PREVALENCE AND ASSOCIATED SOCIO-DEMOGRAPHIC FACTORS OF SMOKING AMONG MALES IN A RURAL AREA OF KOZHIKODE DISTRICT

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ABSTRACT

BACKGROUND

Smoking is inhalation of smoke of burning tobacco encased in cigarettes, pipes, bidis and cigars. Estimates indicate that over 1.1 billion people smoke worldwide and approximately 4 million persons die annually due to smoking. Of this, 182 million smokers live in India. Smoking is much more prevalent among men. The use of bidi accounts for largest proportion (40%) of tobacco consumption in India. Based on tobacco use prevalence in 2005, it has been estimated that Kerala had at least 4 million smokers. In 2000, globally the leading causes of death from smoking included cardiovascular diseases (1.69 million deaths), chronic obstructive pulmonary disease (0.97 million deaths) and lung cancer (0.85 million deaths).

The objective of this study is to assess the prevalence and associated socio-demographic factors of smoking among males above 18 years in a rural area of Kozhikode district.

MATERIALS AND METHODS

A cross-sectional study was done among males above 18 years. The sample of 758 males was selected by cluster sampling. Data was collected using a semi-structured questionnaire and was analysed using Epi info software.

RESULTS

Prevalence of smoking among males was 12.7%. Prevalence of smoking is high in 51 - 75 age group (59.8%) and association between age group and smoking among study subjects was significant ($p = 0.001$). Prevalence of smoking is high among males with primary education status (51%). Association between educational status and smoking was statistically significant ($p < 0.0001$). Majority of males (44.2%) are skilled workers. Prevalence of smoking is high (37.5%) among skilled workers. There was significant association between occupation and smoking ($p = 0.019$).

CONCLUSION

Smoking is prevalent among men in rural areas of our state and many socio-demographic factors have influence on smoking. Based on this information, control measures can be planned further to reduce burden of smoking.

KEYWORDS

Smoking, Prevalence, Males, Kerala.

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BACKGROUND

Smoking is the inhalation of smoke of burning tobacco encased in cigarettes, pipes, bidis and cigars. Available forms of tobacco for smoking are hookah, chuttas, cigarettes, bidis and cigars.¹ "Bidis" are small, thin hand-rolled cigarettes comprising of tobacco wrapped in tendu leaves, which are predominantly smoked in rural India. The number of smokers worldwide has increased from 721 million in 1980 to 967 million in 2012.² Estimates indicate that over 1.1 billion people smoke worldwide and approximately four million persons die annually due to smoking.

Cigarette smoking and other tobacco use currently accounts for one of every ten adult deaths.³ The death toll is projected to rise to 10 million by 2030 with seven out of ten deaths in the developing world.⁴ Today, India is the third largest country in the world in both tobacco production and consumption. Of the 1.1 billion smokers worldwide, 182 million live in India.⁵ Tobacco smoking is very common in India: prevalence varies between 25% and 50% among men aged > 15 years, although it is only 0.2 - 4.2% among women of the same age. The corresponding figures for Kerala State are respectively 28.2% and 0.4% for men and women.⁶ According to NFHS 3 in Kerala the prevalence of current smoking among men in the age group of > 15 years is estimated to be 36% compared with 33% in India as a whole.⁷ Smoking is much more prevalent among men than among women. The use of bidi accounts for the largest proportion (nearly 40%) of tobacco consumption in India.⁸ Mortality attributable to tobacco has been estimated to be one million every year in India, projected to 1.5 million by 2020.^{9,10} Based on the tobacco use prevalence in 2005, it has been estimated that Kerala had at least four million smokers in that year.⁵ However, bidi smoking, which is very common in Kerala is no less hazardous than cigarettes and are

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associated with higher morbidity and mortality.¹¹ Tobacco-related non-communicable diseases in the state are on the rise.^{7,12} Tobacco use is considered to be the major modifiable risk factor for chronic diseases such as myocardial infarction, strokes, COPD, cancer including lung, pancreas, larynx, urinary bladder and mouth. It also causes peripheral vascular disease, peptic ulcer and hypertension.¹³ In 2000, globally the leading causes of death from smoking included cardiovascular diseases (1.69 million deaths), chronic obstructive pulmonary disease (0.97 million deaths) and lung cancer (0.85 million deaths).¹⁴ As there are not much studies on prevalence of smoking among adults in Kozhikode district, this study will help to assess the burden of smoking among adult males and based on this information we can further plan smoking control strategies to reduce the burden. Hence, the objectives of the study were to assess the prevalence and associated socio-demographic factors of smoking among males.

