

# Assessment and Comparison of Tobacco Dependence Level among Cholanaicken and Kattunaicken Tribal Groups of Nilambur Forest, Kerala: A Questionnaire Study

S. Anjali, M. Shivakumar, S. Ranganath, S. Santhakumari

Department of Public Health Dentistry, Vivekanandha Dental College for Women, Tiruchengode, Tamil Nadu, India

ABSTRACT

**Context:** Anti-tobacco initiatives among tribal groups are still a challenging task due to handful of literature available. This ignited up the present study to assess tobacco dependence among the tribes of Nilambur Forest. **Aims:** To assess and compare the tobacco dependence level among Cholanaicken and Kattunaicken tribal groups of Nilambur Forest, Kerala, using Fagerstrom Test for Nicotine Dependence (FTND). **Settings and Design:** Nilambur Forest, Kerala; a cross-sectional study. **Methods:** A cross-sectional study was carried out among 300 tribes (150 Kattunaicken and 150 Cholanaicken individuals) to assess their nicotine dependence using FTND. **Statistical Analysis Used:** Chi-square test, Fisher's exact test. **Results:** Of 300 samples, the prevalence of tobacco usage among tribal groups is 43.8%. The level of tobacco dependency was more among Cholanaicken (59.7%) compared to Kattunaicken groups (50.3%), and tobacco dependency was more among males (73.4%), with a majority of them having medium (63.8%) level of tobacco dependency. There is a statistically significant difference of  $P < 0.001$  (gender, ethnic) in tobacco dependency. **Conclusions:** High tobacco consumption among the tribal groups is attributed to their lack of awareness and is considered as a major entertainment to allay boredom.

**KEYWORDS:** Fagerstrom questionnaire, tobacco, tribals

## INTRODUCTION

Despite remarkable advances in the field of diagnostics and curative and preventive health, there are people still living in isolation in natural and unpolluted surroundings far away from civilization with their conventional values, customs, beliefs, and myth intact. They are commonly known as "tribes" and considered to be the autochthonous people of the land. The indigenous population throughout the world suffers from a higher burden of diseases<sup>[1]</sup> and also their tobacco abuse is often double than that of their nonindigenous counterparts.<sup>[2]</sup> People's beliefs, customs, and practices are important influences on health. Ethnic beliefs and values may act to reinforce or inhibit the use of health services, and research has shown that low socioeconomic and ethnic minority groups are less likely to utilize health services.

Kerala is a homeland of a number of tribal communities. The tribal community at Nilambur in Malappuram District of Kerala happens to be one such population. There are mainly two groups among this community, namely Kattunaicken and Cholanaicken. The Kattunaicken groups are distributed in Wayanad, Malappuram, and Kozhikode districts of Kerala state. Ashram schools are functioning at Noolpuzha, Wayanad district and Manjeri, Malappuram district, exclusively for the Kattunaicken, including the Cholanaicken. However, Kattunaicken families living inside the forest remain apathetic in sending their children to school. The Cholanaicken,

**Address for correspondence:** Dr. S. Anjali, Sathya Nivas, Naduvath, Wandoor, Malappuram, Kerala, India. E-mail: docanzi@gmail.com

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known as “the cavemen of Kerala,” live in the upper Ghats section (*chola*) of the Nilambur Valley, Nilambur taluk in Malappuram district. Health-care facilities are totally absent in Cholanaicken habitats.

About 1.2 billion people use tobacco in different forms worldwide at present and is expected to rise to 1.6 billion by 2020. By 2010, India had approximately 120 million smokers.<sup>[3]</sup> Studies also show that tobacco prevalence is higher among the tribes compared to their rural and urban counterparts.<sup>[2,3-6]</sup> Although India has a large number of tribal communities, the state of Kerala accounts for 0.4% of the adivasis in India.<sup>[3]</sup> Their ignorance about the adverse effects of tobacco is highly alarming and special attention is required for improving the health awareness and welfare of this tribal community. In India, the community educational and awareness programs regarding the health hazards of tobacco use seem to have increased during recent times, but scaling up the antitobacco initiatives to cover the entire country, especially the tribal areas, is an essential and exacting task. Thus, this study was aimed to find out the prevalence, pattern, and dependency of tobacco use among the tribes of Nilambur, in order to obtain baseline data which can be used in the planning, execution, and evaluation of tobacco cessation programs in the region.

