

## Research Article

# Prevalence of tobacco consumption among adults in urban field practice area NMC, Raichur, Karnataka, India

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## ABSTRACT

**Background:** Tobacco is commonly smoked or chewed or inhaled. Smoking is a leading cause of many NCDs as well, has significant adverse effects on pregnancy. Chewing of tobacco is also a leading cause of oral cancer. About 1.3 billion people worldwide smoke and the number of smokers continue to rise. Among these, about 84% live in developing and traditional economy countries. Tobacco is fourth most common risk factors for disease and the second major cause of death worldwide. It is currently responsible for the death of one in ten adults' worldwide (about 4.9 million deaths each year). The Objective of the study was to estimate the prevalence of tobacco consumption urban population.

**Methods:** Its a cross sectional, community based study was undertaken over a period of one year from January 2013 - December 2013, in Urban field Practice area of Navodaya Medical College. Study population: People aged 18-65 years residing in the urban field practice area of NMC. Sampling method: Systematic random sampling. Statistical analysis was done using chi square test by using SPSS version 17.

**Results:** Total participants in the study were 1751, comprised of 964 males and 787 females. Current smoking- 26.72% (male-48.5%, female-0%), current smokeless tobacco use 12.5% (male-15.8% and female 8.5%).

**Conclusions:** More than one third men use tobacco and tobacco use was more in middle aged adults. Overall tobacco use was more prevalent among middle and low income group.

**Keywords:** Tobacco, NCDs, Life style diseases

## INTRODUCTION

Tobacco is commonly smoked or chewed or inhaled. Smoking is a leading cause of many Non Communicable Diseases as well, has significant adverse effects on pregnancy. Chewing of tobacco is also a leading cause of oral cancer. About 1.3 billion people worldwide smoke and the number of smokers continue to rise. Among these, about 84% live in developing and traditional economy countries. Tobacco is fourth most common risk factors for disease and the second major cause of death worldwide. It is currently responsible for the death of one in ten adults worldwide (about 4.9 million deaths each year).<sup>1</sup>

In fact, the single most important lifestyle factor as risk for diseases is tobacco use.<sup>2</sup> It is a strong and independent risk factor for CVDs among individuals living in high-incidence population where there is a significant background of coronary and peripheral atherosclerosis.<sup>3</sup> Globally, tobacco accounts for 27.8% of all cardiovascular deaths, 13.6% of all lung cancer deaths, 6.6% of upper aero-digestive cancer deaths, 6.6% of other cancer deaths, 27.2% of deaths due to COPD and 12.8% of other respiratory death. Worldwide, tobacco use causes 4.9 million deaths (8.8%), loss of 59.1 million DALYs (4.1%) and estimated economic loss of \$200 billion per year. Unless the current trends are reversed the figure is expected to raise to 10 million by 2020, with 7

million of these deaths occur in developing countries, mainly China and India.<sup>4</sup>

More than 40% of the world's smokers live in just two countries i.e. China and India. India only has around 10% of world's smokers. Tobacco is one of the major causes of deaths and diseases in India, accounting for over eight lakh deaths every year (one fifth of the worldwide tobacco deaths).<sup>5</sup> The variety of forms of tobacco use is unique to India. Apart from the smoked forms that include cigarettes, bidis and cigars, a plethora of smokeless forms of consumption exist and they account for about 35 percent of the total tobacco consumption.<sup>2</sup>

There is a large body of evidence from prospective cohort studies regarding the beneficial effect of smoking cessation on coronary heart disease mortality. However, the magnitude of the effect and the time required to achieve beneficial results are unclear. Some studies suggest that, about 10 years after stopping smoking, coronary heart disease mortality risk is reduced to that of people who have never smoked. Other reports suggest that a much longer time is required.

