

Original Research Article

Prevalence of tobacco dependence among rural population of Mysuru District

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Received: 11 October 2022

Revised: 14 January 2023

Accepted: 16 January 2023

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ABSTRACT

Background: Tobacco is generally a leaf with 1-3% of the alkaloid nicotine. Consuming it becomes so dangerous that it is the leading cause of mortality worldwide. Tobacco risks include heart attack, gum disease and pre-cancerous mouth lesions etc. The purpose of the current study is to investigate the prevalence of Tobacco dependence and factors that contribute to tobacco dependence among rural populations. Objectives of current study was to estimate the prevalence of tobacco dependence and to assess the factors influencing Tobacco dependence among rural population.

Methods: A community based cross sectional study was carried out in rural areas of Nanjangud taluk for 6 months from January 2022 to June 2022. Multistage sampling Technique was adopted to select the study population. One subcentre is selected randomly by lottery method, PPS sampling technique will be applied to select the required number of participants from the villages in the selected subcentre. Sample size is 362 individuals aged above 18 years who comes under ICD10 criteria were included in the study. The data were gathered using the pre-tested, semi-structured questionnaire by interview method, and the FRAGESTROM test to assess dependence on nicotine. SPSS version 25 was used for analysis.

Results: The overall prevalence of Tobacco dependence among rural population of Nanjangud taluk is 62.40%. We found that tobacco dependence was significantly associated with gender, age group, occupation education, and socioeconomic status and there is no significant association between caste and Tobacco dependence.

Conclusions: The present study concludes that the prevalence of tobacco dependence is high in a rural population. More tobacco free initiatives to be implemented.

Keywords: Tobacco dependence, Rural areas, Rural population, Socio-economic status

INTRODUCTION

Tobacco is basically a leaf that contains 1.0% to 3.0% of Alkaloid Nicotine, whose chemical composition is $C_{10}H_{12}N_2$. Its consumption turns so harmful that, it is the utmost cause for death in world, killing more people than AIDS, TB and malaria combined. Nearly 60 lakh people die from tobacco related diseases. This number can rise to 8 million by the year 2030. Many of the reasons behind death like Cardio-vascular disease, chronic obstructive

lung disease a lung cancer is due to tobacco consumption.¹ About 40.0% of children and 33.0% of non-smoking adults are unprotected to this environment. From the sign of earliest use of tobacco, its addiction is in the last 12300 years. Hence tobacco has both social and economic impact. Western specific region has highest rate in second-hand smoking with more than 50% of population get wide open to second hand smoke. This second-hand smoke leads to 10% of tobacco related deaths, in which 28% of it pulls children to death. Tobacco is accessible in numerous forms, but basically, they are in smoke and smokeless

form.² China is globally the leading manufacturer of tobacco with 2.6 million tones per year, followed by Brazil and India. Risk is guaranteed if it inhaled, sucked, sniffed or chewed. Most common form is manufactured cigarette (96% of tobacco sales globally). Other forms include Bidis (popular in South East Asia, heavily smoked in Bangladesh and India), Kreteks (clove flavored cigarettes, popular in Indonesia) and Hookah.³ There are types in smokeless tobacco like munching tobacco (Zarda, Khaini and Gutka – popular in Bangladesh and India) and moist snuff. Smokeless tobacco risks include same risks as cigarette and with some other risks like tooth loss, gum disease and pre-cancerous mouth lesions. Consumption of both manufactured and other tobacco consumables are called, Dual use. Research reveals that, there are multiple documents dealing with the health issues because of usage of cigarettes and smokeless tobacco separately. But for dual use, there are only few documents supporting additional risks, prolonged to nicotine and slow reductions.⁴ Factors that make people to get addicted with tobacco include, mental illness (mental stress, depression, post-traumatic stress, schizophrenia, stress disorder etc.), sadness of grief, impatience, frustrations, boredom, restlessness, anger and also just like that for craze and relaxing purposes. Nicotine is an added chemical, that makes people to get addicted and is difficult to get rid of it. These factors are called MHA (Mental Health and Additive) disorders.⁵ Tobacco is more accepted in society because it is a source of revenue for many rural communities. Several questionnaires that were conducted on the cause of dependence of tobacco, found that 55.4% are allied with the aspects such as education, social support, self-efficacy and craving. It is assessed that, due to increased craving and self-efficacy, smoking initiated and due to presence of nicotine, it amplified the usage.⁶ The purpose of the current study is to investigate the prevalence of Tobacco dependence and factors that contribute to tobacco dependence among rural populations in Nanjangud taluk, Mysuru district.

