

Original Research Article

Prevalence, pattern and determinants of tobacco use among persons of tribal origin in a primary care centre in Wayanad, Kerala

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ABSTRACT

Background: Persons of tribal origin account for over a quarter of India's poorest people and also have a higher burden of disease attributable to adverse effects of tobacco use. Therefore, this study was planned in a health facility in Wayanad District to assess prevalence, pattern and determinants of tobacco use.

Methods: A cross-sectional study was conducted among the persons of tribal origin by interview method using a pretested semi-structured questionnaire in a primary care facility in Wayanad, Kerala. Minimum sample size was calculated to be 140; 524 persons of tribal origin were enrolled. The chi-square test, logistic regression was used to determine association between qualitative variables.

Results: Mean age of respondents was 42.52±16.95 years. The proportion of current tobacco users was found to be 39.1% (95% CI 34.9-43.4). Majority of respondents (90.2%) chewed tobacco, only 5.2% were smokers and 0.2% used other forms such as snuff. Of the tobacco users 81.95% had considered quitting. One in five persons, 19.9% used tobacco within 30 minutes of waking up. By logistic regression, men were found to be 2.59 times (95% CI 1.69, 3.97; p<0.001), illiterates 2.25 times (95% CI 1.51, .35; <0.001) and Paniya group 2.36 times (95% CI 1.6, 3.48) more likely to use tobacco.

Conclusions: A high prevalence of tobacco use, early initiation and dependency, are a challenge to tobacco control among the socially and economically vulnerable indigenous people. However, the desire and attempts made to quit tobacco can be leveraged for harm reduction and tobacco cessation among males, Paniyas and illiterate people.

Keywords: Prevalence of tobacco, Paniyas, Quit attempts, Tribal, Tobacco warnings

INTRODUCTION

Persons of tribal origin are among India's earliest inhabitants and account for over a quarter of India's poorest people.¹ Indigenous people all over the world have a higher burden of disease than their non-indigenous counterparts and contribute to disproportionate rates of

disability and a significant part of this disability can be attributed to adverse effects of smoking.² In India, called the scheduled tribes, they face more risks of ill health compared to other social groups and are also more likely to smoke and consume alcohol.^{3,4} This leads to poor health indicators among persons of tribal origin. Harsh physical environment, illiteracy, poor hygiene, sanitation

and malnutrition contribute to their vulnerability.¹ This is compounded by lack of awareness, inaccessibility to medical facilities and financial issues.¹

Wayanad has the largest tribal population in Kerala. The tribal communities of Kerala have been largely left out of the gains of the Kerala model of development and a majority of the tribes are Paniyas.⁵⁻⁷ The Paniya tribe, previously enslaved by upper castes, is extremely marginalized and deprived.⁸ They spend a significant proportion of their household income on alcohol and tobacco, which represents 17% of their total expenditure on food consumption.⁹

In addition to challenges of ill health, tobacco users who die prematurely, leave behind impoverished families and impede economic development.¹⁰ Any effort to curb tobacco use must begin with estimating its prevalence as well as pattern, especially among the most vulnerable tribal group. This study was therefore planned with the objective of assessing the prevalence, pattern and determinants of tobacco use among tribals attending a primary care centre

METHODS

A cross sectional study was conducted among the persons of tribal origin attending the out-patient department of a primary care facility in Kalpetta for two months during January-February 2015. Sample size was calculated based on a study in the same area which found the tobacco use to be 73.8%.¹¹

Using the formula $4pq/d^2$ with a beta error of 10% and at 95% confidence interval, the minimum sample size was calculated to be 140. The inclusion criteria included all the consenting persons equal to or more than 10 years who attended the OP in the two month period. The exclusion criteria included those who were cognitively impaired and very sick patients. The total number of study participants who gave consent totalled 524 and six persons refused consent. Data was collected using a semi structured, pretested questionnaire after obtaining informed assent and consent.

The study is a part of a service project to plan an intervention to reduce tobacco use and has been conducted according to the World Helsinki declaration and does not contravene the principles of Helsinki. Permission was obtained from the administrative authorities of the health centre. Adolescents were also considered for the study as the use of tobacco is high among them. The questionnaire consisted of different domains like use of tobacco, type of tobacco used, socio demographic details, age of initiation, attitude to quitting, numbers of quit attempts etc. The data obtained was coded, edited for data entry and analysed using SPSS version 20.

