by 57.5% of Narikuravars. Nearly half (49.3%) of Narikuravars had thought of quitting tobacco use but only 14.4% were able to successfully quit tobacco for at least six months without relapsing back to using. A majority of 97.6% of participants were unaware that professional assistance can be sought to help them quit tobacco use, likewise a majority of 91.5% of participants were unaware of the existence of pharmacological or non-pharmacological aids to assist them in quitting tobacco.

Conclusion: The present study demonstrated a relatively high awareness on health hazards of tobacco use among a tribal population of Narikuravars in Tamil Nadu. Nearly half of the users of tobacco wanted to quit the habit but a majority were unable to quit tobacco successfully. Knowledge and awareness regarding seeking professional assistance to quit tobacco and tobacco cessation aids was very poor among tribal people indicating the need for health education efforts in these areas, so as to enable tribal people to quit tobacco use more successfully.

Keywords: Gypsies, Habits, Relapse, Smoking, Smoking cessation aids, Tribes

INTRODUCTION

Public health scenario has progressed in all dimensions from British India to present day. The general populace has moved considerably well towards better health care due to concentrated efforts of the government. However, the health conditions of certain indigenous tribal communities remain non-satisfactory. The reason behind such discrepancy being that there is an inaccessibility to their hamlets and geographical areas of residence, and in other cases such communities are nomadic in nature. Leaving general healthcare apart, the awareness of these tribal people regarding various diseases and lifestyle practices conducive to maintain health remains poor [1].

Narikuravars constitute an indigenous gypsie population living in Tamil Nadu, the southernmost state of the Indian nation. Gypsies is a popular, collective term used to denote ethnic minorities whose people, in fact, belong to individual tribes. During British colonial rule they were stigmatised and placed under the Criminal Tribes Act of 1871. The narikuravars' original occupation was hunting, but owing to many prohibitions to hunting animals their occupation has shifted to selling beaded ornaments in today's world. The word Narikuravar is derived from the Tamil words 'Nari' which means jackal and 'kurava' which means people. This name was bestowed upon them because these tribes were especially known for their skills in hunting and trapping jackals (wild dogs). The fact that health inequalities are larger in marginalised segments of any community is a well-documented fact [2]. Owing to factors such as discrimination, poor literacy, barriers in accessing health care, prevailing tribal traditions and high self-medication practices among tribal people, it becomes complex to resolve inequalities that exist within these pockets of isolated communities by health education or by programmatic interventions instituted by the government [3-5].

Tobacco menace is a public health issue that is one of the most common causes of preventable death all over the world. Tobacco use leads to nearly 7.2 million pre-mature deaths each year globally, and according to the second round of the Global Adult Tobacco Survey (GATS), India 28.6% of adults aged 15 years or above use tobacco in any form [6,7]. Even though this percentage reflects an overall decrease in the prevalence rates of tobacco use in the country, it does not reveal the differences in the prevalence rates

that may exist in marginalised segments of a community such as the Narikuravars.

The World Health Organisations GATS survey is one of the most reliable sources of data on tobacco use prevalence in various countries. In India, the first round of GATS was conducted in 2009-2010 and the second round has been recently conducted in 2016-2017. According to this survey, the highest prevalence of tobacco use (41.4%) is noted among people aged 65 years and above. It was also found that smoking (12.3%) and smokeless tobacco use (23.4%) is higher among men than in women. In Tamil Nadu, a Tamil Nadu Tobacco Survey (TNTS 2015-2016) estimated the prevalence of tobacco use to be 5.2% out of which 4.3% of users were males. Among the 32 districts in Tamil Nadu, the highest prevalence was recorded in Pudukottai (19.9%) district and the lowest in Tanjavurdistrict (1.2%) [8]. With regard to tribes, a study conducted by Murugaboopathy V et al., found a high prevalence of both smoking and smokeless forms of tobacco among tribal people residing in Nilgiris, Tamil Nadu. In his study, it was also found that Bidi and Gutka were the most common forms of smoking and smokeless tobacco used by tribal people [9]. In another study conducted by Francis DL et al., chewing raw tobacco was found to be the most common form of tobacco use in tribal people in Yelagiri Hills, Tamil Nadu [10].