It has also been shown that cigarette smokers, who change to a pipe or cigar, and those who continue to smoke but reduce the number of cigarettes, have a greater mortality risk than those who quit smoking. A 50-year follow-up of British doctors demonstration that, among ex-smokers, the age of quitting has a major impact on survival prospects; those who quit between 35 and 44 years of age had the same survival rates as those who had never smoked.<sup>2</sup>

The physicochemical effects of tobacco, that is, increased heart rate and myocardial contractility and greater myocardial oxygen demand due to raised catecholamine levels, decreased oxygen carrying capacity of the blood, elevated fibrinogen levels, and platelet aggregating effects. Other possible mechanisms include elevated fasting blood glucose levels and white blood cell counts and lower HDL levels, all found among smokers.<sup>3</sup> objectives of the study was to estimate the prevalence of tobacco consumption urban population.

## METHODS

### Study area

The study was undertaken in the urban field practice area of the Department of Community Medicine, Navodaya Medical College, Ashapur, Raichur, Karnataka, India.

### Study population

The study population comprised of people aged 18-65 years residing in the urban field practice area of Navodaya Medical College and Hospital, Raichur.

### Study design

Community based cross sectional study.

### Statistical analysis

The data was entered in excel spread sheet after coding. It will be processed and analyzed statistically using the SPSS statistical package (SPSS version 17.0 for windows 2009). Chi Square test was used and P value less than 0.05 will be considered significant. Duration of study was from January 2013 to December 2013.

### Inclusion criteria

People aged 18-65 years who are the permanent residents in the urban field practice area of Navodaya medical College.

### Exclusion criteria

1. Individuals below 18 years and above 65 years.
2. Individuals who did not give consent.

### Sample size calculation

Using statistical formula

$$n = \frac{z^2 pq}{d^2}$$

Prevalence of NCD in urban area, p= 5%

n = 1900 (150 among these were not responding, so the sample size came to be 1751).

### Sampling method

Systematic random sampling. House was taken as the sampling unit.

### Smoking<sup>6</sup>

*Current Smoker:* a person who at the time of the survey smokes any tobacco product or had stopped smoking for less than 12 months

*Non Smoker:* those who had never smoked once a day atleast for one year.

*Past Smoker:* previous smokers who were not smoking during the past one year.

Amount of cigarettes, beedi per day and the duration of smoking were also recorded.

*Smokeless tobacco:* Subjects who were consuming gutkha, snuff and tobacco in any other forms were

considered and the duration and frequency of consumption was noted.

## RESULTS

**Table 1: Socio demographic factors.**

Category		Number	Percentage
<b>Gender</b>	Male	964	55.1
	Female	787	44.9
<b>Marital status</b>	Married	1380	78.8
	Never married	184	10.5
	Widow	187	10.7
<b>Occupation</b>	Unemployed	6	0.3
	Labourer	160	9.1
	Semi-skilled worker	898	51.3
	Clerical/shop owner/farmer	258	14.7
	Semi-profession	249	14.2
<b>Literacy</b>	Profession	180	10.3
	Illiterate	460	26.3
<b>Religion</b>	Literate	1291	73.7
	Hindu	1157	66.1
	Muslim	361	20.6
<b>Socio economic status (modified B G prasad)</b>	Christian	206	11.8
	Class v	39	2.2
	Class iv	503	28.7
	Class iii	696	39.7
	Class ii	412	23.5
	Class i	101	5.8

**Table 2: Association between smoking and gender.**

Smoking	Gender		Total
	Male (%)	Female (%)	
Never	461 (47.8)	787 (100)	1248 (71.2)
Yes	468 (48.5)	0 (0)	468 (26.72)
Past	35 (3.61)	0 (0)	35 (1.99)
Total	964 (100)	787 (100)	1751 (100)

$X^2 = 576.152$  df=2  $p < 0.0001$ .

26.72% of the participants smoked in the study, 1.99% of them were past smokers. Prevalence of smoking was found to be highest among male (48.5%). It was found to be significant.

27.4% of the participants smoked in this study and everyone was male. 31.74% of males smoked upto 20 cigarettes per day. And 17.94% males smoked more than

20 cigarettes per day. The test was statistically significant.

