Section: Community Medicine

Original Research Article

PREVALENCE OF TOBACCO CONSUMPTION AND ITS ASSOCIATION WITH SOCIO-DEMOGRAPHIC DETERMINANTS AMONG RURAL POPULATION OF TELANGANA

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ABSTRACT

Background: Tobacco consumption is the most important preventable cause of disease and death among adults. In India according to GATS 2016-17[2] India tobacco prevalence is 28.6% of adults (42.4% males and 14.2% females) are tobacco consumers.10.7% adults (19% males and 2.0% females) use smoking tobacco.21.4% adults (29.6% males and 12.8% females) use smokeless tobacco[2]. Barrier factors such as sociocultural and demographic factors play crucial role and has impact on trends and patterns of prevalence among the rural population. **Objective:** To estimate the prevalence of tobacco consumption among rural population of both males and females in RHTC field practice area, Nalgonda District.

Materials and Methods: Community based cross sectional study, was carried out in 11 adopted villages under RHTC field practice area in Nalgonda district under tertiary care teaching hospital from October 2021 to September 2022. Sample size of 488 study participants were obtained by multistage sampling technique.

Results: The prevalence of tobacco consumption in the study population.106(21.5%) of the study group were tobacco consumers and 382 (78.5%) were non-consumers. Among the study population 71(29.7%) of males and 35(14.1%) of females consume tobacco and it shows statistically significance. 283(58%) knew that tobacco consumption causes cancer,121(25%) knew that it causes Respiratory disease,30(6%) knew that it causes CVD and 49(10%) knew it causes coronary heart diseases.

Conclusions: This study concludes that the prevalence of tobacco consumption is mainly associated due to factors like having no formal education, doing skilled work and belong to middle and lower middle socio-economic groups. Education is the key area where majority of the tobacco consumers started between the age 11 – 20 years. So anti-tobacco education should be made compulsory in schools and colleges in their academic curriculum.

Keywords: Tobacco consumption, Household, ex-smoker, Socio-demographic factors.

INTRODUCTION

Tobacco consumption is the most important preventable cause of disease and death among adults.[1] Morbidity and Mortality of disease could be prevented by reducing the prevalence of tobacco consumption,[2] Tobacco-attributable deaths like Ischemic Heart Disease, Aortic Aneurysms, Peptic Ulcers, lung cancers, Cerebro vascular Disease

(Stroke), Chronic Obstructive Pulmonary Disease and other diseases are projected to rise from 5.4 million in 2004 to 8.3 million in 2030, almost 10% of all deaths worldwide.[3] On an average Tobacco causes one death every 6 seconds and it accounts for 1 in 10 adult deaths worldwide.[4]

In India, Tobacco consumption continues to grow at 2-3% per annum[5].India is the second most important tobacco consumer in the world in which smoking of conventional cigarettes accounts for only 25%.[6,7] Most people consume tobacco in the form of non-cigarette items such as hand-rolled bidis, chewing etc[8].India's anti-tobacco legislation, first passed at the national level in 1975, was largely limited to health warnings and proved to be inefficient. In 2003, The Central Government passed the Cigarettes and Other Tobacco Products Act (COTPA) applicable to all tobacco products[9].

TRENDS OF PREVALENCE OF TOBACCO USE:

i) **At Global Level:** Overall global tobacco use has fallen from 1.397 billion in 2000 to 1.337 billion in 2018 according to the WHO global report on trends in prevalence of tobacco use 2000-2025 third edition.[10,11] 22% of the world's population aged 15+ are smokers and 78% do not smoke.[12] In developed countries, average of 35% of men are smokers. In developing countries, the average is 50%. At present, 22% of women in developed countries consume tobacco, while in developing countries the figure is only 9%.[13]

ii) **At National level (India):** Tobacco consumption continues to grow in India at 2-3% per annum, and by 2020 it is predicted that it will account for 13% of all deaths in India. Tobacco usage kills over 1 million people in India annually and is the fourth leading cause of non-communicable diseases (NCD) such as cancer and heart diseases, which account for 53% of all deaths in India.[14]

The prevalence of tobacco consumption at national level and the different types of recent surveys conducted over a period shows some of the following results. In India according to GATS 2016-17[2] India tobacco prevalence is 28.6% of adults (42.4% males and 14.2% females) are tobacco consumers.10.7% adults (19% males and 2.0% females) use smoking tobacco.21.4% adults (29.6% males and 12.8% females) use smokeless tobacco[2].

