

TOBACCO USE IN MIZORAM, INDIA: SOCIODEMOGRAPHIC DIFFERENCES IN PATTERN

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Abstract. A study on tobacco use was carried out in Aizawl district of Mizoram, India, to assess the prevalence and pattern of tobacco use. An area served by two Sub-health Centers representing town and village population were selected for a household survey. 375 people (age 10 years and above) were interviewed about their habits of taking tobacco. Use of tobacco was high among males (56.6%) and females (45.7%), but the high prevalence of smoking among males (42.3%) and chewing among females (27.9%) indicates the existence of sex differences in tobacco use pattern. Age and occupation had significant association with tobacco use but influence of education was very low and its association was not significant. Mean age for start of tobacco chewing and smoking for males and females varied significantly. However, the mean age of start for adolescent and young age (10-29 years) tobacco users was 17.2 years (SD \pm 2.3). Though there are some limitations to this study, these findings revealed differential patterns of tobacco use which is valuable information for prevention effort.

INTRODUCTION

Knowledge about the adverse effect of tobacco use on health has been explored by several studies all over the world (WHO, 1997; Peto *et al*, 1992; Hammond and Horn, 1954). Over past two decades, many scientific reports and literature, describing tobacco as a major cause of cancer, has been published (WHO, 1997; Sanghvi *et al*, 1955; Doll and Peto, 1981). India has one of the highest rates of oral cancer in the world, and the rates are still increasing. Tobacco related cancers accounts for about half of all cancers among men and one fourth among women. Oral cancer accounts for one third of total cancer cases, with 90% of patients being tobacco chewers. As per WHO report, the estimated prevalence of bidi and cigarette smoking in India is about 40% among men and 3% among women in the 15 year of age and over. However, overall prevalence of tobacco use differed widely due to various factors such as race, gender, age, education, etc (WHO, 1977; Fiore *et al*, 1989; Chaturvedi *et al*, 1997).

However, published data on tobacco related cancers in Mizoram are very rare, yet people have experienced diseases that are caused, either prima-

rily or partly by excessive tobacco use. The present study is an attempt to investigate the prevalence and pattern of tobacco use in Mizoram which will help to understand the magnitude of problems and to plan for appropriate control measures.

MATERIALS AND METHODS

Mizoram has a long international border (722 km) with Myanmar and Bangladesh. As per 1991 Census, the population of the state was about 700,000 with 95% tribal population and density 33 persons per km². Christianity is the main religion (85.7%) and Mizo is the common language of the people. Parallel hill ranges (height varies from 900 to 2,165 meters), typical climatic condition, large natural resources, and rich cultural and traditional heritage underscore the diversity of place and people. Keeping in view the operational limitations and feasibility, the areas subserved by two subhealth centers were selected, *viz* Dinthar in Aizawl town and Sakawrtuichhun outside the town representing a typical village. The staff of these two health centers were trained by the authors to collect the information from households using a pretested questionnaire.

Household survey was carried out by using the method of systematic sampling. A sample of 105 households (55 from Dinthar and 50 from

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Sakawrtuichhun) were selected from 1,191 households with a population about 6,635. Head of the household or the senior most person was interviewed to collect general information, whereas habits of tobacco use (like sada, Khaini, bidi, cigarettes, tuibu, etc) were recorded from all the family members (age 10 years and above) in the pretested questionnaire. Tuibu, an addicting substance derived from tobacco and used by keeping it in the mouth for a few seconds, is very common among them.

The survey was completed in four months (June to September, 1997) as per the plan of study. Data collected from 375 persons were tabulated and analyzed after checking all the entries made in the questionnaire. Statistical tests were used to examine the association, trend and differences, wherever applicable (Snedcorand Cochran, 1980; Siegel and Castellan, 1988).

Note on tuibu preparation: Tuibu is a liquid preparation and its processing is technically similar to water pipe (hookah). Tobacco is burned in a container on the head of a pipe and smoke is drawn by the pipe and passed through water by sucking mechanically. Approximately the smoke of 1 kg tobacco is required for two liters water.

