Prevalence, Pattern and Socio-Demographic Determinants of Tobacco Use in Elderly Population of a Rural Area of Central India

Tarique Ibrahim[1], Rashmi Bhujade[2], Arun K Wanjpe[3], Dharampal S Chouhan[4]

Author's Affiliation:

[1]Medical Officer, Dept. of Community Medicine, CHC Andar, Siwan; [2]Asst Prof , Dept. of Community Med, Index Medical College, Indore; [3]Prof, Dept. of Community Med, Universal College of Medical Science teaching Hospital, Bhairahawa, Nepal; [4]Assistant Professor, Dept. of Community Medicine, R.D.Gardi Medical College and hospital , Ujjain, M.P.

Correspondence
Dr Rashmi Bhujade
drbhujaderashmi@gmail.com

ABSTRACT

Background-India has 2nd largest tobacco consumers in the world. Tobacco use is one of the important modifiable risk factors for premature death & many diseases. There is an urgent need for protection from devastating adverse effects of tobacco use on health, society, environment & economy. Main target group for interventions is youngsters, elderly population is usually neglected. This study was planned to explore the situation of elderly population.

Method- Cross sectional study was designed to estimate the prevalence, pattern and associated factors of tobacco use in 500 elderly of Ghatiya block of Ujjain. Information was collected by help of semi structured proforma. Data analysis was done with the help of SPSS -20. Chi square test was applied for checking significance.

Results-Prevalence of tobacco use was 55.4% in elderly population, 31.1 % participants were using smoked tobacco, 47 % were using smokeless tobacco while 22% were dual users. It was found to be significantly associated with age, sex, religion & occupation of the participants.

Conclusion-Prevalence of tobacco use was found to be more than prevalence of nation as well as state. We should also plan interventions for elderly population keeping associated factors in mind, So that we can improve quality and quantity of elderly life.

Key words: Tobacco use, prevalence, Pattern, determinant, elderly

INTRODUCTION

India is the third largest tobacco producing as well as second largest tobacco consumer country worldwide. Estimated deaths because of tobacco use in India is more than 1.3 million. Out of these, one million are due to use of smoked tobacco and the remaining due to smokeless tobacco [1,2]. If the similar trend continues there will be a total of 1 billion deaths in 21st century.[3] It is the commonest single preventable cause of deaths worldwide. Each year an estimated seven million deaths are attributed to the use of tobacco[4]. Approximately 15 years of life are lost due to tobacco use. Premature deaths are very common in half of the tobacco users at any estimated time. Almost 80 percent of all tobacco related deaths are reported in middle and low-income nations[5].

Tobacco is the single most widely available and purchasable substance of abuse, which can be legally purchased everywhere, that's why it is one of the widely abused substances. Pattern of tobacco use vary, it may be in smoked or smokeless tobacco form. As per Global adult tobacco survey (GATS 2) India 2016-2017, there are 28.6% current tobacco users of which smokers are 7.2%, 17.9% are smokeless tobacco users and dual users are 3.4%. [6] Tobacco use may cause variety of illnesses from head to toe including hairs loss ,stroke ,skin prob-

lems, cataract, hearing loss ,dental problems , many types of cancers, coronary heart diseases, atherosclerosis, hypertension, emphysema, asthma, bronchitis, gastric ulcers, miscarriage, burger's disease, psoriasis and infertility. In India with almost half of the world tuberculosis deaths are exacerbates by smoking.

Smoking is now recognized as a major public health problem among elderly. Morbidity and mortality are also higher among elderly smokers. [7,8] The elderly not only smoke for a longer duration than young smokers, are also less aware about the potential harm of tobacco use and are also very reluctant to quit tobacco use. It is reported that awareness of the hazards of tobacco use is very low in rural populations. On the other hand, many believe tobacco, have medicinal value for curing or have palliating property for common discomforts such as toothache, headache, and stomach ache. Factors affecting tobacco use and its prevalence among the elderly are not completely understood. Understanding the values, beliefs, attitudes, and behaviours in relation to tobacco use among older individuals may help in the development of strategies that seek to reduce the associated morbidity and mortality.[9] In order to reverse the rising tobacco epidemic by effective health policies, community based epidemiological studies on tobacco use are required to quantify the problem and to identify the determinants and their distribution. This information needs to be area, population and age specific because of a strong correlation with sociocultural characteristics and existence of wide variations in tobacco use prevalence as seen in nationwide surveys.[10] However, no such studies on tobacco use were carried out in Ghatiya Block of Ujjain District Madhya Pradesh. Hence, the present study–was taken up with the objectives of to estimate the prevalence, pattern and associated determinants of tobacco use among the study population