Objectives

Objectives of current study was to estimate the prevalence of tobacco dependence among rural population and to assess the factors influencing tobacco dependence among rural population.

METHODS

The present study is conducted in Mysuru district Nanjangud taluk, it is a community based descriptive cross-sectional study. The study was conducted for 6 months from January 2022 to June 2022. A Multistage sampling Technique was adopted to select the study population. Based on the study to estimate the prevalence of Tobacco consumption among people residing in rural area is 62% with 95% confidence level and 5% absolute precision the sample size calculated was 362. In the current study, a multistage sampling technique was used as the sampling method. As the first stage of a multistage

sampling, Nanjangud taluka was arbitrarily chosen from Mysore District. Hadinaru PHC, which consists of 5 subcenters, was then chosen at random as the following stage. One subcenter was chosen at random as the third stage of the multistage sampling technique out of the five subcenters. That is Yechagalli subcenter is selected by lottery method which has the total population of 6,472. Yechagalli subcenter has 4 villages namely Goddanapura, Hallibeedhi, Maraluru, and Yechagalli, From each village, successive households were chosen using PPS sampling technique until the sample size was reached. The ASHA representative in each village was contacted the day before the visit and asked to inform the locals about the study and the upcoming visit. The subjects provided written informed consent before being questioned, during a house-to-house visit, data on age, gender, education, occupation, salary, marital status, and socioeconomic status was obtained using a pre-structured questionnaire. Interviews were conducted with members of each household. All randomization was done using the lottery method, which ensured randomness. Tobacco dependence established according to ICD10 criteria. Those who are residing in the study setting for at least 1 year and Those who are consenting to participate in the study are included in the study. The people who are not willing to participate in the study are excluded from the study. The Fragestrom test is used to assess nicotine dependency. Obtained data is entered into an Excel spreadsheet and analyzed using the SPSS 25 version (Licensed to JSSAHER). The prevalence of Tobacco dependence was quantified using percentages and other descriptive statistical metrics. The chi-square test and the probability test were utilized as inferential statistical tests.

RESULTS

The present study is conducted in Mysuru district Nanjangud taluk, it is a community based descriptive cross-sectional study. The study was conducted for 6 months from January 2022 to June 2022. A Multistage sampling Technique was adopted to select the study population. Based on the study to estimate the prevalence of Tobacco consumption among people residing in rural area is 62% with 95% confidence level and 5% absolute precision the sample size calculated was 362. In the current study, a multistage sampling technique was used as the sampling method. As the first stage of a multistage sampling, Nanjangud taluka was arbitrarily chosen from Mysore District. Hadinaru PHC, which consists of 5 subcenters, was then chosen at random as the following stage. One subcenter was chosen at random as the third stage of the multistage sampling technique out of the five subcenters. That is Yechagalli subcenter is selected by lottery method which has the total population of 6,472. Yechagalli subcenter has 4 villages namely Goddanapura, Hallibeedhi, Maraluru, and Yechagalli, from each village, successive households were chosen using PPS sampling technique until the sample size was reached. The ASHA representative in each village was contacted the day before the visit and asked to inform the locals about the study and

the upcoming visit. The subjects provided written informed consent before being questioned, during a house-to-house visit, data on age, gender, education, occupation, salary, marital status, and socioeconomic status was obtained using a pre-structured questionnaire.

Table 1: Distribution of study participants according to socio-demographic characteristics (n=362).