RESULTS

Prevalence and pattern of tobacco use in different sociodemographic class of peoples are presented in Table 1. The percentage of tobacco users was 48.7 in Dinthar and 53.7 in Sakawrtuichhun. The difference was not significant. In Dinthar tobacco was consumed by smoking (30.5%), chewing (17.7%) and using as tuibu (3.7%), whereas tuibu use was not found in Sakawrtuichhun. Distribution by sex shows that smokers were higher (42.3%) among males than females (16.1%), but the reverse was true in the case of chewers. Tobacco use was found to be significantly associated with sex. In different age groups, 64.3% tobacco users were found in the higher age (30 years and above) and 38.9% among lower age (10-29 years) categories. Percentage of smokers was found to increase by age, but no such trend was found for chewers. Among different educational groups, the use of tobacco varied from 60.3% to 41.6% from primary level to higher level of education, but was low (46.4%) among illiterates. Association with

educational level was not significant. Distribution of tobacco users by occupation was 44.1% chewers among housewives followed by 25.4% among employed respondents. It was very low (10.4%) among students. A high percentage of smokers was found among unemployed (44.4%) and self-employed (44.6%) respondents whereas it was low among students (20%) and housewives (20.6%). Overall, tobacco users were fewer (29.6%) among students, but it was very high (57.8% to 67.7%) among other occupations. Association of occupation with tobacco use was highly significant.

Of the 192 tobacco users, most of them (96.9%) were single mode users (chewer, or smoker, or tuibu user). Only four males and two females were found taking tobacco in multiple mode. Female tobacco chewers were higher in number (26.0%) than males (14.1%) whereas among smokers, females were less (15.1%) compared to males (39.6%) (Table 2).

Mean ages at first use of tobacco for males and females were 24.5 and 20.3 years for chewers and 18.7 and 23.5 years for smokers, respectively. Differences between the mean age (age at first use of tobacco) of males and females were significant for chewers ($p < 0.05$) and highly significant ($p < 0.01$) for smokers. Percentage frequency of age at start of tobacco use showed that about 50% of users started at an age below 20 years which varied according to different age groups of user (Table 2). Mean age at start of tobacco use was found increasing by age of users: 17.2 years for 10-29, 21.8 years for 30-49 and 24.9 years for the age group 50 and above. Pairwise comparison showed that differences in their mean age were significant for 10-29 years users.

DISCUSSION

Analysis of the data presents a pattern of variability in the prevalence of tobacco use across the categories like location, sex, age, education and occupation. Tobacco chewing and smoking are very common in both locations, town as well as village. Though, tuibu is a traditional way of taking tobacco, its usage is restricted in the town area. This may be due to the limited production, poor marketing network and availability of substitute forms (cigarette, sada, bidi, etc). However, tobacco chewing among village people was considerably higher than in the town, though the difference was

Table 1

Distribution of tobacco users by age, sex, education and occupation.

Variables	No. of respondents	Tobacco user		
		Chewer (%)	Smoker (%)	Total# (%)
Location				
Dinthar	187	17.7	30.5	48.7
Sakawrtuichhun	188	26.1	28.2	53.7
Z-test		1.85 NS	0.37 NS	0.88 NS
Sex				
Male	189	15.9	42.3	56.6
Female	186	27.9	16.1	45.7
Chi-square (Associ)	DF 1	8.01**	31.04**	4.47*
Age (Year)				
10-29	193	19.2 ^a	20.2	38.9
30-49	112	29.5	35.7 ^a	64.3 ^a
50 and above	70	17.1 ^a	44.3 ^a	64.3 ^a
Chi-square (Associ)	DF 2	5.52 NS	8.89*	24.24**
(Trend)	DF 1	0.09NS	2.74 NS	19.55**
Education Illiterate				
Primary	58	29.3 ^b	27.6 ^a	60.3 ^b
Middle	91	24.2 ^{ab}	32.9 ^a	56.0 ^b
Secondary	109	20.2 ^{ab}	30.3 ^a	51.4 ^b
Degree and higher	89	19.1 ^a	24.7 ^a	41.6 ^a
Chi-square (Associ)	DF 4	3.69 NS	1.73 NS	6.35 NS
Occupation				
Student	135	10.4 ^a	20.2 ^a	29.6
Unemployed	36	16.7 ^{ab}	44.4 ^b	61.1 ^a
Self-employed	65	21.5 ^b	44.6 ^b	67.7 ^a
Employed	71	25.4 ^b	33.8 ^b	57.8 ^a
House-wife	68	44.1	20.6 ^a	66.2 ^a
Chi-square (Associ)	DF 4	31.23**	20.16**	40.95**

Total includes seven 'Tuibu' users with all chewers and smokers.