So far, the studies conducted in tribal people of India on tobacco use have assessed only the prevalence of tobacco use and have not assessed the awareness regarding tobacco cessation aids such as professional counselling, pharmacological and non-pharmacological aids. Also, attempts were not made in any previous study to assess the success of quitting tobacco among tribal people. To the authors' knowledge this is the first study that has been designed to assess the knowledge of health hazards of tobacco use, tobacco use practices, quit attempts and success of quit attempts, challenges faced while trying to quit tobacco, factors leading to relapse, and awareness regarding cessation aids and tobacco control laws in India. Hence, in addition to knowing the prevalence of tobacco use among indigenous people, this study helps to have a holistic understanding of tobacco menace in tribal people, and helps in identifying areas where health educational intervention are necessary, in eradicating the tobacco epidemic from these vulnerable and underserved communities.

MATERIALS AND METHODS

This study was a cross-sectional questionnaire survey conducted on a sample of 130 Narikuravars residing in Chennai, Tamil Nadu. The study was conducted from November 2018 – December 2018. Ethical approval for the study was obtained from the Institutional Review Board of SRM Dental College and Hospital. The sample size was estimated using the highest prevalence percentage of tobacco use for a covariate in a study done on tribal people of Madhya Pradesh by Verma P et al., [11]. The highest prevalence was noted among tribal people who had completed primary schooling which was 66.7%. Using this prevalence percentage, and assuming a finite population of 500 tribal people, 10% absolute precision, 99% confidence level and design effect of 1 for cluster surveys, the sample size was estimated to be 114 using Open Epi sample size calculator for estimation of sample size. Assuming a 20% non-response rate, the sample size was increased to 130. Participants were recruited into the study after explaining the purpose of the study and obtaining informed consent. Post-hoc power analysis with a prevalence percentage of 56.2% observed in the present study, 66.7% true proportion, 130 study subjects, and precision of 10% was found to be 80.2%. For the purpose of this study, three clusters of Narikuravars residing in three different areas of Chennai namely Avadi, Thirumullaiavoyal and Red Hills were identified. Following this, a cluster randomised sampling procedure was followed for selection of clusters. Two clusters out of three were selected randomly using lottery method.

The clusters that were selected were Avadi and Thirumullaivoyal. All individuals aged 15 years or above in both the clusters were included in the study. This age cut-off was based on GATS surveys conducted by WHO where prevalence of tobacco use is estimated for adolescent and adults above 15 years of age. In the TNTS (2015-2016), it was found that 25.7% of surveyed users of tobacco had initiated the practice before 18 years of age [8]. Hence, an age cut-off of 15 years or above was used in the present study. On such inclusion, a final sample size of 130 study subjects were obtained with complete responses to all the questions giving a 100% response rate. The study instrument was a self-styled questionnaire consisting of 14 questions that was framed and administered by the principal investigator to all the study participants through a face-to-face interview in the local vernacular language Tamil. The English version of the questionnaire was translated to Tamil version. The Tamil version was then back translated into English by a linguistic expert fluent in both Tamil and English. The back translated version was then compared with the English version to check that the questions were properly translated. The questionnaire consisted of four parts. The first part consisted of three items to assess the awareness of health hazards of tobacco use, the second part consisted of two items to assess current tobacco use practices, the third part consisted of six items to assess quitting practices and factors that were challenging or led to relapse, the last item in this part of the questionnaire was partly open ended and assessed whether participants had motivated any other person to quit using tobacco and what were the reasons they cited in asking others to quit. The fourth part of the questionnaire consisted of three items to assess the awareness on the availability of professional help to aid in quitting tobacco, awareness on cessation aids and awareness on tobacco control laws in India. All the questions except for the eleventh question were closed ended with dichotomous or multiple-choice answers. Skip patterns were used where appropriate. A skip pattern is a question or series of questions associated with a conditional response, that is some questions pertain only to certain subjects. For example, in this study subjects who answered no for the first question were not asked for a response to the second question. Likewise, question six to ten was administered only to participants who used tobacco in any form. [Annexure]

In addition to this, the questionnaire contained questions to assess the demographic characteristics of the study participants including age, gender, education status and occupation.

