Assessment of Prevalence and Pattern of Tobacco use Amongst Adult Population in Bidadi - A Cross-Sectional Survey

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Abstract

Aim: The study aimed to take a glance at the patterns of tobacco use, prevalence and to assess the attitude towards tobacco cessation amongst the residents of Bidadi Karnataka, India.

Methods: A community-based cross-sectional study was conducted amongst the 18-60 years aged population. 800 adult population from Bidadi district was selected by a three-stage sampling technique. A validated structured questionnaire was used for data collection.

Results: 33.87% were daily smokers, 61.10% never smoked, while 5% were less than daily users. 72.5% of the participants were past smokers while 27.5% never smoked daily in past. The majority of the population has used manufactured cigarettes (63.07%) followed by beedi (23.79%). There was a statistically significant difference seen (p<0.05) with regards to tobacco use. Current tobacco smoking and smoking tobacco daily in the past was statistically significant with different age groups. However, there was no statistically significant difference seen with smokeless tobacco. (p<0.05) There was a statistically significant difference seen with cessation of tobacco and different age groups.

Conclusion: Prevalence of tobacco consumers in the Bidadi area was found to be high and awareness regarding the ill effects of tobacco was poor. A false perception of well-being among users was higher. Poor and illiterate individuals living in the rural area are at the maximum risk of ill effects of tobacco use.

Keywords: Tobacco, prevalence, Bidadi population, smoking, smokeless

Introduction

The tobacco epidemic is one of the biggest public health threats the world has ever faced.[1] According to the World Health Organization (WHO) tobacco is the second major cause of death worldwide and is currently responsible for about 5 million deaths each year. This figure is expected to rise to about 8.4 million by the year 2030, with 70% of those deaths occurring in developing countries. Eighty-two percent of the world's 1.1 billion smokers now reside in low- and middle-income countries where, in contrast to the declining consumption in high-income countries, tobacco consumption is on the rise.[2]

The estimated number of tobacco users in India is 274.9 million, with 163.7 million users of only smokeless tobacco; 68.9 million are exclusive smokers and 42.3 million users of both smoking and smokeless tobacco. Nearly two in five (38%) adults in rural areas and one in four (25%) adults in urban areas use tobacco in some form.[3] One-fifth of all worldwide deaths attributed to tobacco occurs in India, more than 8 lakh people die and 12 million people fall ill due to tobacco each year.[4]

In India, tobacco consumption pushes approximately 150 million people into poverty. Tobacco users who die prematurely deprive their families' income, education, and health care pushing them further into the cycle of poverty.[4] Study shows that Smoking prevalence was high in illiterates and literates with less than seven years of schooling, but decreased significantly with the increase in education status after attaining secondary education and more. Occupation is one category highly relevant to social disparities in health. People in manual occupations were more likely to smoke than those in professional or supervisory occupations.[3]

Global Adult Tobacco Survey (GATS) is a nationally representative household survey that was developed to provide a global standard protocol for consistent monitoring of adult tobacco use. It is designed to produce national and sub-national estimates on tobacco use, exposure to second-hand smoke, and quit attempts among adults across countries and indirectly measure the impact of tobacco control and prevention initiatives.[5] Thus, the study aimed to access the prevalence and pattern of tobacco use and the knowledge, attitude and effectiveness of tobacco cessation among Bidadi population.

Materials and Methods

A community-based cross-sectional study was conducted to assess the prevalence and pattern of tobacco use among the adult population in Bidadi, Karnataka, India. The scientific and ethical clearance was obtained from the Institutional Review, Scientific and Ethical committee of Rajarajeswari Dental College and Hospital, Bangalore. Individuals who were willing to participate and were aged 18 years and above were included in the study. Patients who did not wish to participate were excluded from the study. Pilot study was done before conducting the actual survey to evaluate the feasibility of the study as well as any potential issues and also special attention was given to verbal and non-verbal responses by the participants and time is taken to complete the questionnaire.

Considering the prevalence of tobacco use as 38% among adults, with a relative precision of 5% the required sample size for assessing the prevalence and pattern of tobacco use among adults was calculated to be 800. Three-stage sampling was adopted for the selection of households. The

primary sampling units were wards, secondary sampling units were the census enumeration villages and tertiary sampling units were households. At the first stage, the list of all the wards from Bidadi town formed the sampling frame from which a required sample of wards, i.e., primary sampling units, were selected using probability proportional to size sampling. In a second stage, a list of all census enumeration villages in every selected ward formed the sampling frame from which one village was selected by the proportion of population size (PPS) from each selected ward.

In the third stage, a list of all the residential households in each selected census enumeration villages formed the sampling frame from which a sample of the required number of households was selected. After obtaining informed consent, the data was collected by a team of two investigators to achieve consistency. Data was collected by interviewing the participants using a structured questionnaire adapted from the Global Adult Tobacco Survey (GATS 2nd Edition) [5] core questionnaire. Information was collected on their demographic profile, use of tobacco, knowledge about ill effects on health, and attitude towards tobacco cessation.

