

Original Article

Tobacco Cessation Behavior Among Smoking and Smokeless Form Tobacco Users in the Indigenous Population of Ernakulam, India

Eby Aluckal¹, Civy Pulayath², Chithra P.³, M. S. Balakrishna⁴, Alexander M. Luke⁵, Simy Mathew⁶

¹Department of Public Health Dentistry, Mar Baselios Dental College, Kothamangalam, Kerala, India, ²Department of Public Health Dentistry, Malabar Dental College and Research Centre, Malappuram, Kerala, India, ³Department of Oral Medicine and Radiology, Malabar Dental College and Research Centre, Malappuram, Kerala, India, ⁴Department of Oral and Maxillofacial Surgery, Malabar Dental College and Research Centre, Malappuram, Kerala, India, ⁵Department of Surgical Sciences, College of Dentistry, Ajman University, Ajman, United Arab Emirates, ⁶Department of Growth and Development, College of Dentistry, Ajman University, Ajman, United Arab Emirates

Received : 29-01-2020.

Revised : 01-02-2020.

Accepted : 13-03-2020.

Published : 28-08-2020.

ABSTRACT

Purpose: Tobacco usage is the leading preventable cause of death in the world today. The tribes in Kuttampuzha region are the aboriginal tribal community found predominantly in the south Indian state of Kerala, India, and this study was conducted to identify tobacco cessation behavior in smoking and smokeless form of tobacco users among them. **Materials and Methods:** A cross-sectional design survey was conducted among 516 indigenous community people of Kuttampuzha area of Kerala, India, for the outcome of quit attempts made by the current tobacco users. The sociodemographic variables and tobacco user data collected were subjected to statistical analysis using Open Source R Software. **Results:** When considered the quit attempts among current smoking and smokeless form of tobacco users, a statistically significant difference was found in subjects who had quit attempts of 1 day or longer in the previous year ($P = 0.01$) than who were in groups of quit attempts more than 30 days or more than 6 months. Smokers had higher probability predicted of attempting quitting in comparison to smokeless form of tobacco users (odds ratio [OR] = 1.24, confidence interval [CI] = 1.09–1.39). The probability of doing a quit attempt was higher among users of tobacco who were having a comparatively higher socioeconomic status (OR = 1.30, CI = 1.12–1.48). **Conclusion:** This study provides useful insights into different determinants for quit attempts of tobacco users in South India, exploring the sociodemographic features of attempts to quit. International prevention and cessation initiatives will need to be customized to the social-cultural context of these primitive tribal areas of Kuttampuzha, Kerala, to help in prevention and cessation of tobacco usage.

KEYWORDS: Cessation, indigenous, sociodemographic, tobacco usage

INTRODUCTION

Tobacco usage is considered to be a very major health challenge in India as different products of tobacco are available in the market for use, which are known having various harmful effects. The total prevalence of tobacco usage in all the forms was higher in rural areas compared to urban areas (38.4%

and 25.3%, respectively) in India.^[1] As per the present statistics, 10 million deaths are expected to occur

Address for correspondence: Dr. Eby Aluckal, Department of Public Health Dentistry, Mar Baselios Dental College, Kothamangalam 686691, Kerala, India. E-mail: draluckal@gmail.com

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

For reprints contact: reprints@medknow.com

How to cite this article: Aluckal E, Pulayath C, Chithra P, Balakrishna MS, Luke AM, Mathew S. Tobacco cessation behavior among smoking and smokeless form tobacco users in the indigenous population of Ernakulam, India. J Pharm Bioall Sci 2020;12:S194-8.