A pilot study was conducted among twenty-five members in the cluster that was excluded from the main study to assess the reliability of the questionnaire. These questionnaires were not included in the final analysis. The Cronbach's alpha for the tested 14-item questionnaire was found to be 0.88 showing a good degree of internal consistency and homogeneity between items. The face validity of the questionnaire was assessed by distributing the questionnaires to 20 dentists who were familiar with concepts related to tobacco use. The dentists were required to assess four characteristics namely ambiguity, comprehensibility, use of proper terms and relevance using a 5-point Likert scale ranging from one to 5 (1-not important, 2-somewhat important, 3-important, 4-very important, 5-highly important). Following this all questionnaires were collected and impact score of each item was calculated with a cut-off of >1.5 being considered as acceptable.

STATISTICAL ANALYSIS

Descriptive statistics was used to summarise the data. The data was entered into MS Excel and descriptive statistics including frequency distributions were calculated and tabulated for all the 14-items in the questionnaire. The open-ended question was analysed using frequency distribution of various responses given by the participants.

RESULTS

In this study, 60% (n=78) participants were females; the mean age range of the study participants was 29.7 years. Most of the participants were uneducated (53.1%) or had completed middle school (21.5%). Likewise, a majority of participants 46.2% (n=60) had no occupation and only 21.5% (n=28) of participants had a full-time occupation. [Table/Fig-1]. The frequency distributions for all the 14-items in the questionnaire are presented in [Table/Fig-2]. In the present study, an overwhelming majority of 86.2% (n=112) of Narikuravars were aware of the health hazards of tobacco use. About 75% (n=84) felt that using tobacco would result in lung cancer, 16.9% (n=19), 2.7% (n=3) and 5.4% (n=6) felt that using tobacco would result in oral cancer, heart attack or all the three diseases respectively. Eighty six percent of Narikuravars felt that smokeless tobacco was as harmful as smoking tobacco and 56.2% (n=73) were using tobacco in any form during the time of the study. In this study, 57.5% (n=42) used tobacco in a natural preparation of tobacco leaf, betel leaf, areca nut and slaked lime.

(Total, N=130)	n	Percentage (%)
Gender		
Males	52	40%
Females	78	60%
Age in years		
15-30	70	53.9%
31-60	41	31.5%
61 and above	19	14.6%
Education status		
Uneducated	69	53.1%
Completed primary school	23	17.7%
Completed middle school	28	21.5%
Completed high school	10	7.7%
Occupation		
Full-time occupation	28	21.5%
Part-time occupation	42	32.3%
Nil	60	46.2%

[Table/Fig-1]: Demographic details of the study participants.

Among users of tobacco, 49.3% (n= 36) answered that they have thought of quitting tobacco use in the past. Out of this, 58.4% (n=21) answered that they had tried abstaining from tobacco use. Among these participants who tried abstaining from using tobacco, only 14.4% (n=3) were successful in quitting for more than six months' time and did not relapse back into using. A vast majority of participants (57.1%, n=12) felt that withdrawal symptoms were the biggest challenge encountered when they attempted to quit tobacco and also identified it to be the most important factor that led to relapse.

The eleventh question was partly open ended, participants who answered yes to having motivated others to quit using tobacco were asked about the advice/reasons they gave to motivate others to quit tobacco use. Many participants (76.9%, n=100) stated that they motivated others to quit citing the health hazards of tobacco use while some others stated that they did not like the smell of tobacco products. A small number of participants (9.2%, n=12) stated that they motivated people to quit because using tobacco would result in harm to the children or family members of the user.