RESULTS

The mean age of the respondents was 42.52 ± 16.95 years and the age ranged from 10 to 83 years. Three fourths (74.4%) of the respondents were women. More than half (58%) belonged to the most marginalized group, Paniya followed by Mulla Kurumar and Kurichiya at 19.17% and 15% respectively. About a third (32%) of them were illiterate, 40% unemployed and 45% were unskilled workers. All of them practiced Hindu faith. Most of the respondents (65%) reported that at least one of their family members were using tobacco and more than half of them were chewing tobacco.

The proportion of current tobacco users was 39.1% (95% CI 34.9-43.4). Among the 50 adolescents in the study 9.5% used tobacco. The vast majority of the respondents (90.2%) chewed tobacco, only 5.2% were smokers and 0.2% used other forms such as snuff. One in three chewers used tobacco daily. The various reasons cited for initiating tobacco use were, common practice in family, neighbourhood and work place accounting for 74.1%, followed by relief of toothache, mouth odour by 14.6% and peer influence by 7.3%. A few other reasons cited included, to detach leeches by spitting tobacco on them, overcome cold and one person said that he used tobacco to overcome the stress of marriage.

About 81% used tobacco daily and 12.4% of them used it three times a day. Mean age of initiation of tobacco was 19.18 ± 8.33 years. Surprisingly, only a third (34.8%) agreed to the statement that tobacco use was harmful. Among those who agreed that tobacco is harmful, 84% thought that it causes diseases though they were unsure about the type of disease, 14.2% believed that it can cause cancer and 1.6% reported that it can cause cough and TB. The source of information regarding the harm of tobacco use was mostly from print and television media (32.2%) followed by others such as friends and relatives (8.2%).

A vast majority (81.95%) of the tobacco users reported that they had considered quitting. Among them 76.5% had made several attempts ranging from 1 to 10 to quit. The mean quit duration was 14.71 ± 72.58 days with a range from 0.5 day to 3 years. Eighteen years was also a response obtained but was not considered for calculating mean duration as such a person can be categorised as having quit. More than half, 126 (61.4%) resumed using tobacco due to various reasons such as craving on seeing others smoking or chewing tobacco, fatigue, mouth odour, tooth ache, peer pressure etc.

On one of the most pertinent questions on dependence as to how soon they started to use tobacco after waking up in the morning, 19.9% reported that they did so within 30 minutes and 59% did so after an hour. Only 1.5% of the tobacco users had observed warnings on tobacco products. Of them only 5.3% opined that these warnings were effective in preventing people from using tobacco.

Bivariate analysis showed that use of tobacco was significantly higher among men at 53.7% (p=0.001) though the use among women was also high at 34.4%. A significantly higher proportion of persons from Paniya group were tobacco users compared to other autochthonous groups at 48.4% (p<0.001). As expected, among illiterate persons tobacco use was significantly more at 51.5% (p=0.001). About 85% of tobacco users were also found to use alcohol (p=0.001). It was also observed that use of tobacco was marginally higher among the unemployed (40.4%) though this was not statistically significant.

Logistic regression was done by enter method. Men were found to be 2.59 times (95% CI 1.69, 3.97; p<.001) more likely to use tobacco than women and the illiterate were 2.25 (95% CI 1.51, 3.35; p<0.001) more likely to use tobacco compared to those who were educated. The indigenous group belonging to Paniya were 2.36 (95% CI 1.6,3.48) more likely to use tobacco compared to the other groups. Thus, these were the independent determinants of tobacco use in this community attending the primary care facility (Table 1, 2 and 3).

Table 1: Sociodemographic distribution of the study population.

Variable	Frequency	%
Age (in years)		
10-19	50	9.5
20-40	210	40.07
40-60	181	34.54
>60	83	15.83
Gender		
Male	134	25.6
Female	390	74.4
Education		
Illiterate	169	32.3
Literate	48	9.1
Primary, middle, high	230	43.9
Higher secondary	71	13.5
Graduate	6	1.1
Occupation		
Unemployed	208	39.7
Unskilled	234	44.7
Skilled	15	2.9
Home makers	31	5.9
Student	36	6.9
Types of tribes		
Paniya	306	58.4
Mullakurumar	100	19.17
Kurichiyas	79	15
Kattunaickar	18	3.4
Urali Kuruma	15	2.9
Karimbalan and Adiya	6	1.2
Religion		
Hindu	524	100
Tobacco use		
Yes	205	39.1
No	319	60.9
Type of tobacco used		
Smoking	19	3.6
Chewing	185	35.3
Others	1	0.2
Reasons for starting tobacco (n=205)		
Common practice at home, neighbourhood and work place	152	74.1
Toothache and mouth odour	30	14.6
Peer Influence	15	7.3

Continued.