Parameters		N	%
Age groups (years)	Below 30	50	13.8
	31- 40	87	24
	41-50	96	26.5
	51-60	73	20.2
	Above 60	56	15.5
Gender	Female	99	27.30
	Male	263	72.70
Education	Degree	17	4.70
	High School Education	28	7.70
	Illiterate	205	56.60
	Pre-University	20	5.50
	Primary education	69	19.10
	Secondary Education	23	6.40
Occupation	Semiskilled Employed	29	8.00
	Skilled Employed	17	4.70
	Unemployed	53	14.60
	Unskilled Employed	263	72.70
Caste	Kuruba	102	28.20
	Lingayath	56	15.50
	Others	204	56.30
Socio Economic status	Lower	49	13.50
	Lower middle class	86	23.80
	Middle class	136	37.60
	Upper	7	1.90
	Upper middle class	84	23.20
Marital Status	Divorced	5	1.40
	Married	290	80.10
	Separated	3	0.80
	Unmarried	37	10.20
	Widow	27	7.50

Interviews were conducted with members of each household. All randomization was done using the lottery method, which ensured randomness. Tobacco dependence established according to ICD10 criteria. Those who are residing in the study setting for at least 1year and Those who are consenting to participate in the study are included in the study. The people who are not willing to participate in the study are excluded from the study. The Fragestrom test is used to assess nicotine dependency. Obtained data is entered into an Excel spreadsheet and analyzed using the

SPSS 25version (Licensed to JSSAHER). The prevalence of Tobacco dependence was quantified using percentages and other descriptive statistical metrics. The chi-square test and the probability test were utilized as inferential statistical tests.

Table 2: Distribution of study participants according to their practice (n=362).

Parameters		N	%
Diet	Mixed	305	84.30
	Veg	57	15.70
Sleep	Disturbed	13	3.60
	Undisturbed	349	96.40
Habits	Nil	136	37.80
	Yes	226	62.20

Table 3: Reason for starting tobacco consumption (n=226).

Reasons	N	%
Celebration	1	0.44
Just like that and celebration	2	0.88
Excitement	1	0.44
Forget and relaxing	2	0.88
Forget, tension, relaxing and loses someone /something	1	0.44
Just like that	118	52.21
Just like that and excitement	3	1.32
Just like that and forget	1	0.44
Just like that and relaxing	17	7.52
Just like that and tension	7	3.09
Just like that, excitement and relaxing	1	0.44
Just like that, Tension and Relaxing	3	1.32
Looses someone/something	2	0.88
Relaxing	41	18.14
Relaxing and celebration	1	0.44
Tension	14	6.1
Tension, excitement and relaxing	2	0.88
Forget	2	0.88
Tension and relaxing	7	3.09

Among 362 study participants, majority of the study participants are Males 263 (72.70%) and 99 (27.30%) are Females, 50 (13.8%) people are below 30 years of age, 87 (24%) people are 31-40 years of age, 96 (26.5%) are 41-50 years age, 73 (20.2%) are 51-60 years of age and 56 (15.5%) are above 60 years of age. 205 (56.60%) of people are Illiterate, 69 (19.10%) of participants have done primary education, 23 (6.40%) of participants have done Secondary Education, 28 (7.70%) of participants have done high school education, 20 (5.50%) of participants have done Pre-University, 17 (4.70%) participants have done Diploma/Degree, and none of them have studied Post graduation degree and above, 14.60% are unemployed, 263 (72.70%) are doing unskilled job (usually labour work in their village), 29 (8%) are doing semi-skilled work, and 17 (4.70%) are doing skilled work and 56 (15.50%) are

Lingayath, 102 (28.20%) are Kuruba and 20 (56.30%) are from other castes, Majority 136 (37.60%) are from middle class, followed by 86 (23.80%) from the lower middle class, 84 (23.20%) are from upper middle class, 49 (13.50%) from the lower class and 7 (1.90%) from the upper class.

Among study participants, majority 290 (80.10%) are married, 37 (10.20%) are unmarried, 27 (7.50%) are widow, 5 (1.40%) are divorced, and 3 (0.80%) are living separately. Among (n=362) study participants, 305 (84.30%) of study participants are non-vegetarians, while 57 (15.70%) are vegetarians, 349 (96.40%) are undisturbed by sleep, whereas just 13 (3.60%) are disturbed by sleep and the prevalence of Tobacco dependence is 226 (62.40%) and 136 (37.80%) of participants are having no habits. Among (n=226) study population who consume tobacco, there are 118 (52.21%) of the people having tobacco dependence just like that, 41 (18.14%) of the having tobacco dependence for relaxing, 1 (0.44%) of the people done it to forget, tension, relaxing and loses someone/something, 1 (0.44%) of the people consumes tobacco for excitement, 1 (0.44%) of the people done it for celebration.