MATERIAL AND METHODS

R.D.GARDI Medical College, Ujjain has adopted 60 villages of three health blocks (Ghatiya, Mahiddpur and Tarana) located in Ujjain district. After obtaining the ethical permission from the Institutional ethical committee of R.D.Gardi Medical College study was carried out in a Ghatiya block, consisting of 20 villages. Study population was Elderly people. Elderly Persons who were permanent resident and were available at the time of data collection were included in the study while elderly who were not willing to participate were excluded from study. 45 %prevalence [11]of tobacco use in elderly was utilized to calculate the sample size, by applying the formula $(1.96)^2$ pq/l², taking 45%

prevalence of tobacco use in elderly, relative error 10% with 95% confidence limit; the estimated sample size was worked out to be 470 persons. N = $(1.96)^2pq/l^2$ {Where, N= Sample size, P= Prevalence=45, q = 100-prevalence, l= Relative error of prevalence 10%}. Therefore N= $(1.96)^2 \times 45 \times 55/ 4.5 \times 4.5$ =470 .So the calculated sample size was 470 with adding non response rate of 5% sample size was calculated as 494 which was rounded to **500.**

Simple Random sampling technique was used to select the study participants .All twenty villages from Ghatiya block were selected for the present study for target population because it had the largest population size. We got 2522 elderly individuals and among them 500 individuals were selected by using simple random sampling. The selected individuals were identified by village code; house number and name. The selected villages were visited along with the representative village health worker to identify and locate the selected individual. After explaining the purpose of the study informed written consent was taken. The participants were assured of confidentiality of information given by them. Then Face-to-face interview was conducted by using semi structured interview guide. If the selected individual was not present on the day of interview due to any reason (Death, visit to relatives, etc.) then the very next right house of the selected individual's house was visited to select an alternative sample. This was repeated until an eligible individual was ultimately available for participation. While substituting a sample, care was taken so that the male participant was replaced by male and female participant was replaced by female to avoid selection bias. Data Analysis was done by using statistical software SPSS 20 Version and Microsoft Office 2007. For all the tests 'p' value of < 0.05 is considered as statistically significant at 95% C.I.

RESULTS AND OBSERVATION

Table 1 is showing that male female ration was almost equal. Maximum (53.7%) participants were from 60-69 age groups followed by 70-79 and 80 and above. Most (97%) participants were Hindu by religion, 64 % participants were living with their spouse. Most (82.6%) participants belonged to joint family, 72.2% participants were illiterate by education. At the time of data collection 56 % participants were non-productive. Majority (93%) of the participants were from lower socio economic status according to modified BJ Prasad classification.

As the table is showing mean age and duration in years, cannot be displayed in frequency and percentage.

Table 1: Socio demographic profile of study participants according to gender

Variables	Gender		Total
	Male (n=251)	Female (n=249)	(n=500)
Age			
60-69	142 (56)	125 (50.2)	267 (53.7)
70- 79	74 (29.4)	90 (36.1)	164 (32.8)
>=80	35 (13.9)	34 (13.6)	69 (13.8)
Religion			
Hindu	242 (96.4)	243 (97.5)	485 (97.0)
Muslim	9 (3.5)	6 (2.4)	15 (3.0)
Marital status			
Living with Spouse	193 (76.9)	144 (57.8)	337 (67.4)
Living alone*	58 (23.1)	105 (42.1)	163 (32.6)
Family Type			
Nuclear	36 (14.34)	51 (20.4)	87 (17.4)
Joint	215 (85.6)	198 (79.5)	413 (82.6)
Literacy			
Illiterate	138 (55)	218 (87.5)	356 (71.2)
Literate	113 (45)	31 (12.4)	144 (28.8)
Occupation			
Farming	134 (49.4)	37 (14.8)	171 (34.2)
Ex farmer$	94 (37.4)	186 (74.7)	280 (56.0)
Other than farming	23 (9.16)	26 (10.4)	49 (9.8)
S.E.S			
I	0 (0)	0 (0)	0 (0)
II	4 (1.5)	2 (0.8)	6 (1.2)
III	9 (3.5)	22 (8.8)	31 (6.2)
IV	136 (54.2)	106 (42.5)	242 (48.4)
V	102 (40.6)	119 (47.8)	221 (44.2)