Access this article online	
Quick Response Code: 	Website: www.jpbonline.org
	DOI: 10.4103/jpbs.JPBS_58_20

worldwide by 2030 due to tobacco usage, and the vast majority of this will be from the low-income countries.^[2] Moreover, according to the World Health Organization, the proportion of mortality from diseases related to tobacco usage will rise in India to 13.3% of all deaths in 2020.^[3,4] Tobacco causes a massive burden of morbidity and death leading to deteriorating effects. Tobacco use cessation has the ability not only to provide the great benefits of tobacco control but also to maximize the gains in terms of preventable disease mortality and morbidity.^[5]

The tribal population in India is the second largest one all over the world after the African countries. India occupies almost half of the world's indigenous people, and thereby India is the home to many tribes with varied and interesting history of origins, social norms, customs, and etiquettes. Most of the tribal people of Kerala live on the forest and mountains of Western Ghats, bordering the districts of Tamil Nadu and Karnataka.^[6] The scheduled tribe population of Kerala is 4,84,839 persons constituting 1.45% of the total population of the State (3.338 crores) as per 2011 Census.^[7] Muthuvans are a prominent tribal population residing in evergreen forests of Kuttampuzha and are far less influenced by urbanization.^[6]

India is considered to be the capital of oral cancers globally and this is mainly attributed to chewing tobacco. India is the second largest producer of tobacco in the world and the tobacco trade in India has been well flourished because of the high-increasing population, export potential, and huge internal demand.^[8] Prevalence and tobacco usage habits in India are very varied. The alternative that is most common to the normal cigarettes in India is the “bidi,” a thin hand-rolled form of smoking tobacco that does not have a filter.^[4] In India, smokeless form is more prevalent than the smoking form. Majority of the studies related to tobacco cessation behaviors in tribal population are in developed countries,^[9-11] but the Indian scenario is very much different in the sociocultural and awareness levels. It is usually accepted that an individual's perceived norm toward smoking can be easily affected by the influence of sociocultural contexts, which in turn can affect smoking behaviors and attitudes, and this study was conducted to identify correlates of tobacco cessation behavior in smoking and smokeless form of tobacco users among the indigenous population of Kuttampuzha area in Kerala, India.

MATERIALS AND METHODS

This study was based on a cross-sectional design survey that was conducted as a part of the institutional

tobacco control project of Mar Baselios Dental College, Kothamangalam, Kerala, India. Ethical approval from the institutional ethical committee was taken before the commencement of the study. The people who are using tobacco of any form were identified by a house-to-house survey of the Kuttampuzha area, and the data were collected using interviews of the sample population. A structured questionnaire based on literature reviews in the same field, which was pretested and validated, was used for the study. A total of 516 indigenous community people in Kuttampuzha area from the age group of 21–72 years were selected based on convenience sampling. The participation of the subjects was totally voluntary, and the identities of the study participants were kept discreet to ensure maximum reliable results. The subjects who had the habit of tobacco smoking or using smokeless form of tobacco at least for a duration of 1 year have been included in the study. Those who were not willing to give informed consent were excluded from the study. They were classified according to the tobacco form user category and then the data were collected on different sociodemographic variables that are considered as the determinants for quit attempts in the sample population who are divided into smoking form and smokeless form tobacco users. The dual users who used smoking as well as smokeless form of tobacco were also included in analysis depending on their most used tobacco form. Age, caste, gender, and socioeconomic status (SES) were the main variables that are studied. The three age groups considered were less than 25 years, 25–40 years, and more than 40 years groups. SES was calculated based on the modified Kuppusswamy's classification into five groups as lower class, upper lower class, lower middle class, upper middle class, and upper class. This was performed by considering the education, income, and occupation of the individuals.^[12]

The data collected from the study were subjected to descriptive statistical analysis using chi-square test, odds ratio, and logistic regression tests with the help of Open Source R Software (R Foundation of Statistical Computing, Vienna, Austria). Nonresponders to the quit attempts were excluded from the statistical analysis. *P*-value of less than 0.05 was considered as a statistical significant result.

RESULTS

Among the total 516 subjects, 194 (37.6%) were smoking form users and 322 (62.4%) were smokeless form tobacco users who tried to quit in the last 1 year. When considered the quit attempts among current smoking and smokeless form of tobacco users, it was

found a statistically significant difference in subjects who had quit attempts of 1 day or longer in the previous year ($P = 0.01$) than who are in groups of quit attempts more than 30 days ($P = 0.2$) or more than 6 months ($P = 0.08$) [Figure 1]. All together, smokeless form of tobacco users made less quit attempts than the smoking form. Males (26.5%) have tried quitting many times compared to the females (17.8%) in smoking group whereas in the smokeless form groups females had a high percentage of quit attempts (28.2%) than the males (22.4%). There were 94 dual users who used smoking as well as smokeless form of tobacco and they were included and classified depending on which tobacco form they use the most. The distribution of the different sociodemographic variables collected and the quit attempts prevalence in each of the group are shown in Table 1.