**Table 3: Association between consuming smokeless tobacco and gender.**

Smokeless Tobacco	Gender		Total (%)
	Male (%)	Female (%)	
No	811 (84.1)	720 (91.4)	1531 (87.4)
Yes	153 (15.87)	67 (8.51)	220 (12.56)
Total	964 (100)	787 (100)	1751 (100)

$X^2 = 21.352$ ; df= 1,  $p < 0.001$ .

12.5% of the participants consumed smokeless tobacco in the study. Prevalence of smokeless tobacco consumption was highest among male (15.87%). The statistical test was highly significant.

**Table 4: Association between first age of smoking and gender.**

First age of smoking	Gender		Total (%)
	Male (%)	Female (%)	
Never	485 (50.31)	787 (100)	1272 (72.64)
Below 15 years	211 (21.88)	0 (0)	211 (12.05)
After 15 years	268 (27.80)	0 (0)	268 (15.30)
Total	964 (100)	787 (100)	1751 (100)

$X^2 = 538.31$ , df=2,  $p < 0.001$ .

72.6% of participants never smoked in their life, in this study none of the females reported that they smoked. 21.88% of males started smoking when they were below 15 years of age and 27.80 after 15 years of age. The test applied was statistically significant.

**Table 5: Association between number of cigarette smoking and gender.**

	Gender		Total (%)
	Male (%)	Female (%)	
Never	485 (50.31)	787 (100)	1272 (72.64)
Up to 20	306 (31.74)	0 (0)	306 (17.47)
>20	173 (17.94)	0 (0)	173 (9.88)
Total	964 (100)	787 (100)	1751 (100)

$X^2 = 538.31$ , df= 2,  $p < 0.0001$ .

51.28% (898) of the subjects were semi-skilled workers; the prevalence of smoking among them was 23.2% (208). Out of 180 professionals 38.3% (69) were smokers. Out of 258 clerical/shop owners/farmers 27.1% (70) were smokers, out of 249 (14.22%) semi-professionals 32.1% (80) were smokers. The association between occupation and smoking was statistically significant. Out of 898 semi-skilled workers 110 (12.2%) of them were consuming smokeless tobacco. Out of 258 clerical/shop owner/farmers 33 (12.8%) consumed smokeless tobacco.

**Table 6: Association between first time tobacco consumption and gender.**

Tobacco Consumptions	Gender		Total (%)
	Male (%)	Female (%)	
Never	811 (84.12)	720 (91.48)	1531(87.43)
Below 15 years	85 (8.81)	27 (3.43)	112 (6.39)
After 15 years	68 (7.05)	40 (5.08)	108 (6.16)
Total	964 (100)	787 (100)	1751 (100)

$\chi^2 = 25.068$ ,  $df=2$ ,  $p=0.0001$ .

The association between smokeless tobacco and occupation was statistically insignificant. 26.7% of participants smoked in this study, prevalence of smoking was found to be highest (41.0%) among 21-30 years age group, followed by 20.9% in 31-40 years. The test was statistically significant. 12.5% participants consumed

smokeless tobacco, out of which 35% belonged to 31-40 years age group, 33.2% belonged to 21-30 age group. The test applied was statistically significant.

12.5% of the participants reported that they consumed smokeless tobacco. 8.81% of males and 3.43% females started to consume tobacco below 15 years of age. 7.05% of males and 5.08 females after 15 years of age. The test was statistically significant.

26.7% of the participants were smokers in the study, majority of the smokers 36.1% belonged to Class III followed by 29.2% Class IV. The test was statistically significant. 12.6% of the participants consumed smokeless tobacco, among them 26.7% belonged to Class I, followed by 19.7% with Class IV. The test was statistically significant.