Figure in parenthesis indicate percentage.
*Widow/Widower/Never married;
$Earlier working as farmer but now not working

Table is shoeing Age of initiation of smoked and smokeless tobacco was earlier in male as compare to female. Age of initiation of using smoked tobacco is earlier in male and female as compare to smokeless tobacco & Overall duration of using smoked tobacco by either sex is more than smokeless tobacco. Duration of using both type of tobacco (smoked and smokeless) was more in male as compared to female.

Still I found the figures more suitable for displaying /presenting the given data. Numbers of tables are also more as per the guideline. Kindly suggest which will be best.

Table 2 is showing statistically significant association was found between tobacco use with age ,gender ,religion ,occupation as the p value for all was <0.05 after applying χ2 test, while marital status, type of family, literacy and socio-economic status were not associated with tobacco use.

As shown in **Table 3** In total 277 tobacco users 86(31%) are using smoking form, 130(46.9%) were using smokeless form and 61(22%) were using combine. There was Statistically Significant association of tobacco use was found with gender, marital status, literacy occupation and socio –

Table 2: Prevalence of tobacco use according to Socio-demographic variables

Variables	Current tobacco use		P
	Yes (n=277)	No (n=223)	Value
Age			
60-69	161 (58.12)	106 (47.53)	0.012*
70- 79	88 (31.76)	76 (34.08)	
>=80	28 (10.10)	41 (18.38)	
Gender			
Male	169 (61.01)	82 (36.77)	0.000*
Female	108 (38.98)	141 (63.22)	
Religion			
Hindu	263 (94.94)	222 (99.55)	0.002*
Muslim	14 (5.05)	1 (0.4)	
Marital Status			
Living with Spouse	177 (63.89)	160 (71.74)	0.063
Living alone#	100 (36.10)	63 (28.25)	
Family type			
Nuclear	46 (16.60)	41 (18.38)	0.602
Joint	231 (83.39)	182 (81.61)	
Literacy			
Illiterate	190 (68.59)	166 (74.43)	0.151
Literate	87 (31.40)	57 (25.56)	
Occupation			
Farming	107 (38.82)	64 (28.69)	0.001*
Other than farming	35 (12.63)	14 (6.27)	
Ex farmer$	135 (48.73)	145 (65.02)	
S.E.S			
I	0	0	0.860
II	3 (1.08)	3 (1.34)	
III	15 (5.41)	16 (7.17)	
IV	136 (49.09)	106 (47.73)	
V	123 (44.40)	98 (43.94)	
I	0	0	

Figure in parenthesis indicate percentage.
*Statistically Significant
#Widow/Widower/Never married;
$Earlier working as farmer but now not working

economic status , as after applying χ2 test p value was <0.05.While age, religion ,family type were not found to be associated with type of tobacco use.

Table 4 shows Majority of the male participants 106(98%) uses Khaini Where-as majority of the female participants uses Naskha 48(58%). When test for significance was applied it shows statistically significant association of Gender and type of smokeless tobacco.

Figure 1 is showing Age of initiation of smoked and smokeless tobacco was earlier in male as compare to female. Age of initiation of using smoked tobacco is earlier in male and female as compare to smokeless tobacco.