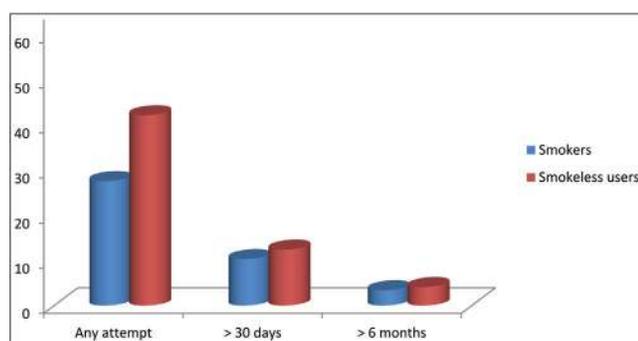


Figure 1: Quit attempts of 1 day or longer in the past year, more than 30 days, and more than 6 months among current cigarette smokers and smokeless tobacco form users

As expected, younger smokers had a high percentage of quit attempts than their smokeless tobacco counterparts. The 25–40 years group in both smoking (34.9%) and smokeless groups (28.5%) showed more quit attempts than the other groups of respective categories. The less than 25 years age group showed the least quit attempts of 14.8% in smokers group and 17.6% in smokeless tobacco form users. Among the tobacco users' quit attempts in the last 1 year, the predicted probability for a smoking form user was much higher than the smokeless tobacco form user (OR = 1.24 [CI = 1.09–1.39]; $P = 0.03$), even though more number of quit attempts were of a shorter duration less than a year.

Among the different communities considered based on the caste, the scheduled caste/scheduled tribe community had higher quit attempts in smoking group (36.3%) and smokeless group (35.9%) than the other backward castes and general people. Of the quit attempts, 31.7% in smoking group and 35.3% in smokeless group were observed for the other backward categories. The upper middle class in the SES had the higher percentage of quit attempts among the SES categories, 34.6% in smoking and 34.9% in smokeless groups. The upper class and lower class had the least quit attempts (14.3% and 25% in smoking form group and 26.5% and 23.4% in smokeless form group, respectively). In general, the quit attempts probability was higher among both form of tobacco users who fall into the category of upper middle class (OR = 1.30 [CI = 1.12–1.48], $P = 0.01$), and the rest of the findings were found more or less similar.

Table 1: Quit attempts by sociodemographic characteristics of smokers and smokeless tobacco users

Sociodemographic variables	Attempts to quit during past 1 year	
	Smoking form (N = 194)	Smokeless form (N = 322)
	N n (%)	N n (%)
Age groups		
<25 years	27 4 (14.8)	34 6 (17.6)
25–40 years	103 36 (34.9)	168 45 (28.5)
>40 years	64 14 (21.8)	120 31 (25.8)
Sex		
Male	166 44 (26.5)	237 53 (22.4)
Female	28 5 (17.8)	85 24 (28.2)
Caste		
Scheduled caste/scheduled tribe	66 24 (36.3)	114 41 (35.9)
Other backward classes	82 26 (31.7)	119 42 (35.3)
General	46 12 (26.1)	89 25 (28.1)
SES		
Upper class	14 2 (14.3)	32 8 (25.0)
Upper middle class	52 18 (34.6)	83 29 (34.9)
Lower middle class	45 14 (31.1)	78 21 (26.9)
Upper lower class	49 16 (32.7)	82 21 (25.6)
Lower class	34 9 (26.5)	47 11 (23.4)