Actions are being taken for providing health-care facilities to them; however, because of illiteracy, low income, and also tribes living in isolated and inaccessible areas, it is hard to implement health-care programs. Furthermore, lack of medical and dental facilities may contribute to the high

prevalence of oral disease among these populations. The World Health Organization (WHO) recommends that for planning any dental services, surveys of oral health could be used to collect information about oral health, disease, and treatment needs of the population in order to monitor changes in levels and patterns of these variables over time.

Antitobacco initiatives among tribal groups are still a challenging task because only a handful of literature is available. This ignited up the present study to assess tobacco dependence among the tribes of Nilambur Forest.

## METHODS

A cross-sectional study was carried out among 300 tribes to assess the tobacco dependence level among Cholanaicken and Kattunaicken tribal groups of Nilambur Forest, Kerala.

A stratified random sampling design was adopted to select the indigenous people living in colonies. Data were collected using a structured questionnaire, Fagerstrom Test for Nicotine Dependence (FTND) for both smoking and smokeless forms of tobacco. Prior permission to conduct the study was obtained from authority officer of Integrated Tribal Project, Nilambur. Ethical clearance to conduct the study was obtained from the institutional ethics committee. Bilingual informed consent was obtained, confidentiality of the information was assured, and the interview was conducted in the local language. Data were analyzed using Spss Version 21.0. (Armonk, NY: IBM Corp) and Chi-square test was performed.

## RESULTS

Of 300 samples, 43.8% of tribal group showed prevalence of tobacco usage. In the present study, tobacco dependency was more among males compared to females [Table 1]. Medium level of tobacco dependency was found to be more among age group below 35 years [Table 2]. Level of tobacco dependency was more among Cholanaicken compared to Kattunaicken groups [Table 3]. Medium level of tobacco dependency was found to be more among Cholanaicken groups and high level of tobacco dependency was found to be more among Kattunaicken groups [Table 4].

**Table 1: Distribution of study subjects based on gender and level of dependency shows tobacco dependency among users of smokeless form of tobacco**

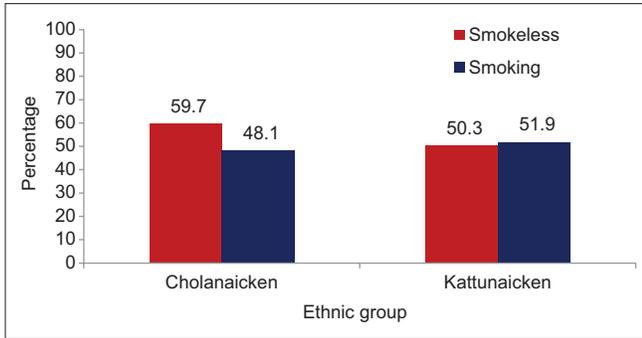
Level of tobacco dependence	Gender, n (%)			P*
	Male	Female	Total	
Very low	0	2 (2.1)	2 (1.3)	<0.001
Medium	46 (85.2)	49 (51.6)	95 (63.8)	
High	8 (14.8)	38 (40.0)	46 (30.9)	
Very high	0	6 (6.3)	6 (4.0)	
Total	54 (100.0)	95 (100.0)	149 (100.0)	

\*Fisher's exact test, Statistically significant

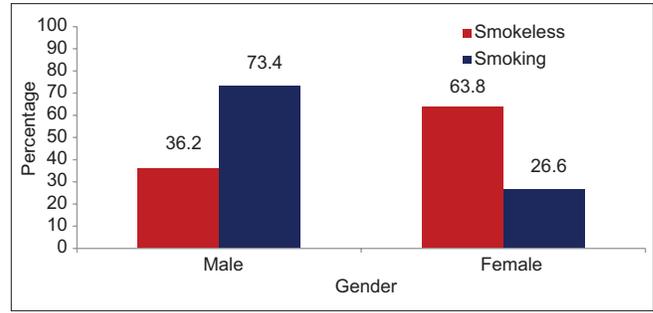
**Table 2: Distribution of study subjects based on age group and level of dependency**

Level of tobacco dependence	Age group, n (%)				Total	P*
	≤35 (years)	36-45 (years)	46-55 (years)	>55 (years)		
Very low	0	0	0	0	0	0.007
Medium	39 (68.4)	21 (58.3)	10 (35.7)	12 (42.9)	82 (55.0)	
High	11 (19.3)	13 (36.1)	17 (60.7)	12 (42.9)	53 (35.6)	
Very high	7 (12.3)	2 (5.6)	1 (3.6)	4 (14.3)	14 (9.4)	
Total	57 (100.0)	36 (100.0)	28 (100.0)	28 (100.0)	149 (100.0)	

