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International Journal of Current Research
Vol. 8, Issue, 01, pp.25511-25514, January, 2016

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

PREVALENCE OF TOBACCO AND ALCOHOL USE IN A RURAL POPULATION OF TAMIL NADU, INDIA

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ARTICLE INFO

Article History:
Received 06th October, 2015
Received in revised form
18th November, 2015
Accepted 14th December, 2015
Published online 31st January, 2016

Key words:

Prevalence,
Tobacco,
Alcohol,
Rural area.

ABSTRACT

Background: Tobacco and alcohol use are serious public health problems in many countries including India because of the associated health hazards. In contrast to urban areas, there are relatively few data on the prevalence of risk factors among rural population in various age-groups from Tamil Nadu. So, a study was conducted to estimate prevalence of tobacco and alcohol use in a rural population in Tamil Nadu, India.

Methods: A cross sectional was carried out over a period of one year from August 2010 to July 2011 in the field practice area of PSG Rural Health Centre, Neelambur attached to the Department of Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore. Data collection was done by semi-structured, semi-open ended interview-based questionnaire.

Results: Out of 1464 study participants, 244 (16.7%) were smokers. Smokeless tobacco usage was found in 168 (11.5%) study participants whereas 191 (13%) were using Beedi and 85 (5.8%) were using Cigarette. Alcohol consumption in the last 12 months was found in 207 (14.1%) study participants. Among those consuming alcohol, most of them were consuming Beer 176 (85%) followed by Rum 54 (26.1%) and Whiskey 40 (19.3%).

Conclusions: prevalence of tobacco and alcohol use was high in this rural population proximal to urban area in Tamil Nadu. There is an urgent need for health promotion campaigns to raise awareness regarding risk factors such as smoking, alcohol, overweight and encourage adoption of healthy lifestyles.

Citation: **Palanivel Rajan and Varun Kumar, 2016.** "Prevalence of tobacco and alcohol use in a rural population of Tamil Nadu, India", *International Journal of Current Research,* 8, (01), 25511-25514.

INTRODUCTION

Tobacco and alcohol use are emerging as serious public health problems in many countries and it is associated with various health hazards. Using tobacco either in smoke and smokeless forms as well as alcohol are causing vast spectrum of diseases, many of which could result in death. (Gupta and Sinha, 2004) Globally, approximately, 47% of men and 12% of women smoke. In developing countries, 48% of men smoke compared with 7% of women while, in developed countries, 42% of men and 24% of women smoke. (http://www.who.int/substance_abuse/facts/tobacco/en/print/html) The World Health Organization (WHO) has estimated that 4.9 million deaths (8.8%) and 59.1 million disability-adjusted life years (DALYs) (4.1%) were attributable to tobacco every year.

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Unless the current trends are reversed, the figure is expected to rise to 10 million deaths per year by the 2020s or early 2030s, with 7 million of these deaths occurring in developing countries, mainly in China and India. According to the *World Health Report 2002,* among industrialized countries, where smoking is common, the habit is estimated to cause over 90% of lung cancer in men and about 70% of lung cancer among women. Also, in these countries 56%–80% and 22% were attributable to chronic respiratory disease and cardiovascular diseases respectively. (World Health Organization, 2002) Coronary artery disease (CAD) prevalence is reported to be 8-10% in urban and 3-4% in rural India. The results of the recent national survey indicated that the prevalence of tobacco was higher, both among males and females among rural as compared to urban population. Recent studies from select rural populations indicated a high prevalence of smoking, overweight and hypertension. (International Institute for Population Sciences, 2007) Tamil Nadu has a population of 62 million and 44% of them are living in urban areas. It ranked

among the five states with highest human development index and had rapid rise in the GDP in past decade. Socioeconomic development and urbanization have set off the epidemiological transition in the state. The study conducted by Indian Council of Medical Research (ICMR) on the mortality pattern in Tamil Nadu has shown that 25% of the deaths were due to circulatory system diseases. (Indian Council of Medical Research, 2009) In contrast to urban areas, there are relatively few data on the prevalence of risk factors among the rural population in various age-groups from Tamil Nadu. So, we conducted a study to estimate the prevalence and risk factors associated with tobacco and alcohol use in a rural population in Tamil Nadu.