Figure 2 shows Overall duration of using smoked tobacco by either sex is more than smokeless tobacco. Duration of using both type of tobacco (smoked and smokeless) was more in male as compared to female

Table 3: Socio-demographic distribution according to type of Tobacco use

Variables	Type of Tobacco Use			p-value
	Smoking (n=86) (%)	Smokeless (n=130) (%)	Combine form (n=61) (%)	
Age				
60-69	47 (54.65)	75 (57.69)	39 (63.93)	0.741
70- 79	30 (34.88)	40 (30.76)	18 (29.50)	
>=80	9 (10.46)	15 (11.53)	4 (6.5)	
Gender				
Male	61 (70.93)	49 (37.69)	59 (96.72)	0.000*
Female	25 (29.06)	81 (62.30)	2 (3.27)	
Religion				
Hindu	84 (97.67)	121 (93.07)	58 (95.08)	0.319
Muslim	2 (2.23)	9 (6.9)	3 (4.91)	
Marital Status				
Living with Spouse	64 (74.41)	70 (53.84)	43 (70.49)	0.004*
Living alone (Widow/Widower/Never married)	22 (25.58)	60 (46.15)	18 (29.50)	
Family type				
Nuclear	18 (20.93)	20 (15.38)	8 (13.11)	0.399
Joint	68 (79.06)	110 (84.61)	53 (86.88)	
Literacy				
Illiterate	58 (67.44)	98 (75.38)	34 (55.73)	0.023*
Literate	28 (32.55)	32 (24.61)	27 (44.26)	
Occupation				
Farming	39 (45.34)	37 (28.46)	31 (50.81)	0.012*
Other than farming	8 (9.30)	18 (13.84)	9 (14.75)	
Earlier Farming now not working	39 (45.34)	75 (57.69)	21 (34.42)	
S.E.S				
I	0	0	0	0.012*
II	0	1 (0.76)	2 (3.2)	
III	4 (4.65)	7 (5.3)	4 (6.55)	
IV	51 (59.30)	50 (38.46)	35 (57.37)	
V	31 (36.04)	72 (55.38)	20 (32.78)	

Table 4: Pattern of Smokeless tobacco use according to gender

Gender	Type of smokeless tobacco use		Total	P Value
	Khaini (n=141)(%)	Naskha (n=50)(%)		
Male	106 (75.17)	2 (4)	108(56.5)	0.000
Female	35 (24.82)	48 (96)	83(43.5)	

Table 5: Age of initiation and duration of smoked and smokeless tobacco use according to gender

Type of tobacco	Mean Age of starting tobacco use		Mean duration of tobacco use	
	Males	Females	Males	Females
Smoked	19 yrs	40 yrs	48 yrs	33 yrs
Smokeless	26 yrs	38 yrs	42 yrs	31 yrs

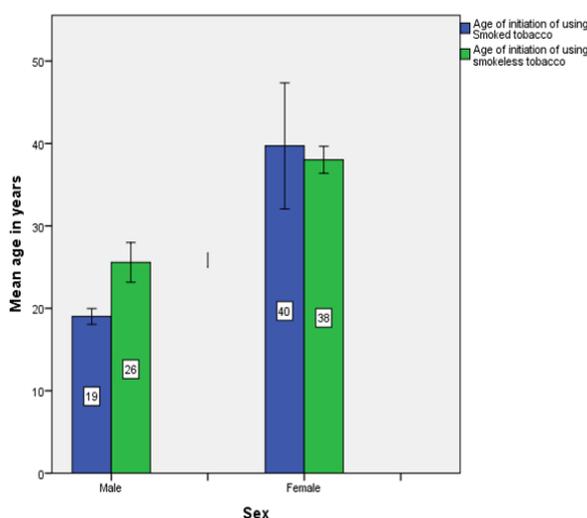**Figure 1: Age of initiation of smoked and smokeless tobacco use according to gender**