**Table 7: Association between smoking and socio economic status.**

BG Prasad SES	Do you currently smoke			Total (%)
	Never (%)	Yes (%)	Past (%)	
Class V (%)	39 (100)	0 (0)	0 (0)	39 (100)
Class IV (%)	356 (70.8)	147 (29.2)	0 (0)	503 (100)
Class III (%)	434 (62.4)	251 (36.1)	11 (1.6)	696 (100)
Class II (%)	322 (78.2)	66 (16.0)	24 (5.8)	412 (100)
Class I (%)	97 (96.0)	4 (4.0)	0 (0)	101 (100)
Total (%)	1248 (71.3)	468 (26.7)	35 (2.0)	1751 (100)

**Table 8: Association between smokeless tobacco and Socio Economic status.**

BG Prasad SES	Do you consume smokeless tobacco		Total (%)
	No (%)	Yes (%)	
Class V (%)	39 (100)	0 (0)	39 (100)
Class IV (%)	404 (80.3)	99 (19.7)	503 (100)
Class III (%)	606 (87.1)	90 (12.9)	696 (100)
Class II (%)	408 (99.0)	4 (1.0)	412 (100)
Class I (%)	74 (73.3)	27 (26.7)	101 (100)
Total (%)	1531 (87.4)	220 (12.6)	1751 (100)

$\chi^2 = 97.749$ ,  $df=4$ ,  $p<0.0001$ .

**Table 9: Association between occupation and smoking.**

Occupation	Do you smoke			Total (%)
	Never (%)	Yes (%)	Past (%)	
Unemployed (%)	0 (0)	6 (100)	0 (0)	6(0.34)
Labourer (%)	125 (78.1)	35 (21.9)	0 (0)	160 (9.13)
Semi-skilled worker (%)	661 (73.6)	208 (23.2)	29 (3.2)	898 (51.28)
Clerical/Shop owner/farmer (%)	188 (72.9)	70 (27.1)	0 (0)	258 (14.73)
Semi-Profession (%)	163 (65.5)	80 (32.1)	6 (2.4)	249 (14.22)
Profession (%)	111 (61.7)	468 (26.7)	35 (2.0)	1751 (100%)

$\chi^2 = 58.242$ ,  $df=10$ ,  $p<0.0001$ .

**Table 10: Association between tobacco consumption and occupation.**

		Do you consume smokeless tobacco		
Occupation		No (%)	Yes (%)	Total (%)
	Unemployed (%)	6 (100)	0 (0)	6 (100)
	Labourer (%)	133 (83.1)	27 (16.9)	160 (100)
	Semi-skilled worker (%)	788 (87.8)	110 (12.2)	898 (100)
	Clerical/Shop owner/farmer (%)	225 (87.2)	33 (12.8)	258 (100)
	Semi-Profession (%)	228 (91.6)	21 (8.4)	249 (100)
	Profession (%)	151 (83.9)	29 (16.1)	180 (100)
	Total (%)	1531 (87.4)	220 (12.6)	1751 (100)

$\chi^2 = 9.590$ ,  $df=5$ ,  $p=0.088$ .

**Table 11: Association between smoking and age category.**

	Age category (years)					Total (%)
	<20 (%)	21-30 (%)	31-40 (%)	41-50 (%)	>51 (%)	
Never	235 (18.8)	393 (31.5)	321 (25.7)	164 (13.1)	135 (10.8)	1248 (71.2)
Yes	15 (3.2)	192 (41.0)	98 (20.9)	77 (16.5)	86 (18.4)	468 (26.7)
Past	0 (0)	0 (0)	4 (11.4)	0 (0)	31 (88.6)	35 (1.99)
Total	250 (14.3)	585 (33.4)	423 (24.2)	241 (13.8)	252 (14.4)	1751 (100)

$\chi^2 = 247.801$ ,  $df= 8$ ,  $p= 0.0001$

**Table 12: Association between smokeless tobacco consumption and age group.**

	Age category ( years)					Total (%)
	<20 (%)	21-30 (%)	31-40 (%)	41-50 (%)	>51	
No	235 (15.3)	512 (33.4)	346 (22.6)	197 (12.9)	241 (15.7)	1531 (87.43)
Yes	15 (6.8)	73 (33.2)	77 (35.0)	44 (20.0)	11 (5.0)	220 (12.56)
Total	250 (14.3)	585 (33.4)	423 (24.2)	241 (13.8)	252 (14.4)	1751 (100)

$\chi^2 = 44.85$ ,  $df=4$ ,  $p=0.0001$ .