Variable	Frequency	%
Hours to use of tobacco after getting up (n=205)		
Within 30 minutes	41	19.9
31-60 minutes	15	7.3
>60 minutes	149	72.6
Observed warning on tobacco packets (n=205)		
Yes	8	1.5
No	2	0.4
Don't know	195	97.1
Tobacco is harmful (n=205)		
Slightly agree	166	31.7
Agree	16	3.1
Don't agree	4	0.8
Disagree	2	0.4
Don't know	17	3.2
How is tobacco harmful (n=182)		
Cancer	25	4.8
Cancer, TB	1	0.2
Chest pain ,Cough	3	0.6
Diseases	153	29.2
Source of information (n=205)		
Friends	3	1.46
Relatives	14	6.8
TV-radio	57	27.8
Print media	9	4.3
Others	102	49.75
Ever thought of stopping tobacco use (n=205)		
Yes	168	81.95
No	37	18.04
What made you think of quitting (n=168)		
Disease	149	88.6
Relative advise	2	1.1
Health workers advise	8	4.7
Others	9	10.1
Quit attempts (n=205)		
None	48	23.4
1-6	116	56.5
>6	4	1.9
Restarted tobacco use (n=205)		
Yes	126	61.4
No	69	33.6

Table 2: Prevalence of tobacco use and risk factors.

Variable	Frequency N (%)	n	P value
Age (in years)			
≤42	97 (35.2)	275	0.06
>42	108 (43.3)	249	
Gender			
Male	72 (53.7)	134	<0.001
Female	134 (34.4)	390	
Education			
Illiterate	88 (52.1)	169	<0.001
Others	118 (33.2)	355	

Continued.

Variable	Frequency	n	P value
Occupation			
Unemployed	94 (39.7)	237	0.928
Others	111 (38.9)	285	
Tribe			
Paniya	147 (48.4)	306	<.001
Others	58 (26.6)	218	
Family members who smoke			
Yes	143 (40.9)	350	0.335
No	60 (36.1)	166	
Alcohol use			
Yes	34 (85)	40	<0.001
No	171 (35.33)	484	

Table 3: Independent determinants of tobacco use.

Independent determinants	OR	95% CI	P value
Illiterate	2.25	1.51-3.35	<0.0001
Male	2.59	1.69-3.97	<0.0001
Paniya	2.36	1.6-3.48	<0.0001

DISCUSSION

The overall prevalence of tobacco use was high at 39.1% (95% CI 34.9-43.4) in this study. This is comparable to a population based study in Madhya Pradesh among the indigenous population at 43.38%.¹² However, it was found to be much higher in a population based study in the same district at 73.8% and 81.5% among the Kani tribe in Thiruvananthapuram.^{11,13} In Assam among the Mishig tribe it was even more high at 84%.¹⁴ In this study, 90% were using chewable tobacco similar to a higher proportion of smokeless tobacco use in the studies from Madhya Pradesh and Wayanad ranging from 77.8% to 92%.^{11,12} Bidi was commonly used for smoking, while tobacco quids were the preferred smokeless tobacco. Tobacco quids were kept in the mouth and chewed. National household survey (NFHS) have also identified highest use of tobacco/pan masala among the scheduled tribe (ST) population and lowest among forward castes and other backward castes (OBC).¹⁵ Rani et al also found an increase in use of tobacco upto the age of 50 and a plateauing thereafter.¹⁵ Similarly, in this study there was a significantly increasing trend in use of tobacco till the age of 40 years and a decline thereafter (not in table, chisquare for trend p<0.001).

