

# Assessment of Nicotine Dependence among the Tobacco Users in Outreach Programs: A Questionnaire Based Survey

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## ABSTRACT

**Context:** The rationale of this study was to assess the nicotine dependence and awareness about labeling policies among tobacco users in outreach programmes of the Dept of Public Health Dentistry. **Settings and Design:** Cross sectional survey carried out in the outreach programs of the department. **Material and Methods:** In the months of July – August 2014 the study was conducted. A total of 263 subjects were enrolled in the study. A questionnaire consisted of Fagerstrom Test for Nicotine Dependence (FTND Revised Version) and smokeless form of tobacco (FTND-Smokeless Tobacco) prepared in the local language was administered. **Statistical analysis used:** The collected data was coded and entered in SPSS 17.0 and statistically analyzed using an independent t-test, one-way ANOVA, and chi-square tests. **Results:** Prevalence of tobacco usage in any form was found to be 46.6%. Out of 263 subjects, 99(37.6%) were smokers and 164(62.4%) were tobacco chewers with mean FTND scores of  $3.56 \pm 2.115$  and  $4.52 \pm 2.478$  respectively. The difference in FTND scores among smokers and non smokers was significant with t value 4.663 ( $p=0.001$ ). The difference in FTND score across the age groups was not significant among both the groups ( $F=0.776$  for smokers and 0.34 for chewers). A Positive correlation was found between the form of tobacco and FTND score ( $r=0.197$ ,  $p=0.001$ ). **Conclusion:** The Smokeless form of tobacco caused more nicotine dependence than the smoked form, according to results of the present study. Prevalence of tobacco usage was found to be highest in the 15-35 years age group. **Key Messages:** Health care provider needs to be sensitized & trained to play a proactive role for behavioral change in tobacco users and there is a need for stricter enforcement of existing policies.

**KEYWORDS:** Nicotine Dependence; Tobacco Users; FTND- Fagerstrom Test For Nicotine Dependence

## INTRODUCTION

“Addiction with Nicotine is like an itch, if you itch, it’s nice to rub it. But better to have no itch at all.-Dalai Lama.”

Tobacco is an agriculture product produced from the fresh leaves of plants in the genus “Nicotina” of Solanaceae family (nightshade family) out of which. Nicotina tabacum is most commonly grown. Tobacco products are made entirely or partly of leaves of tobacco as unrefined material which are consumed in various forms as smoked form, chewed form or snuffed form. All contain the highly addictive psychoactive ingredient nicotine. Nicotine is responsible for causing psychological dependence.<sup>1</sup>

It was evident from national survey reports in India i.e. from 1993 to 2002 that there is increasing trend in overall prevalence of tobacco use. It has increased from 51.3% to 55.8%.<sup>2</sup>

According to 2007- 2008 survey report of Madhya Pradesh, (Non- communicable risk factor survey) 38 % of

population of M.P smoked tobacco daily, while 39% of population used smokeless tobacco and 47% of population used tobacco in any form. The prevalence was 68% among males and 23% among females.<sup>3</sup>

A survey among the rural population of Maharashtra reported that study population more than 40 years of age were psychologically very much reliant on tobacco smoking as compared to tobacco chewing.<sup>4</sup>

Billions of tobacco users attempt to quit every year, but only a few are thriving for more than just a month. This is in view endeavors need aid not guided on change those brain science of tobacco clients. Outreach programs are important tools for delivering health education and screening services directly to community members and serve to contribute in reducing health disparities. In the current literature, there is no information about nicotine dependency of tobacco users in the catchment areas of outreach programs of the Dept of Public Health Dentistry, of our college. As it is well said “A problem well stated is a problem half solved”. Keeping in mind the

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above reasons, the present study was an attempt to assess the nicotine dependence among tobacco users in outreach programs of the Department of Public Health Dentistry. Objective was to determine and compare the nicotine dependence among the two types of tobacco users - smokers and smokeless tobacco users, to find out which age group in the tobacco user population is more dependent on nicotine, and to assess the awareness about labeling policies among the tobacco users.

## MATERIAL AND METHODS

The introduce investigation was conducted in both urban and rural areas of Bhopal city. The study was conducted in the months of July – August, 2014, and it was Of 2 months duration.

This was a questionnaire based prospective cross-sectional survey. All the tobacco users present on the day of examination were included. Subjects aged more than 15 years, with a psychologically sound mind and willing to participate in the study after explanation were included in the study. Written informed consent was obtained from the participants. The survey was conducted during regular dental check up camps of the college. A total of 7 camps were conducted and initially nearly about 560 subjects were screened for the presence of tobacco consumption habit. Throughout this health check up camps, the tobacco utilization propensities were evaluated by immediate addressing furthermore by clinical examination. To clinical assessment, those vicinity for stains of tobacco biting what's more tobacco smoking auto over teeth, and oral mucosa might have been viewed as certain.