DISCUSSION

India, with its different types of ecosystem, is the home to a varied tribal community all over the place. These parts where they are inhabited constitute a major part of the economically deprived areas of the country. In Kerala, these tribes and their scenario about the health show a multicolored mixture of various noncommunicable and communicable disease profiles in regard to their socioeconomic and financial development.^[13] The education, occupation, and income levels of these indigenous population were at a lower standards than the general population. Due to the influence of urbanization and various nongovernmental organization community programs, the current generation has more access to higher education. There are only few studies conducted before that compared quit attempt rates of population between smokers who use and who do not use smokeless form of tobacco.^[14,15] The quit attempts predictor factors are equally uncertain. In our study among current smoking form and smokeless form users of tobacco, we found statistically significant difference in subjects who had attempts to quit for 1 day or more in the previous year than who are in groups of quit attempts more than 30 days or more than 6 months. One study showed similar results where their main objective was to compare quit attempts among current cigarette smokers and dual users who used both forms of tobacco.^[14] In that study, they have also seen differences between both forms of tobacco users and exclusive smoking form users in the relation to cigarette dependence with attempts of smoking cessation. Moreover, it is established that the majority of attempts will result in failure in the initial 6 months.

In our study, even though there are varied factors affecting tobacco cessation behavior, the prime determinant for quit attempts among both smoking form as well as smokeless form of tobacco users appears to be their SES. Few previous studies found that higher SES, which is measured by monthly expenditure quintiles, is considered to be a major determinant for attempts to quit.^[16,17] This study did not report age or gender to be a significant predictor, but there are studies that found both urban/rural residence and age to be significant predictors of attempts to quit, where they also investigated some other factors such as family structure type and whether residence is urban or rural, which all do have a major sociocultural influence.^[18]

The study has its own limitations, which have to be considered while interpreting the results. The information on tobacco cessation by smokers and

smokeless form user group were both retrospective and self-reported. Unlike a cohort study or longitudinal follow-up, this study could be affected by any small recall bias (previous events may not be properly remembered because of several issues such as differential retrieving of memories or time elapsed to interview),^[19] telescoping (remembering incidents as having happened nearer to the time of interview than is actually happened or true),^[20-22] and even social desirability, which may lead to underreporting.^[23] It is understood that due to the specific nature of the present sample population of the study, the findings cannot be generalized to all the other ethnic groups in India. The purpose of this study was to report systematic information on the smoking cessation behavior patterns of various tribes residing in Kuttampuzha forest and that the results would help in the planning and evaluation of various tobacco control programs in that area.

CONCLUSIONS

One of the major factors that affects the quit attempts of the tribes in Kuttampuzha region was the disparities in SES among the tribes, and majority of the quit attempts were of very short duration. This study provides a basis for the further future research to identify and compare predictors of quit attempts and understand the tobacco cessation behavior of both the smoking form and smokeless form of tobacco users in south India.

In spite of our developments and big achievements in preventive and curative fields of medicine, the delivery of health care system in these primitive indigenous population is still poor, and this has to be changed for a greater goal of health for all the people in the country. Integration of other health care programs with tobacco control programs can yield maximum beneficial results in the pursuit for a tobacco-free world. Various national, state, and local program activities when implemented together with community programs for tobacco counseling and cessation and strict enforcement of Cigarettes and Other Tobacco Products Act laws will be needed to effectively influence the use of different detrimental indigenous types of tobacco. Moreover, the tribal head should be educated and motivated regarding quality and standards of health and living, so that he can in turn motivate and train his fellow beings.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES

- Mishra GA, Kulkarni SV, Gupta SD, Shastri SS. Smokeless tobacco use in Urban Indian women: prevalence and predictors. *Indian J Med Paediatr Oncol* 2015;36:176–82.
- Gajalakshmi CK, Jha P, Ranson K, Nguyen S. Global patterns of smoking and smoking-attributable mortality. In: Jha P, Chaloupka FJ, editors. *Tobacco control in developing countries*. New York: Oxford University Press; 2000.
- World Health Organization. *Tobacco or health: a global status report*. Geneva, Switzerland: World Health Organization; 1997. Available from: <https://apps.who.int/iris/handle/10665/41922> [Last accessed on 2019 Feb 12]
- Jandoo T, Mehrotra R. Tobacco control in India: present scenario and challenges ahead. *Asian Pac J Cancer Prev* 2008;9:805-10.
- Centers for Disease Control and Prevention. *Best practices for comprehensive tobacco control programs: 2007*. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2007.
- Tribals in Kerala. Kerala Institute for Research Training & Development Studies of Scheduled Castes and Scheduled Tribes. Available from: <https://kirtads.kerala.gov.in/tribals-in-kerala/> [Last accessed on 2019 Apr 27].
- Population Enumeration Data. Office of the Registrar General and Census Commissioner. *Data Highlights: The Scheduled Tribes. Kerala Census of India; 2001*. Available from: <http://censusindia.gov.in/2011census/> [Last accessed on 2019 Feb 18] population_enumeration.html.
- Ministry of Finance, Government of India. *Economic survey*. New Delhi, India: Taxmann Publications; 2004.
- Thomas DP, Lyons L, Borland R. Predictors and reasons for starting and sustaining quit attempts in a national cohort of aboriginal and Torres Strait islander smokers. *Drug Alcohol Rev* 2019;38:244-53.
- Choi WS, Nazir N, Pacheco CM, Filippi MK, Pacheco J, White Bull J, *et al.* Recruitment and baseline characteristics of American Indian tribal college students participating in a tribal college tobacco and behavioral survey. *Nicotine Tob Res* 2016;18:1488-93.
- Smith SS, Rouse LM, Caskey M, Fossum J, Strickland R, Culhane JK, *et al.* Culturally-tailored smoking cessation for adult American Indian smokers: a clinical trial. *Couns Psychol* 2014;42:852-86.
- Kumar N, Shekhar C, Kumar P, Kundu AS. Kuppaswamy's socioeconomic status scale-updating for 2007. *Indian J Pediatr* 2007;74:1131-2.
- Nanjunda DC. Ethno-medico-botanical investigation of Jenu Kuruba ethnic group of Karnataka State, India. *Bangl J Med Sci* 2010;9:161-9.
- Messer K, Vijayaraghavan M, White MM, Shi Y, Chang C, Conway KP, *et al.* Cigarette smoking cessation attempts among current US smokers who also use smokeless tobacco. *Addict Behav* 2015;51:113-9.
- Tomar SL, Alpert HR, Connolly GN. Patterns of dual use of cigarettes and smokeless tobacco among US males: findings from national surveys. *Tob Control* 2010;19:104-9.
- Hymowitz N, Cummings KM, Hyland A, Lynn WR, Pechacek TF, Hartwell TD. Predictors of smoking cessation in a cohort of adult smokers followed for five years. *Tob Control* 1997;6(Suppl 2):S57-62.
- Reid JL, Hammond D, Boudreau C, Fong GT, Siahpush M; ITC Collaboration. Socioeconomic disparities in quit intentions, quit attempts, and smoking abstinence among smokers in four western countries: findings from the International Tobacco Control Four Country Survey. *Nicotine Tob Res* 2010;12:S20–33.
- Li L, Borland R, Yong HH, Fong GT, Bansal-Travers M, Quah AC, *et al.* Predictors of smoking cessation among adult smokers in Malaysia and Thailand: findings from the international tobacco control Southeast Asia survey. *Nicotine Tob Res* 2010;12(Suppl):S34-44.
- Coppo A, Baldissera S, Migliardi A, Minardi V, Quarchioni E, Ferrante G, *et al.*; PASSI Working Group. Quit attempts and smoking cessation in Italian adults (25-64 years): factors associated with attempts and successes. *Eur J Public Health* 2017;27:717-22.
- Gilpin E, Pierce JP. Measuring smoking cessation: problems with recall in the 1990 California tobacco survey. *Cancer Epidemiol Biomarkers Prev* 1994;3:613-7.
- Colby SM, Clark MA, Rogers ML, Ramsey S, Graham AL, Boergers J, *et al.* Development and reliability of the lifetime interview on smoking trajectories. *Nicotine Tob Res* 2012;14:290-8.
- Connor Gorber S, Schofield-Hurwitz S, Hardt J, Levasseur G, Tremblay M. The accuracy of self-reported smoking: a systematic review of the relationship between self-reported and cotinine-assessed smoking status. *Nicotine Tob Res* 2009;11:12-24.
- Hughes JR, Keely J, Naud S. Shape of the relapse curve and long-term abstinence among untreated smokers. *Addiction* 2004;99:29-38.