Tobacco Use in South India and Telangana: Southern region comprising of the states of Telangana, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, and Union Territory of Puducherry. Tobacco use, especially smoking is quite widespread in Southern region. The prevalence of smoking in the Southern region is 13%. An equal proportion uses smokeless tobacco.[15] According to GATS survey Telangana 2016-17 shows that 15.3%of men,1.4% of women and 8.3% of all adults currently smoke tobacco[2]. The mean age at initiation of tobacco use is 19.9 years[16].Tobacco use in Telangana is 17.8%.

RATIONALE OF THE STUDY

The rationale of doing this study is to know the prevalence of tobacco consumption and social determinants associated with tobacco consumption. The major occupation of population in the district is agriculture, farming, weaving while the women work in paddy fields, roll beedis and work in the small-scale industries. In spite of well-established anti-tobacco legislation, barrier factors such as sociocultural and demographic factors play crucial role and has impact on trends and patterns of prevalence among the rural population.

Objective:

1. To estimate the prevalence of tobacco consumption among rural population of both males and females in RHTC field practice area, Nalgonda District.
2. To assess the awareness of health hazards due to tobacco consumption among the study population.

To determine the socio demographic factors and its association with Tobacco consumption among study group.

MATERIALS AND METHODS

Study design: Community based Cross-sectional analytical study.

Study area: Rural field practice area of Department of Community Medicine, Kamineni Institute of Medical Sciences, Narketpally, Nalgonda District, Telangana. Adopted 11 villages under rural field practice area**.** It covers a population of approximately 28511, which consists of 14372 males and 14139 females in 10280 families & 6647 households[11]

Study duration: October 2021 to September 2022

Study Area: This study was conducted in the rural field practice area of Department of Community Medicine, Kamineni Institute of Medical Sciences, Narketpally, Nalgonda District, Telangana. Adopted 11 villages under rural field practice area

- It covers a population of approximately 28511, which consists of 14372 males and 14139 females in 10280 families & 6647 households[11]

Sample size: According to Global Adult Tobacco Survey[26] 2016-17 in Telangana, prevalence of smoking and smokeless tobacco among adult rural population was 17.8%. Using this prevalence, sample size is calculated with the following formula:

Calculation n = $(Z\alpha)^2 pq/L^2$; p = 17.8, q = (100 – 17.8) =82.2**,** L = 20% of p = 20% of 17.8 = 3.56, After calculating 10% non-response rate **.** Final sample size is (n)=**488**

Sampling method: Multistage sampling method was used in this study

In the first stage: The RHTC field practice area constitutes 11 villages which are arranged in

alphabetical order out of which 5 villages were selected by simple random sampling by using computerized random tables.

In the second stage: At village level based on existing social structured distribution of houses, as SC colonies, BC colonies, Reddy colonies, lower socio-economic sections & Others (referred as Social Groups) population are Selected proportionately from each village. The sampling fraction (ratio of sample size to population size) of 0.031(488/15710) was obtained and this fraction is multiplied to the population of the selected villages. The selection of population in each village varied from village to village as the number of population in each village is different. Thus, the final sample of 488 study subjects included in the study from the 5 villages

In final stage: Randomly one street was chosen and started, home visit. Those, who were given consent, their details were documented. Till the number of study population were achieved from each village, the survey was continued, like wise all 488-study population were interviewed according to proportional allocation.

Studysubjects: Data was collected from adult rural population aged 13-60 years and above, who were residents of the study area.