^{a,b} Values marked by similar letter (a or b) shows no significant difference.

* Significant at 5%

** Significant at 1%

NS - Not significant

DF - Degree of freedom

not statistically significant. Perhaps, chewing is more economical for poor people living in the village. Prevalence of tobacco use among females was very high (45.7%) whereas it has been reported (WHO, 1997; Mohan *et al*, 1986; Chaturvedi *et al*, 1997) to be very low. Interestingly, chewing is more common among females whereas smoking is very high among males. It shows a sex association as reported in other studies (Chaturvedi *et al*, 1997;

Giovino *et al*, 1995). The pattern in age groups indicates a low prevalence in the 10-29 year age respondents, although it is a crucial age of experimenting tobacco (Chaturvedi *et al*, 1997; Giovino *et al*, 1995). Another important factor is education, which affects tobacco habits. Declining pattern with increasing education has been reported (Pierce *et al*, 1989; Chaturvedi *et al*, 1997; Giovino *et al*, 1995), but it was slightly different in this study.

PATTERN OF TOBACCO USE IN MIZORAM

Table 2

Percentage frequency of male and female tobacco users and their age forstart of tobacco use.

Categories	Percentage of user		Total	
	Male	Female		
Tobacco use				
Single mode				
Chewer (C)	14.1	26.0	40.1	
Smoker (S)	39.6	15.1	54.7	
Tuibu (T)	-	2.1	2.1	
Multiple mode				
C and S	1.6	-	1.6	
C and T	-	0.5	0.5	
S and T	0.5	-	0.5	
S and C and T	-	0.5	0.5	
Age at start				
(Mean \pm SD)				
Chewer	24.5	20.3	21.8	
	\pm 9.6	\pm 5.5	\pm 7.6	
<i>t</i> -test		2.35* at df 69		
Smoker	18.7	23.5	20.0	
	\pm 4.5	\pm 5.6	\pm 5.3	
<i>t</i> -test		4.31** at df 92		
Percentage frequency				
Age at start	10-29	30-49	50 and above	Total
(Age of tobacco user)				
10-14	4.0	0.6	1.2	5.8
15-19	27.8	12.1	4.6	44.5
20-24	7.5	13.9	4.6	26.0
25 and above	-	11.0	12.7	23.7
Mean	17.2	21.8*	24.9*	20.7
\pm SD	\pm 2.3	\pm 5.6	\pm 8.9	\pm 6.4

* Significant at 5%

** Significant at 1%

* Showing no significant difference

df - Degrees of freedom

There was a decreasing trend of prevalence from primary to higher education level, but the overall trend and association were not significant. Pair-wise comparison showed that differences of tobacco use among primary, middle and secondary level educated peoples were not significant, but it was low in the highly educated group and among illiterates. It seems that influence of education is marginal and due to the high literacy rate, illiterate respondents were few. In case of occupational pattern, the differences in the prevalence of tobacco use (in any form) among unemployed, self-employed and employed respondents were not significant, but chewing was high (44.1%) among housewives. Use of tobacco has strong association

with occupation of peoples and indicates differential pattern (Giovino *et al*, 1995).

Mode of taking tobacco shows that most were single mode users, but gender differences in mode of tobacco consumption patterns are emerging as a linked factor. Significant differences between the male and female mean age at first use of tobacco chewing or smoking exhibited a sex influence. Mean age of first use of tobacco has been reported and discussed in several studies (Giovino *et al*, 1995; Navratnam and Foong, 1989; Chaturvedi *et al*, 1997). In this study, a pattern of change was observed by sex, age of respondents and mode of taking tobacco. Higher age of tobacco use start in middle and old age groups of respondents was

probably due to recall error and some exceptional cases of late age of start, as is also evident from the increasing standard deviation (Table 2). Therefore, it appears that estimation of mean age of start of tobacco use is more reliable if it is calculated from young age tobacco users in a household survey.

Besides some limitations, this study presents the critical situation of excessive tobacco use in Mizoram. Although use of tobacco is confined to the town area, its harmful effect on health must be studied further, in order to help create awareness among people. High prevalence of tobacco use among males as well as females and its sociodemographic pattern indicates the extent of variability and calls for taking essential steps to combat the situation.

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