MATERIALS AND METHODS

A cross-sectional study was done among males above 18 years in Atholi Panchayath of Kozhikode, which is situated in North Kerala. The sample size was calculated to be 758 by taking prevalence of smoking among Kerala men, as 28.2%⁶ considering the design effect also. By cluster sampling method, 9 wards were selected out of total 11 wards in Atholi Panchayath and from each ward approximately 85 males were randomly selected. Data was collected using a semi-structured questionnaire after taking consent from patients. Institutional Ethical Committee approval was obtained. Data was entered in Microsoft Excel sheet and was analysed using Epi Info software.

RESULTS

Socio-Demographic Profile of Study Subjects

A total of 758 males above 18 years of age participated in the study. The socio-demographic factors studied were age, educational status and occupational status.

Distribution of the Study Subjects according to Age

Most of the study subjects were in 25 - 50 years' age group, 456 (60.10%) which was followed by 268 (35.4%) among 51 - 75 years' age group. Only 34 (4.5%) were among 76 - 110 years' age group. This finding revealed that most of the males were among younger age group.

Distribution of the Study Subjects according to Educational Status

In this study 257 (33.9%) had completed secondary level education followed by primary education 172 (22.7%). College students were only 10.5%. The findings are shown in Table 1.

Educational Status	Frequency (n=758)	Percent
Primary	172	22.70%
Secondary	257	33.90%
High School	136	17.90%
Pre-Degree	93	12.30%
College	80	10.50%
Professional	20	2.80%

Table 1. Distribution of the Study Subjects according to Educational Status

Distribution of the Study Subjects according to Occupational Status

Majority of the study participants were skilled workers (44.5%) followed by unskilled workers 34.03%; 15.5% were unemployed (Table 2).

Occupation	Frequency (n=758)	Percent
Professional	23	3.03%
Clerk	9	1.19%
Teacher	5	0.66%
Skilled	338	44.59%
Unskilled	258	34.04%
Student	8	1.05%
Unemployed	117	15.44%

Table 2. Distribution of the Study Subjects according to Occupational Status

Prevalence of Smoking - Prevalence of Smoking among Study Subjects

In this study, prevalence of smoking among adult males were found to be 97 (12.7%) which is shown in Table 3.

Smoking	Frequency (n=758)	Percent
Yes	97	12.70%
No	661	87.30%

Table 3. Prevalence of Smoking among Study Subjects

Prevalence of Smoking among Study Subjects according to Age Group

Prevalence of smoking was higher (59.8%) among 51 - 75 years' age group followed by 35.1% among 25 - 50 years' age group. Least number of smokers were in 76 - 110 years' age group (Table 4).

Age Group	Prevalence of Smoking
25 - 50	35.1%
51 - 75	59.8%
76 - 110	5.1%

Table 4. Prevalence of Smoking among Study Subjects according to Age Group

Figure 1. Distribution of the Study Subjects according to Age

Association of Smoking with Socio-Demographic Factors

Association of smoking with socio-demographic factors like age, educational status and occupational status were studied.

Association of Smoking with Age Group of Study Subjects

Smoking	25 - 50	51 - 75	76 - 110
Yes (Total no=97)	34 (35.1%)	58 (59.8%)	5 (5.2%)
No (Total no = 661)	422 (63.7%)	210 (31.9%)	29 (4.4%)

Table 5. Smoking and Age Group

χ^2 value: 30.186, df = 2, p value = 0.001

Figure 2. Prevalence of Smoking among Study Subjects

Table 5 shows the difference in proportion of smoking among different age group of the study subjects and this

Association of Smoking with Occupational Status of Study Subjects

Smoking	Professional	Clerk	Teacher	Skilled	Unskilled	Student	Unemployed
Yes	0	0	0	36	35	0	24
Row %	0	0	0	37.5	36.5	0	25
No	23	9	5	302	223	8	93
Row %	3.5	1.4	0.8	45.2	33.8	1.2	14.1
Total	23	9	5	338	258	8	117
Row %	3	1.2	0.7	44.2	34.1	1	15.5

Table 7. Smoking and Occupational Status

χ^2 square value: 16.747, df = 6, p value = 0.019

Table 7 showed the difference in proportion of smokers among different occupational groups were found to be statistically significant. (Chi square value: 16.747, p value = 0.019).