## DISCUSSION

This survey aimed to evaluate tobacco consumption among adults. The risk factors are the diseases of tomorrow. Identifying these risk factors in populations occupies a central role in the surveillance system because of the importance of lag time between exposure and the disease. Therefore, public health strategies have to be driven by the motive of identifying risk factors in populations, and countries need to know the profile of risk factors of populations in different settings.

Prevalence of smoking is 26.72%. It was found to be highest among male (48.5%). The prevalence was supported by a study conducted by Thankappan et al in Kerala (22.6%), with 43.0% among men.<sup>7</sup> A study conducted by Joshi et al in Jam Nagar reported more prevalence (32.7%) compared to our study.<sup>8</sup> In our study none of the females reported that they smoked. 21.88% of males started smoking when they were below 15 years of age and 27.80 after 15 years of age. 31.74% of males smoked up to 20 cigarettes per day. And 17.94% males smoked more than 20 cigarettes per day. This can be attributed to the fact that in Indian population mostly men

indulge in this unhealthy practice. This is also reported in other studies by Joshi et al, Meenakshi BM et al, Gupta OP et al, Thankappan KR, Suguthan TN et al and Nath et al.<sup>7,8</sup> Majority of the smokers 36.1% belonged to Class III followed by 29.2% Class IV. The smoking is more common in middle class people. This finding is similar to study conducted by Suguthan TN, Gonzalez MA et al.<sup>7</sup> Prevalence of smoking was found to be highest (41.0%) among 21-30 years age group, followed by 20.9% in 31-40 years.

Prevalence of smokeless tobacco is 12.5% in the study. It was highest among male (15.87%) and 8.51% among females. It was supported by a study conducted by Aroor Bhagyalaxmi, Trivedi Atul et al, in Gujarat, use of smokeless tobacco was 14.2%.<sup>9</sup> 8.81% of males and 3.43% females started to consume tobacco below 15 years of age. 7.05% of males and 5.08 females after 15 years of age. 15.45% of males and 8.51% females consumed less than 15 packs per day, 0.41% of males consumed more than 15 packs per day. 26.7% belonged to Class I, followed by 19.7% with Class IV. 35% belonged to 31-40 years age group, 33.2% belonged to 21-30 age group. 6.39% of participants started to

consume tobacco below 15 years of age, among them majority 48.2 % belonged to 21-30 years. 6.16% of participants started after 15 years of age. Recommendations of the study was listed here; a nationwide initiative to create awareness among the people of the community regarding the harmful effects of tobacco, with main focus on children, adolescents and adults, so as to deter early initiation of smoking, effective implementation of COTPA (Cigarette Other Tobacco Product Act), to prevent the advertisement of tobacco products and to prevent use of cigarette in public places and routine screening for risk factors and NCDs in the health services for all individuals. Emphasis on comprehensive approach that encompasses preventive, promotive, curative and rehabilitative aspects in medical and nursing curriculum rather emphasizing only on curative care.

### Recommendations

- A nationwide initiative to create awareness among the people of the community regarding the harmful effects of tobacco, with main focus on children, adolescents and adults, so as to deter early initiation of smoking.
- Effective implementation of COTPA (Cigarette Other Tobacco Product Act), to prevent the advertisement of tobacco products and to prevent use of cigarette in public places.
- Routine screening for risk factors and NCDs in the health services for all individuals.
- Emphasis on comprehensive approach that encompasses preventive, promotive, curative and rehabilitative aspects in medical and nursing curriculum rather emphasizing only on curative care.

### CONCLUSION

More than one third men use tobacco and tobacco use was more in middle aged adults. Overall tobacco use was more prevalent among middle and low income group.

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