A standard questionnaire proforma of Fagerstrom Test for Nicotine Dependence (FTND Revised Version) for smoking given by Heatherton et al.(1991) and smokeless form of tobacco given by Ebbert et al. (2006) was administered to each subject.<sup>5,6</sup> These questionnaires were translated in local language for better understanding and effective answering.

The questionnaire consisted of 20 questions:

- Questions on dependency of smoking form of tobacco - 6
- Questions on dependency of smokeless form of tobacco – 6

Each question carried some point/score based on the answer. The subjects were asked to answer the questions as per their experience of tobacco consumption. The overall score was the summation of scores of all questions. Minimum score was 0 and the maximum score was 10. Remaining 8 questions assessed awareness regarding labeling policies among the tobacco users. Total time taken to complete the questionnaire was 8-10mins.

Interpretation of scoring:

- 7-10: Person is highly dependent on nicotine;
- 4-6: Person has low to moderate dependence on nicotine;

- Below 4: Person has low to moderate addiction;

The questionnaire was translated into the nearby dialect (Hindi). It was then tested and validated in a pilot study. The questionnaire were administered to 20 subjects with tobacco habit to establish the reliability of tool and calculating Cronbach alpha (reliability coefficient 0.92) .

For those patient who were illiterate, questions were read for the patient by the investigator who tried to read all questions in an the same manner in order to prevent any discrimination or from guiding the patient to give a particular answer. For each subject administration of questionnaire was done by the researcher only.

The obtained data was coded and entered in Microsoft excel. Data were statistically analyzed by using Student's t-test, One-way ANOVA, Chi-square test and the Karl Pearson Correlation (r) test. SPSS version (17.0) was used for all the data analysis.

## RESULTS

Descriptive statistics of the Demographic details of the study participants has been presented in Table 1. Distribution revealed that among the 263 participants, 244(92.8%) were males, and 19(7.2%) were females. The 15 -35 years age group comprised of the maximum number of participants who numbered 164(62.4%), 86(32.7%) were in the age group of 36-55 years, 13(4.9%) were in the age group of 56-75 years. Out of 263 subjects, 99(37.6%) were smokers and 164(62.4%) were smokeless tobacco users. Among smokers, 34.3% subjects had smoked the first cigarette after 60 min, while in smokeless tobacco users 45.1% of participants placed their first dip within 5mins after waking up. In smokers group 62.6% of participants, had no difficulty to refrain from smoking where it is banned (e.g. in cathedral, at the library, movies, etc.). Among smokeless tobacco users 49.4% of participants had intentionally swallowed tobacco juice.

Variable	N	%
Male	244	92.8
Female	19	7.2
15-35 Years	164	62.4
36-55 Years	86	32.7
56-75 Years	13	4.9
Smokers	99	37.6
Smokeless Tobacco users	164	62.4

Table 1: Sociodemographic distribution of the study subjects

In smokers group, 56.6% hated to give up morning cigarette, while in smokeless tobacco users

64.6% of participant hated to give up the morning chew. In smokers group 67.7% of the participants, smoked 0-10 cigarettes per day whereas 44.5% took more than 3 can/pouches per week among smokeless tobacco users. In

smokers group 75.8% smoked frequently during rest of the day, instead of the first hour after waking, while in smokeless tobacco users 51.8% of participants chewed more frequently during rest of the day, than first hour after waking. In smokers group 68.7% didn't smoke when they were so ill that they were in bed most of the day, whereas in smokeless tobacco users 62.8% did not chew tobacco when they were so ill that, they were in bed most of the day. The details are depicted in Table 2.

S. No	Questions	Smokers	Smoke-less Tobacco Users
1.	How soon after you wake up do you smoke your first cigarette/take first dip	34.3%* (After 60 min)	45.1% (After 60 min)
2.	Do you find it difficult to refrain from smoking in places where it is forbidden (e.g. in church, at the library, cinema, etc.)?/ How often do you intentionally swallow tobacco juice?	62.6% (Said No)	49.4% (Always)
3.	Which cigarette would you hate to give up? / Chew would you hate to give up most?	56.6% (First one in the morning)	64.6% (First one in the morning)
4.	How many cigarettes or Pouches/day	67.7% (10 or less)	44.5% (More than three pouches)
5.	Do you smoke/chew more frequently during the first hours after waking than during the rest of the day?	75.8%* (Said No)	51.8% (Said Yes)
6.	Do you smoke/chew if you are so ill you are in bed most of the day?	68.7% (Said No)	62.8% (Said No)

\*P<0.05 (Statistically significant)

Table 2: Responses to FTND questionnaire

The responses to questions on labelling policies have been presented in Table 3. The responses revealed that in Smokers group, 60.6% knew about the new warning labels which include pictures, while in smokeless tobacco users 73.8% were familiar with the new warning label. In smokers group 27.3% of the participants very often looked or read closely at the information about content on the side of the cigarette/bidi packets, while in smokeless tobacco users 26.2% participants, often read or looked closely at the information about content on the side of packets. In smokers group 46.5% were aware of the site of health warning or messages written on the cigarette packets where as in smokeless tobacco users 64.6% had knowledge where on the tobacco packets warning or messages were located. In smokers group 47.5% able to recall the specific health warning messages printed on the cigarette /bidi packets. While in smokeless tobacco users 58.5% were able to recall the specific health warning messages printed on the tobacco packets.