The Chi-square test is an independent method for determining whether two categorical variables in a population are related. In one or more categories of a contingency table, the test is used to see if there is a statistically significant difference between the expected and observed frequencies. Chi square analysis displays a statistically significant higher tobacco dependency were observed among 41-50 years of individuals when compared to other age groups (χ^2 Value=69.175; $p=0.001$). Similarly, majority of males had higher rate of tobacco dependency (76.5%) than that of females, statistically significant difference was found. (χ^2 Value=4.597; $p=0.032$). Illiterates (63.3%) had higher tobacco dependency, when compared to other education. (χ^2 Value=44.793; $p=0.001$). Majority of Unskilled employees displayed a statistically significant higher association with tobacco dependency (81%) when compared to other occupations and Skilled employed displayed least tobacco dependency (0.9%) (χ^2 Value = 29.799; $p=0.001$). Major portion of middle-class groups were more commonly associated with tobacco dependence whereas Upper class individuals displayed least tobacco dependence. (χ^2 Value=20.588; $p=0.001$). There is no statistically significant association between tobacco dependency and castes (χ^2 Value=5.859; $p=0.055$).

Table 4: Association of socio-demographic characteristics with tobacco dependence (n=226).

Parameters		Tobacco dependency				χ^2 Value	P value
		No tobacco dependence		Tobacco dependent			
		N	%	N	%		
Age groups (years)	Below 30	42	30.90	8	3.50	69.175	0.001
	31- 40	36	26.50	51	22.60		
	41-50	35	25.70	61	27.00		
	51-60	16	11.80	57	25.20		
	Above 60	7	5.10	49	21.70		
Sex	Female	46	33.80	53	23.50	4.597	0.032
	Male	90	66.20	173	76.50		
Education	Degree	13	9.60	4	1.80	44.793	0.001
	High school education	18	13.20	10	4.40		
	Illiterate	62	45.60	143	63.30		
	Pre-university	16	11.80	4	1.80		
	Primary education	17	12.50	52	23.00		
	Secondary Education	10	7.40	13	5.80		
Occupation	Semiskilled Employees	14	10.30	15	6.60	29.799	0.001
	Skilled Employees	15	11.00	2	0.90		
	Unemployed	27	19.90	26	11.50		
	Unskilled workers	80	58.80	183	81		
Total family income	Lower	27	19.90	22	9.70	20.588	0.001
	Lower middle class	21	15.40	65	28.80		
	Middle class	54	39.70	82	36.30		
	Upper	6	4.40	1	0.40		
	Upper middle class	28	20.60	56	24.80		
Caste	Kuruba	48	35.30	54	23.90	5.859	0.055
	Lingayath	21	15.40	35	15.50		
	others	67	49.30	137	60.60		