In the present study the mean age of onset of tobacco use was 19.18 years in comparison to 16.41 years for smoked and 17.53 years for smokeless forms in a study done in the same area.¹¹ The mean age of initiation of tobacco consumption in a study in Madhya Pradesh was even higher at 22.82 (±10.40) years and the minimum age of initiation of tobacco consumption was 7 years.¹² Tobacco dependency as indicated by the question as to within how many hours of waking up do you use tobacco 19.9% said that they used it within 30 min. A similar study among

the indigenous tribes of the area showed moderate dependency according to Fagenstrom nicotine dependency scores.¹¹

Among adolescents who formed a small proportion of the study, 9.5% used tobacco. However, this was much lesser than 45.4% among adolescents, in Maharashtra.¹⁶ The most important reason for using tobacco among adolescents was that it is a social custom and due to peer pressure. More than half (65%) of the respondents in this study reported that at least one of their family members use tobacco and the reason for initiation of tobacco use was similar in that it is part of culture and a very normative practice. Many studies in Kerala and other states found similar reasons for onset of tobacco use.^{11,14,16}

Only about a third of the tobacco users (31.7%), adults and adolescents were aware about the ill effects of tobacco use in this study. A significant proportion of adolescents (94.2%) were aware of the hazards of tobacco use, but most of them had either incomplete or incorrect knowledge.¹⁷ The most common disease due to tobacco use, as reported, were cough, tuberculosis, cancer, and asthma.¹⁷ In a study in Chennai among a gypsy, nomadic tribe, Narikuravars an overwhelming majority of 86.2% (n=112) were aware of the health hazards of tobacco use.¹⁸ This may be due to the fact that though they are originally tribal they live in the urban areas.

About a third (32.2%) of the tobacco users in this study said that they had considered quitting. Among them, 70.9% had made several quit attempts ranging from 1 to 10. In a study among tribals in Chennai, though half (49.3%) had thought of quitting, only 58.4% among them had actually made an attempt to quit.¹⁸ In the GATS survey of 2010, among the ever tobacco users, 42% made an attempt to quit tobacco, and of these 4,395 (42%) were successful.¹⁹ However, in this study, 61.4% resumed use of tobacco due to various reasons such as craving on seeing others smoking or chewing tobacco, fatigue, mouth odour, tooth ache, peer pressure etc.

Unfortunately, only 1.5% of the tobacco users had observed warnings on tobacco products. Of them only 5.3% thought that these warnings were effective in preventing people from using tobacco. This may be due to the fact that bidis are smoked which do not have warning signs and those who use smokeless tobacco as wads of tobacco or with betel leaf and slaked lime, which do not have warning signs. About a fourth (25.6%) of the adolescents in Maharashtra had observed the warnings but only 20.97% of them could interpret it correctly.¹⁷

Belonging to the masculine gender, being a Paniya and being illiterate were independent determinants of tobacco use. Men were found to be 2.59 times (95% CI 1.69-3.97; $p < 0.001$) more likely to use tobacco than women. This has been found to be the case in other tribes too with the use of tobacco being significantly higher at 94% among men and 73% among women.¹⁴ Even in the national surveys the prevalence of use of tobacco is higher among men at 47% and 14% among women.¹⁵

The indigenous group belonging to Paniya were 2.36 (95% CI 1.6-3.48) more likely to use tobacco compared to the other groups. Historically, Paniya tribes were bonded labourers and they continue to be extremely marginalized and deprived.⁹ About 17% of their total food expenditure is on tobacco and alcohol and they also have low levels of education with 57% of women and 46% of men having never been to school.⁸ Other studies in the area have also shown a high use (83%) of oral tobacco among Paniyas at 89.3%.²⁰

Illiterates accounted for 52% of the tobacco users and were 2.25 (95% CI 1.51-3.35; < 0.001) more likely to use tobacco and the general census revealed that 38% of the tribal population was illiterate.²¹ Tobacco use has been reported to be higher among the poor and less educated people.²² However, occupation was not found to be significantly associated with tobacco use in this study though it was marginally higher among the unemployed. The awareness that tobacco is harmful is only reported by a third of respondents, a third had thought of quitting and three fourths of them had made quit attempts. However, warnings on tobacco products were observed by only 1.5%.

As the study was carried out among tribals attending a primary care facility, participation was limited only to people who were available at the time of study which may not be truly representative of the tribals in the community. However, the larger than minimum sample size should reduce the external validity issues to some extent.

CONCLUSION

A high prevalence of tobacco use, with usage pattern indicating early initiation and dependency, presents a formidable challenge to tobacco control, especially as the tribals are vulnerable socially and economically. As many

are illiterate and use non-commercial forms of tobacco, conventional printed warnings may not be an appropriate control measure. However, the desire and attempts made to quit tobacco use can be used to the advantage of health educators, to propagate tobacco cessation programs among the males, Paniyas and illiterate people.

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