Statistical Analysis

The data was entered and analyzed using the Statistical Package for Social Sciences (SPSS) for Windows 26.0. (SPSS, Inc. Chicago, Illinois) Confidence intervals were set at 95%, and a p-value $\leq$ of 0.05 was considered as statistically significant. Descriptive statistics was applied for demographic details. Chi-square test was applied to compare the patterns of tobacco use with smoking status, smokeless tobacco, and cessation.

Results

51% of the participants were in the age group of 18-30 years. 73.25% of the participants were males and 26.75% were females. Among all the participants, 56% had completed their primary and high school education. 19% of the participants completed their Pre University Course (PUC) and 25% of the participants completed their graduation and post-graduation degrees.

Amongst participants, 33.87% were daily smokers, 61.10% never smoked, while 5% were less than daily users. 72.5% of the participants were past smokers while 27.5% never smoked daily in past. The majority of the population has used manufactured cigarettes (63.07%) followed by beedi (23.79%). (Table 1) There was a statistically significant difference seen (p<0.05) with regards to tobacco use. Current tobacco smoking and smoking tobacco daily in the past was statistically significant with different age groups. (Table 2) However, there was no statistically significant difference seen with smokeless tobacco. (p<0.05) (Table 3)

There was a statistically significant difference seen with cessation of tobacco and different age groups. (p<0.05) (Table 4)

Discussion

Tobacco use in children and adolescents is reaching pandemic levels. The World Bank has reported that nearly 82,000–99,000 children and adolescents all over the world begin smoking every day. About half of them would continue to smoke to adulthood and half of the adult smokers are expected to die prematurely due to smoking-related diseases. The GATS-India study is unique in the fact that it has estimated globally accepted key tobacco (smoking and smokeless) indicators for the first time in India using standardized techniques of the Global Adult Tobacco Survey. The prevalence estimated by this study is significantly higher than that estimated in the past studies. (including NSS and NFHS) Overall prevalence was estimated to be 30% in the NFHS study whereas it has been estimated at 35% in the GATS-India. According to

GATS India 2009-2010, the mean age at initiation of daily tobacco use for tobacco users is 17.8 years.[7]

The present study substantiated these findings, and a sharp rise in tobacco use prevalence was observed as participants entered adulthood from adolescence.[3] In a cross-sectional sample survey conducted by the ICMR and WHO on 35,288 persons aged 10 years and above in Karnataka and 29,931 in Uttar Pradesh, a negative association between education and tobacco use was observed overall and in most of the age groups.[8-10] Tobacco use by the least educated is in large measure practiced in ignorance of the health consequences and a desire for a low-cost source of pleasure and satisfaction. Another study conducted in the western Indian state of Rajasthan showed that in the illiterate subjects the odds ratios and 95 percent CIs for smoking or tobacco use as compared to the highest educational groups in rural as well as larger urban studies were significantly greater.[11]

The prevalence of tobacco users in this study was 38.8%. The finding of this study is consistent with the Global adult tobacco survey (GATs) India.[12] Kaur P et al[13] and Gupta V et al[14] found similar prevalence in their studies. Almost same finding was reported in NFHS-3.[15] The prevalence in our study (38.8%) was found to be higher than the United States (21.6% Centers for Disease Control)[16] and lower than China. (52.9% Harris et al)[17] This prevalence of tobacco smoking was found to be similar with the previous studies conducted by Annadurai K et al.[18] (36.7%) and Kaur P et al.[13] (36%). However, in the studies conducted by Gupta V et al.[14] and Rani M et al.[19] the prevalence was found to be higher than the present study. It is also noteworthy that, on comparing this data with studies conducted in some foreign countries, it was found to be higher than that found in America[16] (21.6%) and lower than that in China.[17] (52.9%)

In the current study, when the subjects were asked if they had ever attempted to quit smoking in the past 12 months, majority 64.3% of participants had not tried quitting while 35.7% of participants reported having tried quitting smoking. This result was in accordance with the study conducted by Dixit AM et al[20] where almost one-fourth of the subjects had tried to quit smoking but had not succeeded. The current study underscores the individual and joint effects of education and gender on tobacco use. It also emphasizes the variations in patterns of using tobacco based on gender, which was also found to determine the type of tobacco product used. Cigarette use was found to be decreasing with increasing education status. In order to reduce the interviewer bias, data collection was done using the standardized GATS questionnaire, maintaining the same amount of time for each respondent and ensuring that the investigators were trained to administer the questionnaire in the same manner for all the respondents.