MATERIALS AND METHODS

Study design

A cross-sectional was carried out over a period of one year from August 2010 to July 2011 in the field practice area of PSG Rural Health Centre, Neelambur attached to the Department of Community Medicine, PSG Institute of Medical Sciences and Research, Coimbatore. Three village panchayats were selected from the list of 7 village panchayats of the field practice area based on the predominant occupational profile of its residents. They were Neelambur (predominantly industrial), MG.Pudur (predominantly agricultural) and Rasipalayam village (predominantly agricultural and industrial).

Study population

The complete list of all residents eligible for the study was drawn from the voters list. All the eligible persons aged ≥ 18 years were included in the study. House to house visit was made in the morning and in the evening time to enrol all the members of the family. If an adult member of a household was either non-responsive or could not be contacted even after 3 visits, he/she was excluded from the study. Finally, data was collected from 1464 individuals.

Data collection methods

Semi-structured, semi-open ended interview-based questionnaire was administered by the investigator and his team that received one-day training for administering the questionnaire. It was pre-tested and modified suitably to factor in cultural and local influences. The questionnaire was designed to collect information regarding socio-demographic profile (age, sex, education, work status, family type, family size, monthly family income, etc.) and smoking as well as alcohol patterns were enquired. Data analysis was done using SPSS 17.

Ethical issuses

The study was conducted after getting approval from Institutional Ethical Committee (IEC). Informed written consent was taken from each study subject before administering the questionnaire. Health education and counselling were given about the harmful effects of using tobacco and alcohol.

RESULTS

The village-wise distribution of the study population was given in Table 1. There were 755 study subjects in Neelambur, 498 were from M.G. Pudur while 211 were from Rasipalayam. In all the three villages, women formed the majority study population. Overall, persons in the age-group 25-34 years constituted the major bulk. Socio-economic statuses were determined by Modified B.G. Prasad's classification 2008. The majority of the adults studied belonged to socio-economic class III and IV. Three-fourth of the study subjects in all the three villages was married. (Table 1) Out of 1464 study participants, 244 (16.7%) were smokers. Smokeless tobacco usage was found in 168 (11.5%) study participants whereas 191 (13%) were using Beedi and 85 (5.8%) were using Cigarette. Among the study participants using tobacco, most of them initiated when they were between 15-20 years of age.

Table 1. Distribution of study population according to socio-demographic data (N=1464)

S.No	Socio-demographic data		Neelambur Number (%)	M.G. Pudur Number (%)	Rasipalayam Number (%)
1.	Gender	Male	319 (42.3)	224 (44.9)	94 (44.5)
		Female	436 (57.7)	274 (55.1)	117 (55.5)
2.	Age group	18-24	88 (11.7)	59 (11.8)	32 (15.2)
		25-34	172 (22.8)	104 (20.9)	42 (19.9)
		35-44	144 (19.1)	104 (20.9)	38 (18.0)
		45-54	123 (16.3)	94 (18.9)	47 (22.3)
		55-64	99 (13.1)	69 (13.9)	30 (14.2)
		≥ 65	129(17.1)	68 (13.7)	22 (10.4)
3.	Education	Illiterate	184 (24.4)	134 (26.9)	35 (16.6)
		Literate	571 (75.6)	364 (73.1)	177 (83.4)
4.	Occupation	Unemployed/ House wife	402 (53.2)	258 (51.8)	93 (44.1)
		Employed	353 (46.8)	240 (48.2)	118 (55.9)
5.	S-E status	1	75 (9.9)	34 (6.8)	24 (11.4)
		2	172 (22.8)	109 (21.9)	43 (20.4)
		3	313 (41.5)	174 (34.9)	73 (34.6)
		4	179 (23.7)	171 (34.3)	66 (31.3)
		5	16 (2.1)	10 (2.0)	5 (2.3)
6.	Marital status	Unmarried	94 (12.5)	48 (9.6)	32 (15.2)
		Married	560 (74.2)	394 (79.1)	156 (73.9)
		Divorced	2 (0.3)	0 (0.0)	0 (0.0)
		Widowed	95 (12.6)	54 (10.8)	23 (10.9)
		Separated	4 (0.6)	2 (0.4)	0 (0.0)

Table 2. Distribution of study population according to tobacco smoking (N=1464)