Inclusion Criteria

- The permanent residents living in their house for more than 10 years
- All males and females aged 18 years and above who give consent to participate in the study.
- The study population between 13 to 18 years whose parents/guardian give consent to participate in the study.

Exclusion Criteria

- Those who are not willing to participate in the study.
- All the non-respondents and who are willing participate but not to give their consent were excluded

OPERATIONAL DEFINITIONS[98]:

1. Current smoker: Those who consume tobacco at least one cigarette/bidi during the last 30 days prior to the survey.
2. Past smokers (Former/ex-smoker): Those who were not using any form of tobacco for the past one month were considered as past smokers.
3. Non-smoker (Never): All others were classified as non-tobacco users.
4. Smokeless tobacco (SLT): Tobacco products that deliver nicotine without smoke and having addictive potential.
5. Current Non-user: Those who didn't consume tobacco at least one cigarette/bidi during the last 30 days prior to the survey.
6. Household: A household consists of one or more people (a single family or with another group of people) who live in the same dwelling and share meals.

Data Collection: After proportional division, the houses were surveyed till the final sample size is attained. The rural field practice area covers the total of 3705 households among the selected 5 villages. The subjects were explained about the study and Willful respondents were interviewed personally using semi-structured questionnaire. If the study subject was not found or door was locked or consent was denied, investigator had shifted to next house.

Ethical Clearance: Ethical clearance was taken from the Institutional Ethical Committee. Personal identification data was not collected to maintain study subjects' confidentiality.

Data Analysis: Data was analyzed using Microsoft excel and analysis done with SPSS software 23 version. Descriptive statistics are mentioned and tests of significance – chi square test was applied wherever required.

RESULTS

Table 1: Comparative Gender Distribution of population at different geographical study areas

S. No	Category	Males		Females		Sex Ratio
1.	Nalgonda District	818306	50.56%	800110	49.43%	978
2.	RHTC Field Practice Area (11 Villages)	14372	50.40%	14139	49.59%	984
3.	Selected Population (5 Villages)	7885	50.19%	7825	49.80%	992
4.	Study Sample Size	239	49%	249	51%	1042

From the table 1 it is observed that, "Nalgonda district", "RHTC Field Practice Area" & "Selected Population from 5 Villages, the sex ratio is less than 1000 women for 1000 male, whereas, in study population women are >1000 per 1000 males. This difference is not statistically significant hence the study sample is representative to the RHTC field practice area and Nalgonda district population.

Table 2: Prevalence of current Tobacco usage (n=488)

Category	Study Population					
	Males		Females		Total	
	n	%	n	%	n	%
Current Tobacco consumer	71	29.7	35	14.1	106	21.5
Current Non user	168	70.3	214	85.9	382	78.5
Total	239	100	249	100	488	100

χ^2= 17.568, df=1, p < 0.05

Table 2 depicts the prevalence of tobacco consumption in the study population.106(21.5%) of the study group were tobacco consumers and 382 (78.5%) were non-consumers. Among the study population 71(29.7%) of males and 35(14.1%) of females consume tobacco and it shows statistically significance.

(χ^2= 18.252, df=2, p < 0.05)