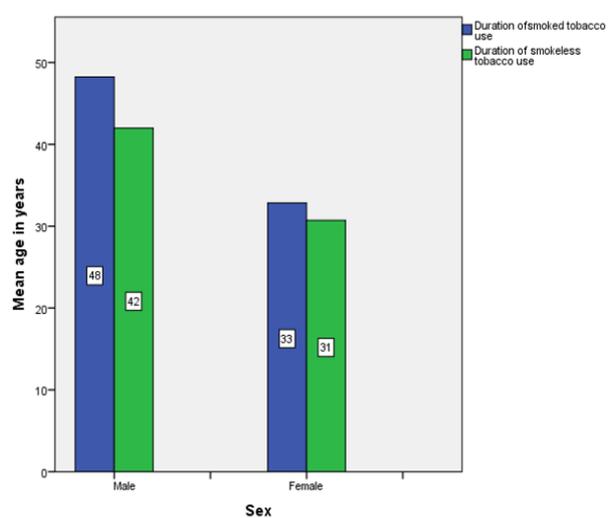**Figure 2: Sex wise duration of using smoked and smokeless tobacco**
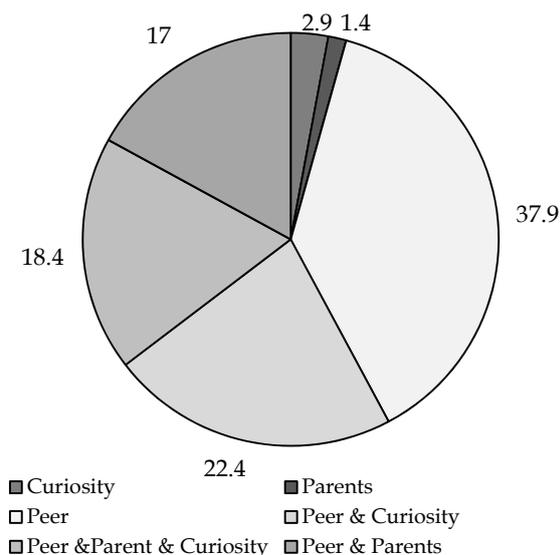
Figure 3: Reasons for initiating tobacco use

Curiosity — Parents
Peer — Peer & Curiosity
Peer &Parent & Curiosity — Peer & Parents

Table 6: Reasons for initiating tobacco use

Reasons	Frequency (%)
Curiosity	8 (2.9)
Parents	4 (1.4)
Peer	105 (37.9)
Peer and Curiosity	62 (22.4)
Peer and Parents	47 (17)
Peer, Parents and Curiosity	51 (18.4)
Total	277 (100)

Figure 3 Pie chart shows that peer pressure (37.9%) is the major reason for the initiation of tobacco use

DISCUSSION

Through in this study, an attempt has been made to look at some important aspects of tobacco use in the community. Tobacco use varies considerably from region to region within the country and there was lack of studies done exclusively to provide the prevalence & patterns of tobacco use in this region in elderly population.

The present study noted the overall prevalence of current tobacco use in geriatric age group was 55.4% Sharvanan E Udayar etal (2015) [12] concluded that The prevalence of current tobacco users was 40.5%, among them 37.2% men and 1.4% women were current smokers. Among tobacco chewers 37.3% were women and 17.3% were men

Sunali khanna et al (2012) [13] found a high prevalence of tobacco use and associated product of 72%. This difference in prevalence could be because of the different study setting as they have done the study on tribal population. PA Uplap et at [14] found the prevalence of current tobacco users of 48.0% which is lower than our finding it may be because it was conducted in chemical factory worker with a lower age group participants.

Saumyendra V Singh et al (2013)[15] found a prevalence of tobacco use of 48% in rural ageing population which is lower than our finding. Zaki Anwar Ansari et al (2010)[16]conducted a study on power loom worker and found an overall prevalence of tobacco use of 85.9% which is higher than our finding it could be due to wide range of participants according to age and also due to different study place and setting.

GK. Mini et all(2014)[17] Current use of any form of tobacco was reported by 27.8% ,9.2 % reported smoked form of tobacco use 16.9% were smokeless tobacco user and 1.7 % were dual user

In our study tobacco use was higher in males (61%) than females (39%). The higher tobacco use prevalence among males compared to females is expected looking at the higher prevalence of tobacco use among males in other studies. Our study noted a higher current use was among males (61%) compared to NSSO 52nd round (51.3%). As well the prevalence among females (39%) was high in our study compared to the NSSO 52nd round (10.3%), and the difference may be again because of under reporting because of surrogate response in the NSSO survey[18] .Vivek Gupta et al (2010)[19] found the prevalence of tobacco use in rural male was 52.6% which is similar to our finding, while the prevalence in female is lower than our finding 17.7%.Krishnan et al (2008)[20]found the prevalence of 41% in male and 135 in female in age group 15-64 years this lower prevalence could be because of wide age range of participants