DISCUSSION

In this study prevalence of smoking among males was 12.7%, which was lower than national and state average. Reduction in prevalence of smoking may be due to high proportion of Muslims, as Kozhikode district is high in Muslim minority because in Muslim religion smoking is forbidden. In Rani et al study, the prevalence of smoking in Kerala men was 28.2% and in NFHS 3 study also the prevalence of smoking among men aged above 15 years was estimated to be 36%.⁶ The Kerala Sastra Sahitya Parishad study in 1987 reported a smoking prevalence of 43% among men aged 15 years.¹⁵ Another study by Kutty et al in rural Thiruvananthapuram district in 1990, reported a smoking prevalence of 50 percent among men.¹⁶ The most recent community based study from

difference in proportion of smokers among the different age groups of the study subjects were found to be statistically significant (Chi square value: 30.186, p value = 0.001).

Association of Smoking with Educational Status of Study Subjects

Smoking	Primary	Secondary	High School	Pre-Degree	College	Professional
Yes	49	25	14	3	4	1
Row %	51	26	14.6	3.1	4.2	1
No	123	232	122	90	76	19
Row %	18.5	34.9	18.5	13.6	11.5	3
Total	172	257	136	93	80	20
Row %	22.6	33.8	18	12.3	10.6	2.8

Table 6. Smoking and Educational Status

χ^2 Square Value: 55.0286, df = 5, p value < 0.0001

The difference in the proportion of smokers among different levels of educational status was found to be statistically significant in this study. (Chi square value: 55.0286, p value < 0.0001), Table 6.

Thiruvananthapuram district in 2005 by Thankappan et al reported a current smoking prevalence of 35 percent among men in the age group of 15 - 64 years.⁵ According to GATS - India, 2009-2010, the prevalence of smoking among males is 24%, whereas the prevalence among females is 3%.¹⁷ Even though majority of males belonged to age group 25 - 50, prevalence of smoking was high in 51 - 75 age group (59.8%). This may be due to the fact that many of the males in the age group of 25 - 50 have not given their positive history of smoking. There was significant difference in prevalence of smoking between different age group among study subjects (p = 0.001). In a large sample study by Sankara Naryanan et al in 1995 consisting of over 110,000 individuals in rural Thiruvananthapuram district reported a current smoking prevalence of 50.1 percent among men in the age group of 35 years.¹⁸ In Prabakar et al study, a 51.5% increase in prevalence of ever tobacco use was seen among men as they entered adulthood from adolescence (19.6% in 15 - 19 years' age group to 40.4% in 21 - 25 years' age group).¹⁹ Majority of

males in this study belonged to secondary educational status (33.9%). Prevalence of smoking was high among males with primary education status (51%) and the difference in the prevalence of smoking among different educational levels were statistically significant ($p < 0.0001$). This may be due to as educational status improves awareness about the health effects of smoking also improves. In Bala et al study, smoking prevalence was high in illiterates and in literates with less than seven years of schooling, but decreased significantly with the increase in education status after attaining secondary education and more.²⁰ In Naryan et al study, men with no education were 1.8 times more likely to be smokers than men with college education.²¹ In Prabakar et al study also, prevalence of smoking decreased as educational status became higher.¹⁹ Majority of males (44.2%) were skilled workers. Prevalence of smoking was high (37.5%) among skilled workers and there was significant difference in smoking prevalence among different occupational groups of the study subjects ($p = 0.019$). According to Prabakar et al study, prevalence of smoking was high among unemployed and homemaker men compared to employed men.¹⁹

CONCLUSION

Smoking is prevalent among men in rural areas of our state and many socio-demographic factors have influence on smoking. Based on this information, control measures can be planned further to reduce burden of smoking and one of the important factor is educational status, which helped to increase their awareness regarding smoking side effects.

Therefore, as a part of recommendation, awareness classes can be conducted among school and college students and among general public too.

As this is only a cross-sectional study to find out the risk factors of smoking, analytical studies can be done further.

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