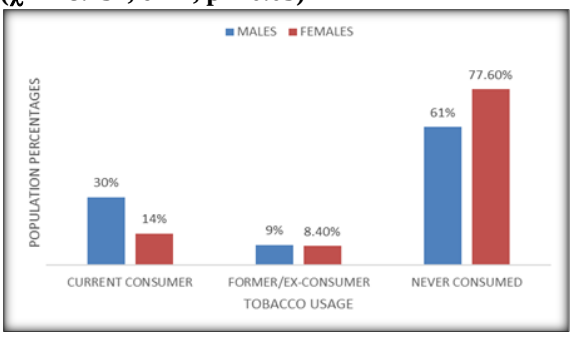

Figure 1: Prevalence of Tobacco Consumption in relation to gender

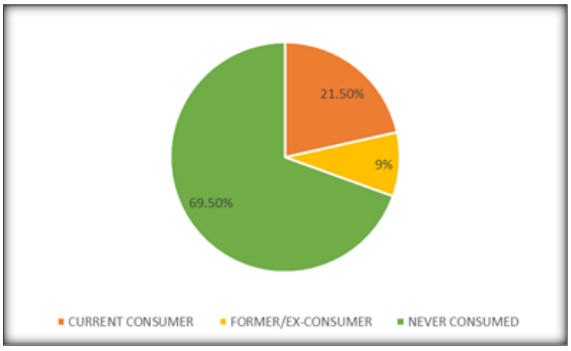

Figure 2: Over all Prevalence of Tobacco consumption

As shown in Figure 2 106(21.51%%) of study population are current tobacco consumers, 42(8.5%) are former or ex-consumers and 340(70%) had never consumed tobacco. Among study population 30% & 14% are current consumers,21(9%) & 21(9%) are former /ex consumers and 147(61%) &193(77.6%) had never consumed of males and females respectively and shows statistically significance.

Table 3: Awareness regarding diseases of tobacco consumption among study (n=488)

s.no	Awareness on diseases of tobacco consumption	Frequency	%
1	Cancer	283	58
2	Respiratory diseases (COPD, Asthma)	121	25
3	Cerebro vascular diseases	30	6
4	Coronary heart diseases	49	10
5	Others	5	1
Total		488	100

As per table 3 among the study subjects 488, 283(58%) knew that tobacco consumption causes cancer,121(25%) knew that it causes Respiratory disease,30(6%) knew that it causes CVD and 49(10%) knew it causes coronary heart diseases.

Table 4: Association of socio-demographic factors in relation to tobacco consumption among study group (n=488)

Socio-demographic factors	Tobacco consumption						p-value
	Consumer		Non-Consumer		Total	%	
	n	%	n	%	n	%	
1. Age group(years) 13-16	**5**	**4.7**	**101**	**26.4**	**106**	**21.7**	**χ^2=45.36, df = 4, p < 0.05**
16-30	**13**	**12.2**	**99**	**26**	**112**	**23**	
30-45	**33**	**31.1**	**82**	**21.4**	**115**	**23.5**	
45-60	**42**	**40**	**75**	**19.6**	**117**	**24**	
>60	**13**	**12**	**25**	**6.6**	**38**	**7.8**	
2. Gender Male	**71**	**67**	**168**	**44**	**239**	**49**	**χ^2=17.568, df = 1, p < 0.05**
Female	**35**	**33**	**214**	**56**	**249**	**51**	
3. Religion Hindu	**74**	**69.8**	**280**	**73.2**	**354**	**72.5**	**χ^2=0.917, df = 2, p > 0.05**
Muslim	**27**	**25.4**	**81**	**21.2**	**108**	**22.1**	
Christian	**5**	**4.8**	**21**	**5.47**	**26**	**5.3**	
4. Education Illiterate	**31**	**29.2**	**112**	**29.2**	**143**	**29.3**	**χ^2=17.908, df=4, p < 0.05**
Primary school	**14**	**13.2**	**48**	**13**	**62**	**12.7**	
Middle school	**18**	**17**	**59**	**15.4**	**77**	**15.7**	
High school	**19**	**18**	**105**	**27.4**	**124**	**25.5**	
College	**24**	**22.6**	**58**	**15**	**82**	**16.8**	
5. Occupation							**χ^2=5.785, df=5, p > 0.05**