DISCUSSION

According to WHO, the prevalence of tobacco use in India in 2017-18 was 29 percent.⁷ The purpose of this study was to determine the prevalence of tobacco dependence and the factors associated with it among the rural population of Mysuru. There are meagre literatures with similar objectives in the rural areas of Mysuru district, hence this study was conducted. In the current cross sectional study multistage sampling technique was adopted to select the study population and Fragestrom test was used to check Nicotine dependence. The Fageström test for nicotine dependence (FTND) is considered a standard for the assessment of the intensity of physical addiction to nicotine where it provides an ordinal measure of nicotine dependence. It is a non-invasive and easy-to-obtain self-report tool that conceptualizes dependence through physiological and behavioural symptoms. According to Viladrich et al and Perez et al, FTND is considered to be highly specific and reliable test with high sensitivity.^{8,9} According to the global adult tobacco survey India (2009-10), in Karnataka 28.2% of adults are users of tobacco.¹⁰ Similarly in our study it was found that the prevalence of tobacco dependence was 62.40% and a male predominance was seen (76.5%). Similar results were obtained in studies conducted by global adult tobacco survey (GATS), Berg et al and National family health survey.¹¹⁻¹³ This may be due to conservative nature of and offence taken by societies towards female smoking.¹⁴ Among 362 rural peoples, majority of the people, 27% belong to 41-50 years age group and was statistically significant. This is comparable to studies done by Sarkar et al and Parashar et al. The GATS study done in India, also observed that the overall prevalence was higher in 45-65 years.¹⁵ However, the prevalence of tobacco consumers was highest in 25-34 years (20%) followed by 17.6% in 35-44 years age group in world health survey carried out in 48 countries.¹⁶ Significant statistical observation between occupation and tobacco usage was observed in another Indian study.¹⁷ In the present study, majority of the unskilled employees showed a statistically significant higher association with tobacco dependency (81%) when compared to other occupations. It is observed that there was a statistically significant higher dependence (36.30%) of tobacco among middle class people group compared to other groups. In the present study, among tobacco users, 15.3% of Cigarette smokers, 55.75% of beedi smokers, 60.17% of gutka chewers had high dependence. According to Md Shariful Islam, around one-fourth of men use smoking (24.6%) and one-third used smokeless tobacco (29.1%) while one in every ten men used both smoked and smokeless tobacco (8.4%).¹⁸ The prevalence of tobacco use among men was higher among the elderly, separated/divorced/widowed individuals, alcohol consumers, manual workers, and residents of the northeast region, according to a study that analysed data from the fourth round of the National family health survey in India.¹⁸ In the current study it was found that, majority, 80.10%, were married, while, 10.20% were unmarried. It was also seen that 2.50% were widow, 1.40% were divorced and 0.80% were living separately. In the

current study it was found that among the (n=362) study participants, tobacco dependence was highest among illiterates, 63.30%, and least among participants who had studied Post graduation degree and above. Similar results were obtained in a study where education differential showed a great impact for tobacco use and its determinants in India.¹⁹ This may be due to multiplicity of reasons like increased peer influence and curiosity among illiterates as compared to literates because of unawareness, the likelihood of more myths and magical properties of tobacco use. Singh and Sahoo in India, Sein et al. in Myanmar and Palipudi et al. In Bangladesh report have reported similar association.²⁰⁻²² It is known that various factors are associated with tobacco dependence. In our study among (n=226) study population, 52.21% of the people had tobacco dependence “just like that” or “habitual”, whereas, 0.44% of the people did it for “Excitement” and “celebration”. In a study done in the US, it was found that 26.5% were using it because friends were using it and 20.5% used it out of curiosity.²¹ It was also found that in the current study, 43.90% of participants had physical signs of the tobacco smell in their breath, body or clothes, followed by 8.60% of study participants had changes in appetite (loss/increase).

Limitations

Limitations of current study were: demographic variables have been collected from those who are above 18 years under ICD 10 criteria only. Also, the samples are collected only from rural regions of Nanjangud Taluk, Mysuru District. Hence, obtained results cannot be applied to all rural regions. Data collected is concentrated on candidate's current health condition like sleep and diet. Hence, identifying complete health records can give better and accurate results. Micro level approach and broader gender perspective towards various categories of smokeless and various categories of smoked tobacco products can be done for exact and precise results. The findings were based on self-reports and so may have suffered response bias.

CONCLUSION

Among 362 study participants in the present study, majority of study participants are illiterate, work as unskilled Laboure's, are Married, have regular sleep schedules and consume both vegetarian and non-vegetarian food. The primary causes of the high incidence of tobacco dependence were just like that, tension and relaxation. Based on this study, there is a considerably higher consumption of bidi, gutka, and less consumption of cigarettes. Prevalence of Tobacco dependency in the present study is 62.40%. Gender, age, occupation, socioeconomic status, and educational level are the factors associated with tobacco dependency. There is no statistically significant association between caste and tobacco dependence. More tobacco-free initiatives should be implemented.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Poorvitha HP, Kumar SD, Basava DJ. Prevalence of tobacco dependence among rural population of Mysuru District. *Int J Community Med Public Health* 2023;10:666–71.