A majority of 97.6% (n=127) of study participants were unaware that professional help can be sought to assist tobacco users to quit, and 91.5% (n=119) were unaware about pharmacological or non-pharmacological aids to cessation. Eighty percent (n=104) participants were aware about the existence of regulations against tobacco products in India.

[Table/Fig-3] shows the comparison of studies conducted on tobacco consumption in tribal people in India [11-14].

Question 1					
Are you aware of the health problems that could result from using tobacco?	Yes	No			
	112 (86.2%)	18 (13.8%)			
Question 2*					
If you think there are health problems, what problems do you think would occur?	Lung cancer	Oral cancer	Heart disease	All the above	
	84 (75%)	19 (16.9%)	3 (2.7%)	6 (5.4%)	
Question 3					
Do you think smokeless tobacco is less harmful than smoking tobacco?	Yes	No			
	17 (13.1%)	113 (86.9%)			
Question 4					
Are you a current user of tobacco?	Yes	No			
	73 (56.2%)	57 (43.8%)			
Question 5					
If so, what form of tobacco do you use?	Cigarette	Bidi	Paan/Hans/Paan masala	Gutka	Other smokeless tobacco
	0 (0%)	10 (13.8%)	21 (28.7%)	0 (0%)	42 (57.5%)
If not, have you ever thought of using tobacco?	Yes	No			
	27 (47.4%)	30 (52.6%)			
Question 6*					
Have you thought of quitting tobacco use?	Yes	No			
	36 (49.3%)	37 (50.7%)			
Question 7*					
If so, have you tried abstaining from tobacco use?	Yes	No			
	21 (58.4%)	15 (41.6%)			
Question 8*					
How successful were you at abstaining from tobacco use?	Was able to quit for six months and did not relapse	Was unsuccessful in quitting even for a month	Was successful in quitting for a month and then relapsed back to using		
	3 (14.4%)	14 (66.6%)	4 (19%)		

Question 9*					
What are the challenges you faced while trying to quit tobacco use?	Peer pressure	Withdrawal symptoms	Lack of social support	Tempted on seeing others use	
	3 (14.4%)	12 (57.1%)	0 (0%)	6 (28.5%)	
Question 10*					
If you tried quitting and did not succeed, what was the factor that led to your relapse?	Withdrawal symptoms	Peer pressure	Challenging circumstance in life	Stress relief	On seeing others continue using
	14 (66.6%)	0 (0%)	0 (0%)	0 (0%)	7 (33.4%)
Question 11					
Have you motivated anyone else to quit tobacco?	Yes	No			
	111 (85.4%)	19 (14.6%)			
Question 12					
Are you aware that professional help can be sought to assist a person to quit tobacco use?	Yes	No			
	3 (2.4%)	127 (97.6%)			
Question 13					
Do you know of any medications that could help you quit tobacco?	Yes	No			
	11 (8.5%)	119 (91.5%)			
Question 14					
Do you know of any regulations that exist with regard to tobacco use in India?	Yes	No			
	104 (80%)	26 (20%)			

[Table/Fig-2]: Frequency distribution of responses of participants on the 14-item questionnaire used in the survey.
*Indicates skip pattern used in the questionnaire

Author	Year	Study Cite/Population	Results Obtained
Narayan DD et al., [12]	2011	Tribal adolescents in Maharashtra	45.42% overall prevalence of tobacco use Most common form of tobacco used was smokeless tobacco (89.91%) Social customs were found to be the most influencing factor for tobacco use
Dongre AR at al., [13]	2008	Adolescents in rural Wardha	39% overall prevalence of tobacco use Peer pressure emerged as the most important factor associated with tobacco use
Verma P et al., [11]	2017	Rural district of Madhya Pradesh	43.38% overall prevalence of tobacco use Most common form of tobacco used was khaini (68.3%)
Anjali S et al., [14]	2017	Cholanaicken and kattunaicken tribal groups of Nilambur forest, Kerala	43.8% overall prevalence of tobacco use

[Table/Fig-3]: Comparison of studies conducted on tobacco consumption in tribal people in India [11-14].