Unemployed	**27**	**25.4**	**71**	**18.5**	**98**	**20**	
Un skilled	**11**	**10.3**	**35**	**9.1**	**46**	**9.4**	
Semi-skilled	**5**	**4.7**	**42**	**11**	**47**	**10**	
Skilled	**34**	**32**	**118**	**31**	**152**	**31**	
Clerk/shop owner/farm owner	**24**	**22.6**	**95**	**25**	**119**	**24.3**	
Semi-professional/professional	**5**	**5**	**21**	**5.4**	**26**	**5.3**	
6. Marital status Unmarried	**14**	**13.2**	**90**	**23.5**	**104**	**21**	**X^2=6.172, df=3, P < 0.05**
Married	**74**	**69.8**	**246**	**64.2**	**320**	**66**	
Widowed	**15**	**14**	**37**	**10**	**52**	**11**	
Divorced /separated	**3**	**3**	**9**	**2.3**	**12**	**2**	
7. Socio-economic status Upper	**20**	**19**	**109**	**28.5**	**129**	**26.3**	**χ^2=17.908, df=4, p < 0.05**
Upper middle	**29**	**27.3**	**140**	**36.6**	**169**	**34.6**	
Middle	**29**	**27.3**	**87**	**23**	**116**	**24**	
Lower middle	**26**	**24.5**	**40**	**10.4**	**66**	**13.5**	
lower	**2**	**1.9**	**6**	**1.5**	**8**	**1.6**	

The above table 4 shows prevalence of current tobacco consumption among study population increases from 5(4.7%) among <15 years' age group to 42(40%) in the age group of 45 – 60 years and then decreases to 13(12%) in the age group of 61 & above years. Prevalence of smoking was highest in those aged 45 – 60 years and lowest in those aged < 15 years and shows statistical significance. According to gender tobacco users of 67% and 33% were males and females respectively and non-consumers were 44% and 56% males and females respectively. But the prevalence of tobacco consumption among the consumers over all 106(21.5) %, among 239 males it was 71(67%) and out of 249 females it was 35(33) % and it shows statistically significance

Total tobacco consumers 69.8% were Hindus, 25.4% were Muslims and 4.8% Christians and there is no significant association between religion and smoking. Tobacco consumption in illiterates are 29.3% and literates are 71% but as the level of education increases the prevalence of tobacco consumption has been found to be decreasing, graduate's prevalence is 16.8%. Among adult's tobacco use decreases sharply with education. which is statistically significant. Majority of study population 152(31%) are skilled laborers among them 34(32%) skilled are tobacco consumers and 118(31%) are non-consumers. Association between occupation and smoking was not statistically significant.

Among study population 320(66%) were married, tobacco consumers among married were 74(69.8%) and non-consumers were 246(64.2%). Significant statistical difference in prevalence of tobacco consumption was observed between married and unmarried study population. The prevalence of tobacco consumption 54% is higher among middle and lower classes shows statistically significant association.

DISCUSSION

In the present study the prevalence of tobacco consumption is 106(21.5%) tobacco consumers and 382 (78.5%) were non-consumers. Among the study population 71(29.7%) of males and 35(14.1%) of females consume tobacco as per table 2 & figure 1,2 which shows statistically significance. The finding regarding overall prevalence is little less in the study conducted by Global Adult Tobacco Survey (GATS)[18] 2016-2017 in Telangana i.e. 17.8% among which it was 25.9% of males and 9% of females.

The present finding was lower in males and higher in females than the NFHS,[19] - 4 data which was 44.8% & 6.8% among men and women respectively in rural area. And it was very high in a study conducted by Clara Kayei et al,[20] in Andhra Pradesh where the prevalence of tobacco consumption was 55.7%, and it was 45.2% &4.8% among males and females. In study by Bhattacharya et al,[21] prevalence was 70% which is very high than the present study. In the study Thankappan et al,[22] prevalence was 37.3% among which males were 62.2% and females was 12.2% which is more than the present study. In a study conducted by Syam sunder et al (2014),[23] in Rural population of Telangana state in urban and rural areas, it was observed that prevalence of tobacco consumption was 16.3% and in rural areas it was 13.4% which is little lower

Awareness regarding diseases of tobacco consumption from the table 3 shows that 283(58%) knew that tobacco consumption causes cancer,121(25%) knew that it causes Respiratory disease,30(6%) knew that it causes CVD and 49(10%) knew it causes coronary heart diseases. In a study done by Rao AR et al[24] knew that tobacco consumption causes lung cancer (49.4%), respiratory disease (37.6%) and CVD and CHD (18.9%) which is more than the present study. In the study Kumar R et al,[25] are aware that tobacco consumption causes lung cancer 88.9%, respiratory disease 78.5%, CVD 12.5% and stroke 86%.