S.No	Socio-demographic data		Smoking		p-value
			Present (%)	Absent (%)	
1.	Gender	Male	244 (38.3)	393 (61.7)	
		Female	0 (0)	827 (100)	0.000
2.	Age group	18-24	16 (8.9)	163 (91.1)	
		25-34	44 (13.8)	274 (86.2)	
		35-44	46 (16.1)	240 (83.9)	0.000
		45-54	66 (25)	198 (75)	
		55-64	36 (18.2)	162 (81.8)	
		≥ 65	36 (16.4)	183 (83.6)	
3.	Education	Illiterate	37 (10.5)	316 (89.5)	
		Literate	207 (18.6)	904 (81.4)	0.000

Table 3. Distribution of study population according to alcohol usage (N=1464)

S.No	Socio-demographic data		Alcohol usage		p-value
			Present (%)	Absent (%)	
1.	Gender	Male	207 (32.5)	430 (67.5)	
		Female	0 (0)	827 (100)	0.000
2.	Age group	18-24	19 (10.6)	160 (89.4)	
		25-34	47 (14.8)	271 (85.2)	
		35-44	41 (14.3)	245 (85.7)	0.099
		45-54	49 (18.6)	215 (81.4)	
		55-64	29 (14.6)	169 (85.4)	
		≥ 65	22 (10)	197 (90)	
3.	Education	Illiterate	33 (9.3)	320 (90.7)	
		Literate	174 (15.7)	937 (84.3)	0.003

The mean age at initiation of tobacco use was 17.5 years (SD = 8.2 years). Tobacco usage was found exclusively among males, persons less than 50 years (p-value = 0.000) and persons who have completed secondary education and above (p-value = 0.000). (Table 2) Alcohol consumption in the last 12 months was found in 207 (14.1%) study participants. Among those consuming alcohol, most of them were consuming Beer 176 (85%) followed by Rum 54 (26.1%) and Whiskey 40 (19.3%). Alcohol consumption was found predominantly in males (p-value = 0.000), persons less than 50 years (p-value = 0.000) and lower socio-economic class (p-value = 0.021). (Table 3)

DISCUSSION

Our study described the burden of tobacco and alcohol use in a rural population in South India. The burden of cardiovascular risk factors reflects epidemiological transition even in the rural population in Tamil Nadu, which is classified as middle to late transition state based on various health indicators. (Narayana, 2008) Prevalence of smoking among males was high, particularly among less educated and manual workers. This was consistent with a national survey that showed that rural males had higher smoking and alcohol use as compared to rural females, urban males and females. (International Institute for Population Sciences, 2007) In contrast to smoking, smokeless tobacco use was observed both among males and females. Smokeless tobacco use was higher among old, widowed and manual worker females. Various studies from rural areas of India reported smokeless tobacco usage among 3-53% men and 3-49% women. High prevalence of alcohol use is also consistent with several community- and hospital-based surveys that reported increasing prevalence of alcohol use in the country including Tamil Nadu. Similar to tobacco use, alcohol use was also higher in vulnerable groups such as manual workers and less educated males in our study population. Tamil Nadu has a unique scenario where the government is the sole distributor of alcohol with a wide network of sales outlets and administered pricing. This has likely led to increase in alcohol consumption as seen with an increase in the revenue in the state in past few years. (Isaac, 1998) Health promotion programs at the community level and through mass media with socio-culturally appropriate messages can help raise awareness among rural population. This should be supplemented by effective implementation of policy interventions such as smoke-free public places that were recently launched in India. (http://www.mohfw.nic.in/smoke%20free%20rules.pdf) The strength of our study is that this is one of largest studies from rural population where gender- and age-specific prevalence of risk factors was studied. Our study provides baseline data that can be used for planning interventions for control of cardiovascular disease. One of the relevant issues for public health policy is consideration of the fact that this population is socioeconomically underprivileged and has lower educational levels. Therefore, they may not be able to carry out behavioural modification interventions in the absence of enabling environment.

Hence, the prevalence of tobacco and alcohol use was high in this rural population proximal to an urban area in Tamil Nadu. There is an urgent need for health promotion campaigns to

raise awareness regarding risk factors such as smoking, alcohol, overweight and encourage adoption of healthy lifestyles. However, an enabling environment needs to be created by implementing relevant public policies to facilitate behavioural modification.

Declarations

Funding: No funding was obtained.

Conflicts of interests: We declare that there are no conflicts of interests regarding the publication of this paper.

Ethical approval: The study was approved by the Institutional Ethical Committee (IEC).

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