\*Fisher's exact test, Statistically insignificant



**Figure 1:** Distribution of study subjects based on ethnic group and tobacco form dependence



**Figure 2:** Distribution of study subjects based on gender and tobacco form dependence

**Table 3: Distribution of study subjects based on ethnic groups and level of dependency**

Level of tobacco dependence	Ethnic group, n (%)			P*
	Cholanaicken	Kattunaicken	Total	
Very low	1 (1.4)	1 (1.3)	2 (1.3)	<0.001
Medium	60 (81.1)	35 (46.7)	95 (63.8)	
High	13 (17.6)	33 (44.0)	46 (30.9)	
Very high	0	6 (8.0)	6 (4.0)	
Total	74 (100.0)	75 (100.0)	149 (100.0)	

\*Fisher’s exact test, Statistically significant

**Table 4: Distribution of study subjects based on ethnic group and level of dependency among users of smoking form of tobacco**

Level of tobacco dependence	Ethnic group, n (%)			P*
	Cholanaicken	Kattunaicken	Total	
Very low	0	0	0	<0.001
Medium	65 (87.8)	17 (21.3)	82 (53.2)	
High	8 (10.8)	45 (56.3)	53 (34.4)	
Very high	1 (1.4)	18 (22.5)	19 (12.3)	
Total	74 (100.0)	80 (100.0)	154 (100.0)	

\*Pearson’s Chi-square test, Statistically significant

Tables 1 and 2, respectively, reveal that gender and ethnic group showed a statistical significance ( $P < 0.001$ ). Additional data on the form of tobacco used in relation to ethnic group showed an increased usage of smoking form of tobacco among Cholanaicken compared to Kattunaicken [Figure 1]. However, gender correlation varied in accordance to tobacco form [Figure 2].

**DISCUSSION**

Cultural beliefs and social norms have a strong association with the use of tobacco and with their significant variation in different societies for tobacco consumption. In the study area, being a tribal one, the prevalence of tobacco consumption was high in both the

sexes. This was because the consumption of tobacco was a social custom in the tribal community.

In the present study, both males and females across all ages actively participated in the study. However, the prevalence of tobacco use was near equal among all age groups. In addition, the average age onset of tobacco use was similar to other socially disadvantaged population groups in India where the initiation was usually in childhood or adolescence.<sup>[7]</sup> This finding shows importance, as studies have shown that early tobacco use initiation plays a key role in shaping the tobacco habit and its frequency of usage.<sup>[8]</sup> In the present study, the prevalence of tobacco usage was high, which was in accordance to other tobacco prevalence studies among the tribal populations in India and across the world.<sup>[3,9-11]</sup>

Factors for tobacco use initiation were mainly related to family and peer influence and societal norms/culture. Family influence could have a strong association because tribes dwell in closed and confined colonies since birth. This finding is similar to other studies done in Bangladesh among tribal groups,<sup>[12]</sup> with the prevalence of tobacco usage being 49.3%.

Actions are being taken for providing health-care facilities to them. Due to illiteracy, low income, and also tribes living in isolated and inaccessible areas, it is hard to implement health-care programs. Lack of medical and dental facilities may contribute to the high prevalence of oral disease among these populations. The WHO recommends that for the planning of dental services, surveys of oral health could be used to collect information about oral disease, oral health, and treatment needs of a population to monitor changes in levels and patterns of these variables over time.

Even though FTND had shortcomings for smokeless form, it showed a good reliability for smoking form.<sup>[13-15]</sup> However, there are also studies which report poor oral hygiene among certain tribal groups.<sup>[16]</sup> This could be attributed to the vast diversity among the indigenous groups with regard to their cultural values, beliefs, and

systems. There is a statistically significant difference of  $P < 0.001$  (gender, ethnic) in tobacco dependency. With this baseline data on tobacco use among the tribes in Kerala, we recommend further studies with a larger sample and other geographical areas to assess the pernicious effect of tobacco use and its consequences on general health.

## CONCLUSIONS

The prevalence of tobacco consumption was found to be high among both males and females in Cholanaicken and Kattunaicken groups of tribal population. Majority of them consumed different forms of smokeless tobacco. High tobacco consumption among the tribal groups is attributed to their lack of awareness and is considered as a major entertainment to allay boredom. A family history of tobacco use, peer pressure, and traditional beliefs were found to be the major contributing factors for early onset of the habit. Given the high prevalence of smoking and smokeless form of tobacco use among people from the tribal areas, endeavors to initiate antitobacco awareness programs specifically targeting the tribal populations must be strengthened.

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## Conflicts of interest

There are no conflicts of interest.

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