Socio-demographic determinants association with tobacco consumption

I) Age and Tobacco Consumption: From the table 4 depicts prevalence of current tobacco Consumption Among Study Population Increases From 5(4.7%) Among <15 Years Age Group To 42(40%) in the age group of 45 – 60 years and then decreases to 13(12%) in the age group of 60 & above years and shows statistical significance. Whereas when compared to study conducted by GATS (2016 - 2017),[18] Telangana, prevalence of tobacco consumption among males is 25.9% and female is 9.8% overall of 17.8% in the age group >15 years.

Ii) Gender and Tobacco Consumption: As per the table 4 prevalence of current tobacco consumption according to gender users of 67% and 33% are males and females respectively and it shows statistically significance. In a study conducted by Syam sunder et al,[23] in Rural population Telangana state in urban and rural areas, it was observed that prevalence of tobacco consumption was 16.3% and in rural areas it was 13.4% which is little lower.

Iii) Religion And Tobacco Consumption: As per the table 4 the total tobacco consumers 69.8% were Hindus, 25.4% were Muslims and 4.8% Christians and there is no statistical significant association. In a study conducted by Ansari ZA et al,[26] though tobacco consumption was more among Hindus (70%), the association between religion and smoking consumption was not statistically significant.

Iv) Education and Tobacco Consumption: From the table 4 tobacco consumption in illiterates are 29.3% and literates are 71% but as the level of education increases the prevalence of tobacco consumption has been found to be decreasing, which is statistically significant. In a study conducted by S.V Subramanian et al,[27] similar finding was reported.In a study conducted by Clara Kayei Chow,[20] in rural areas of East and West Godavari regions of Andhra Pradesh, among illiterates 60% were tobacco users this study found that the lower the education, the higher the prevalence of tobacco consumption.

V) Occupation and Tobacco Consumption: As per the table 4 majority 34(32%) skilled are tobacco consumers and 118(31%) are non-consumers and it is not statistically significant. In a study conducted by Clara Kayei Chow,[20] in rural areas of East and West Godavari regions of Andhra Pradesh, among tobacco consumers 69.9% use bidi only, 26.7% cigarettes only and 3.5% use smokeless tobacco. This finding of tobacco consumers 49.2% among skilled is higher than the present study.

Vi) Marital Status and Tobacco Consumption: As per the table 4 tobacco consumers among married were 74(69.8%) and non-consumers were 246(64.2%). More prevalence among married population than unmarried shows statistical significance. Similar finding of 68% of married consume tobacco was observed in study by Subramanian et al.[27]

Vii) Socio-Economic Status and Tobacco Consumption: As per the table 4 prevalence of tobacco consumption 54% is higher among middle and lower classes and shows statistically significance. In a study conducted by Ansari ZA et al,[26] similar finding of high prevalence of tobacco consumption (53%) was seen among lower socio-economic status category. In the study by Veleshala J et al (2020),[28] tobacco usage was high in lower socio-economic status category which is unlike to the present study

CONCLUSION

This study concludes that the prevalence of tobacco consumption is mainly associated due to factors like having no formal education, doing skilled work and belong to middle and lower middle socio-economic groups. Other factors affecting prevalence were determinants like early age of initiation of tobacco consumption, marital status.

The prevalence of tobacco consumption in the present study is slightly higher than the state average. Hence specially focused anti -tobacco measures are required in the field practicing area it is recommended to develope locally feasible anti-tobacco campaign focusing on BCC measures.

Socio demographic interventions: Education is the key area where majority of the tobacco consumers started between the age 11 – 20 years. So anti-tobacco education should be made compulsory in schools and colleges in their academic curriculum. School drop outs must be reduced.

Limitations of the study

The present study was a cross-sectional community based undertaken in an rural area among 11 villages, hence the findings may not be extrapolative to population belonging to urban and urban slums.

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