DISCUSSION

Tobacco epidemic is known to be one of the major contributors of preventable mortality in the world. Despite two decade long efforts to curtail tobacco consumption, tobacco use is still prevalent in many adolescents and adults all over the world. Among tobacco users, tribal people have been found to have high rates of using smokeless and smoking tobacco in many studies done in India [9,10]. However, studies that assess concomitant factors such as attitudes to quitting, success in quitting tobacco, factors leading to relapse and knowledge regarding cessation aids are rarely reported in context of tribal people. Hence, this study was done to bridge the gap that exists in these areas for a more holistic understanding to tobacco menace in tribal population.

In the present study, the prevalence of tobacco use in Narikuravars in any form was found to be 56.2%. This is somewhat similar to results obtained by Zahiruddin QS et al., who found the prevalence of tobacco use in any form to be 54.45% in adolescents residing in six tribal villages of Wardha district, Maharashtra [15]. The same study also found the prevalence of using smokeless tobacco to be 23.14% whereas in the present study the prevalence of using smokeless tobacco was found to be 57.5% which is comparatively higher. The discrepancy can be explained based on the fact that Zahiruddin QS et al., study was conducted among adolescents aged 11 to 19 years and among young adolescents using cigarettes or any other form of smoking tobacco products is considered much more fashionable than using smokeless forms to tobacco.

In the present study, 86.2% of Narikuravars knew about the health hazards of tobacco use. This percentage is similar to that found in a study conducted by Imtiaz D et al., who found that 87.4% of current tobacco users in rural areas of Dehradun district knew about the health hazards of tobacco use [16]. Likewise, Nicholson AK et al., study on Aboriginal smokers in Australia found that 94% of smokers were aware that tobacco use causes lung cancer, and 89% were aware that smoking causes heart disease [17]. In the present study, most of the Narikuravars (75%) were aware that smoking tobacco causes lung cancer, 16.9% were aware that chewing tobacco products can cause oral cancer. However, only 2.7% of participants knew that tobacco use can result in heart disease and 13.8% felt that there were no health risks associated with using tobacco.

The relatively high awareness on health hazards of tobacco usage even among indigenous people such as the Narikuravars can be attributed to mass media campaigns and stringent legislative actions taken by the Government of India to tackle tobacco epidemic in the country. In the present study, even the proportion of patients who answered that they felt there were no health risks in using tobacco made the statement in a lethargic fashion stating that there were health risks in everything, fate determines one's chances of falling ill and not due to genuine unawareness about the health risks of using tobacco.

In the present study, nearly half (49.3%) of current users of tobacco stated that they had thought of quitting in the past. Among these participants, 58.4% had tried abstaining from tobacco use. The questions on tobacco cessation in the present study were structured based on the Prochaska and Di Clemente's stages of change model where individuals pass through various stages while attempting to change behaviour [18]. A person is said to be in the action stage if they have been able to change behaviour for a month. In the maintenance stage, the new behaviour has been adopted and

continued for a period of six months. A person may relapse to the previous behaviour at any stage in the stages of change model.

In the present study, a participant in the maintenance stage who had successfully quit tobacco for six months and did not relapse to use again at the time of the study period was considered to be successful in quitting. In using such criteria, only 14.4% participants were successful in quitting tobacco in the present study, whereas, a majority of 66.6% of Narikuravars failed in their attempts at quitting and could not quit tobacco successfully even for a month.

A previous review done by Di Giacomo M et al., on smoking cessation in indigenous populations of Australia, New Zealand, Canada and United States have revealed that smoking cessation interventions were successful when they were tailored according to an indigenous community after identifying enabling factors and barriers to quitting [19].