The GATS[21] questionnaire proved helpful in doing so by dividing the information under the sections of tobacco status, tobacco consumption, smokeless tobacco use, exposure to second-hand smoke, cessation, anti-cigarette information, Cigarette Advertisements, and Economics related to cigarette purchases. It has also helped to mark a differentiating line among the smokeless tobacco users as well as the smoking tobacco users. Many factors influence the use of tobacco by children and teenagers. Some of these are the family history of tobacco use by elders, peer influence, experimentation, easy access to such products, personality factors, underlying emotional and psychological problems, accompanied risk-taking behaviors, and most importantly, the aggressive marketing strategies of the tobacco industry. Considering the enormous health hazards of tobacco usage, preventive strategies like early education, overall community

development, spreading awareness about the actual hazards of tobacco in the community especially among the vulnerable children and adolescents, curbs on the advertisement and promotional campaigns, early identification of the users and providing treatment, and legal actions should be utilized.

Conclusion

There are no nationwide data available in India on the exact extent of tobacco use among adolescents, although several surveys have been reported from different parts of the country. These show a general tendency towards an increase in tobacco use by the youth for the past few decades, with an emphasis on the use of smokeless tobacco. This is a matter of great public health concern. Psychosocial factors have an important role to play in the initiation of this habit. It has been observed that a large number of adolescents pick up this habit from their family members or peers. Advertisements of tobacco products and promotional campaigns by the manufacturers also play an important role in the initiation of the habit by adolescents. This has attracted the attention of health professionals, media, and law enforcement agencies. The local governments are also taking steps in putting curbs on the sales of tobacco products to children, and in regulating tobacco advertisements.

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Legend Tables

Table 1: Prevalence of tobacco amongst Bidadi population

Smoking Tobacco	
Current Tobacco Smoking Status	Percentage (%)
Daily	33.87
Less than daily	5
Not at all	61.10
Past Daily Smoking Status	
Yes	72.5
No	27.5
Frequency Distribution of Tobacco Products Smoked Per Day	
Manufactured cigarettes	63.02
Beedi	23.79
Any other	13.18
Smokeless Tobacco	

Current Smokeless Tobacco Use	
Daily	5.25
Less than daily	2
Not at all	92.8
Past Daily Smokeless Tobacco Use	
Yes	68.75
No	31.25

Table 2: Association of Tobacco Smoking Status and Pattern of Tobacco Use

Pattern of Tobacco Use	Age Groups (Years)					p-value
Current tobacco smoking status	18-30	31-40	41-50	51-60	>60	
Daily	18.62	4	4.5	4.87	1.87	.001*
Less than daily	1	0.75	1.5	0.87	0.87	
Not at all	31.37	11.25	11	6.12	1.37	

χ^2 = 19.6, df=1, Chi-square test; $p<0.05$ considered Statistically significant

Past daily smoking status						
Have you been smoking tobacco daily in the past?	18-30	31-40	41-50	51-60	>60	p-value
Yes	15	7.5	20	15	15	
No	5	7.5	10	2.5	2.5	0.001*

χ^2 = 96.4, df=1, Chi-square test; $p<0.05$ considered Statistically significant

Table 3: Association of Smokeless Tobacco Status and Pattern of Tobacco Use

Pattern of Tobacco Use	Age Groups					p-value
Current smokeless tobacco use status	18-30	31-40	41-50	51-60	>60	0.1
Daily	2.87	1.75	1.12	0.25	0	
Less than daily	0.5	0.5	0.76	0.25	0	
Not at all	47.8	14.1	15.5	11.1	4.1	

χ^2 = 7.76, df=1, Chi-square test; $p>0.05$ Statistically not significant

Past daily smokeless tobacco status						
Have you used smokeless tobacco daily in the past?	18-30	31-40	41-50	51-60	>60	p-value
Yes	6.2	18.7	31.2	12.5	0	
No	18.7	6.2	6.2	0	0	0.11

χ^2 = 7.51, df=1, Chi-square test; $p>0.05$ Statistically not significant

Table 4: Association of Cessation and Pattern of Tobacco Use

Cessation methods	Age Groups					p-value
Attempting to quit smoking						
During the past 12 months have you tried quitting smoking?	18-30	31-40	41-50	51-60	>60	.001*
Yes	11.2	10.6	7.7	4.5	1.6	
No	40.8	1.6	7.7	10.2	5.4	
χ^2 = 78.5, df=1, Chi-square test; *p*<0.05 considered Statistically significant						
Visiting a doctor						
Have you visited a doctor or other healthcare provider in the past 12 months?	18-30	31-40	41-50	51-60	>60	p-value
Yes	9.9	10.2	3.8	4.5	1.6	.001*
No	40.5	1.9	11.5	10.2	5.4	
χ^2 = 89.5, df=1, Chi-square test; *p*<0.05 considered Statistically significant						
Receiving cessation advice from a doctor						
During any visit to a doctor or healthcare provider in the past 12 months, were you advised quitting smoking tobacco?	18-30	31-40	41-50	51-60	>60	p-value
Yes	32.9	34.4	12.7	4.8	31	.001*
No						
χ^2 = 41.3, df=1, Chi-square test; *p*<0.05 considered Statistically significant						