The present study found prevalence of smoking tobacco 31% smokeless tobacco 47% and combined form 22%. Among tobacco users smoking was higher in males 70%while smokeless form was higher in female 62%.Vinod Mundada,et al (2013)[21] found prevalence of smoking in males 30% while chewing tobacco in females 46%Vivek Gupta et al (2010)[19] reported prevalence of smoking bidi as 44.6% in rural elderly population. Zaki Anwar Ansari et al (2010)[16] reported prevalence of smoking and tobacco chewing were 62% and 66% respectively, in power loom worker. State level prevalence of smoking tobacco use in Madhya Pradesh was 29.4% in males and 0.9 % in females while that of chewing tobacco it was 40.3% and 14.4%.[1,2,3]

In present study when different forms of smokeless tobacco were studied it was found that the Khaini (tobacco with slaked lime) and the naskha were the two major forms of smokeless tobacco. 75% males were using more of Khaini while 96%females were using naskha.

In this study the mean age of initiation of tobacco use was found 22.21 years for smoking while that of smokeless was 30.7 years. It was also noted that the median age of initiation of tobacco use in males and females were 20 years and 40 years respectively for smoking and smokeless group. In present study there was a high chance of recall bias. As the study was done on elderly and there was a high chance that the participants may forget the exact year of initiation. Nilay Nilay Bagchi et al (2014)[22] found 75% student started smoking at the age of 15 years. This difference could be because of lower age of study participants as well as less recall bias as the participants were of lower age group.Prashant R Kokiwar et al (2011)[23] found in his study that about 31% of the study participants initiated substance between 13 - 15 years of age. GK Pandey et al (2001)[24] in their study found that the initiation to tobacco use habit in majority of his study participants began at age 21 years and beyond, which is similar to the present study.

In present study various reasons for initiation of tobacco use by the participants in the early years of life were peer pressure, parents, curiosity, and peer as a co-factor with parents and curiosity. Peer pressure alone responsible for 38% while peer as a co-factor was responsible for almost rest of the factors. In our study it was also founded that those elderly who were tobacco users in their family either their children or spouse used tobacco in any one or the other form and it was in 56%.Antti J Saari et al (2014)[25] in his study found that Smoking of a current close friend was strongly associated with participants' own smoking (OR 5.6, 95% CI 3.6 to 8.8). The smoking of a close friend during schooldays was associated (OR 2.9, 95% CI 1.8 to 4.5).Nilay Nilay Bagchi et al (2014)[22] founded that smoking of father and peer group, family conflict and pornography addiction were found to have significant association with smoking of students.SH Subba et al (2011)[26] found that the various important factors that influenced the habit in the early life were having chewer friends, their own smoking and alcohol status and having family members who chewed. Prashant R Kokiwar et al (2011)[23] in his study concluded the reason for initiation of tobacco use was peer pressure in 52.9% of the participants.Vartika Saxena et al (2010)[27] In his study founded that in 75.5% cases, friends were providing the substances. TL Ravishankar et al (2009)[28].In his study concluded that the major reason for initiating tobacco use was curiosity and peer pressure.

Conclusion -The overall prevalence of tobacco use was found to be 55.4% Among users 61% were males, with is evidence in hand study highlights that the tobacco use prevalence among elderly population of Ghatiya block is more than national even state average of tobacco use. Smoked and smokeless tobacco use should be addressed differently. Tobacco use prevalence in female was also not found to be very less in present study. Tobacco use in rural area in elderly population was high and this addiction was significantly affected by the various socio-demographic factors, and individual acquires this habit in very early years of life. By using all this findings we should plan age, area and cause specific strategies to limit the tobacco epidemic. Elderly population and females should not be neglected while planning policies and intervention against tobacco use.

Limitations-There may be chances of recall bias about the exact age and age at initiation of tobacco use. Quantification of tobacco use was not done.

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