In the present study, 97.6% of study participants were unaware that professional help can be sought in assisting a person to quit tobacco. In addition, 91.5% of study participants were unaware of any medications that could help a person to quit tobacco. In the present study, the term medications were used broadly to include all pharmacological and non-pharmacological aids to tobacco cessation. Cowie N et al., study on Maori and Pacific Islander parents of pre-adolescent children in Auckland, New Zealand revealed that 78% of parents had awareness about nicotine gum and 75% of parents were aware about nicotine patch as aids to tobacco cessation [20]. In the present study, only 8.5% of Narikuravars knew about the existence of pharmacological or non-pharmacological aids to tobacco cessation, and even in this 8.5% awareness regarding the specific forms of Nicotine Replacement Therapy (NRT) was vague and inadequate.

Eighty percent of Narikuravars in this study knew about the existence of legislation against tobacco products in the country. Again, the participants were unaware of the specific conditions or prohibitions existing in regards to tobacco in the country.

However, as far as we know this is the first study that has tried to understand the tobacco use practices along with other factors such as; whether the indigenous users had thought of quitting tobacco in the past, whether they had made any actual efforts to quit, whether they were successful if they did make a quit attempt. In addition, challenges to quitting were identified along with factors that led to relapse among users who made a quit attempt and relapsed back to using. Di Giacomo M et al., review clearly states the need for identifying factors that act as facilitators and barriers to quitting tobacco for any cessation intervention to be successful in an indigenous population [19]. The awareness on seeking professional help to assist in quit attempts, pharmacological and non-pharmacological aids to cessation and tobacco control laws among these indigenous people was also assessed in this survey. This study can be used as a foundation to conduct more intense research on tobacco epidemic in this sub-set of indigenous population in Tamil Nadu.

LIMITATION

The limitations of this study were that this study was a cross-sectional survey and did not use any interventions either in the form of cessation counselling, NRT or other pharmacological aids to assess whether these interventions could prove to be successful in helping Narikuravars who used tobacco to quit. Assessment of level of nicotine dependence among users and exhaled carbon monoxide measurements to confirm the status of non-users were not done in this study. As this study relied completely on the answers of the participants to determine whether they were tobacco users or not, social desirability bias may have prompted participants to answer that they were non-users. Likewise, social desirability bias may have made participants to project themselves as successful in their quit attempts. Future studies could include larger samples of tribal people in addition to incorporating objective measures to assess status of tobacco use.

CONCLUSION

From the findings of this study, it is clear that tobacco consumption is higher among the indigenous population of Narikuravars residing in Chennai, Tamil Nadu when compared to national prevalence estimates from the second GATS survey. A majority of study participants were aware of the health risks of tobacco and nearly half of current users of tobacco had thought of quitting in the past. Only a very few participants had success in quitting tobacco. The awareness on seeking professional assistance to quit and cessation aids to quit was poor. This study reveals that targeted and community-based approaches must be designed to improve knowledge on tobacco cessation, so that indigenous people may benefit from tobacco cessation interventions tailored specifically to them.

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Annexure

Question 1 Are you aware of the health problems that could result from using tobacco?
Question 2* If you think there are health problems, what problems do you think would occur?
Question 3 Do you think smokeless tobacco is less harmful than smoking tobacco?
Question 4 Are you a current user of tobacco?
Question 5 If so, what form of tobacco do you use? If not, have you ever thought of using tobacco?
Question 6* Have you thought of quitting tobacco use?
Question 7* If so, have you tried abstaining from tobacco use?
Question 8* How successful were you at abstaining from tobacco use?
Question 9* What are the challenges you faced while trying to quit tobacco use?
Question 10* If you tried quitting and did not succeed, what was the factor that led to your relapse?
Question 11 Have you motivated anyone else to quit tobacco? If you have motivated someone to quit tobacco, what were the reasons you gave for asking them to quit? ----------
Question 12 Are you aware that professional help can be sought to assist a person to quit tobacco use?
Question 13 Do you know of any medications that could help you quit tobacco?
Question 14 Do you know of any regulations that exist with regard to tobacco use in India?