There was no significant association was found between age group and the FTND score as presented in table 4.

The form of tobacco and FTND scores showed a highly significant correlation with p value 0.001 and t-value 4.663, which indicates that tobacco consumption caused Nicotine dependence as seen in Table 5.

S. No	Questions	Smokers	Smokeless Tobacco Users
1.	Have you seen the new warning labels which include pictures?	60.6%*(Said Yes)	73.8%(Said Yes)
2.	In the last month, how often have you read or looked closely at the information about the contents on the side of the pack?"	27.3%* (very often)	26.2%(ofte)
3.	Without looking at a cigarette/tobacco package, where on the pack are the warnings or messages located?	46.5%*(Said Yes)	64.6% (Said Yes)
4.	Without looking at a cigarette/tobacco package, what specific health warning messages can you remember seeing on cigarette packages	47.5%* (Said Yes)	58.5% (Said Yes)

\*P<0.05 (Statistically significant)

Table 3: Awareness regarding labelling policies

Age	N	Mean ± Standard Deviation	F value	p value
<b>Smokers</b>				
15-35	70	3.64 ± 2.174	0.776	0.462
36-55	24	3.25 ± 2.090		
56-75	5	3.80 ± 1.483		
<b>Smokeless tobacco</b>				
15-35	94	4.52 ± 2.547	0.339	0.713
36-55	62	4.66 ± 2.415		
56-75	8	3.50 ± 2.138		

Table 4: Comparison of mean FTND scores among Smokers & Smokeless tobacco users across age groups

	Form of Tobacco	N	Mean ± Std. Deviation	t	p Value
FTND score	Smokers	99	3.56 ± 2.115	4.663	0.001*
	Smokeless tobacco	164	4.52 ± 2.478		

\*P<0.05 (Statistically significant)

Table 5: Comparison of mean FTND scores among Smokers & Smokeless tobacco users

Mean FTND score among smokers was highest for the 56-75 year age group. Mean FTND score for chewed tobacco users was highest among the 36-55 years age group. A positive correlation was found between the form of tobacco and the FTND scores as presented in Table 6.

		Form of Tobacco	FTND SCORES
Form of Tobacco	Pearson Co-relation	1	.197**
	Sig.(2 tailed)	263	.001
	N		263

\*\*Correlation was significant at .002 level (2 tailed)

Table 6: Karl Pearson's correlation Between Form of Tobacco and FTND scores

## DISCUSSION

Usage of tobacco among children and adolescents is reaching epidemic levels.<sup>7</sup> The use of tobacco started since 600 AD in Europe by Columbus from the Carribeans.<sup>8,9</sup> Later it was introduced in India by Portuguese in the form of pipes and cigars. In mid-nineteenth century, The most important component in tobacco leaves was identified as Nicotine.<sup>10</sup> Tobacco is consumed in both smoked and smokeless forms. In western countries smoking forms are more prevalent, while in India smokeless tobacco is most commonest form.<sup>7</sup>

In Madhya Pradesh, 38% of the male population smoked tobacco daily whereas smoking among females was low according to a survey report. Overall 39% of the population used smokeless tobacco out of which 54% were men, and 23% were women. Forty seven percent of the population in Madhya Pradesh used tobacco in any form (i.e. smoking or smokeless). This prevalence was 68% among males and 23% among females. Among young age (15-34 years) the mean age of initiation of tobacco use group was 19 years for male smokers, and 20 years for male smokeless tobacco users. Overall, prevalence of smoking and smokeless tobacco users among female population was low compared with males.<sup>4</sup> Similar results were found in the present study wherein 92.8% of the tobacco users were males while 7.2% were females. Out of this 37.6 % were smokers and 62.4% were having a habit of smokeless tobacco. The present study results revealed that tobacco users, irrespective of the form of tobacco were common in the age group of 15-35 years. Smokeless tobacco users were more than the smokers. A study was conducted by Kishore et al. in a rural population of the district of Wardha. The authors found that majority of the boys were engaged in tobacco chewing (69.74%), while in the present study 62.4% had tobacco chewing habit.<sup>11</sup>

According to Kiran Jadhav's study, people are highly dependent on tobacco smoking after the age of 40 years (and mean FTND score of  $5.24 \pm 2.31$ ). While in the present study, smokers in the age group of 36-55 years had the highest mean FTND Score of  $3.25 \pm 2.09$  and Smokeless tobacco users in the age group of 36-55 years had the highest mean FTND score of  $4.66 \pm 2.41$ .

According to a study conducted by Jayakrishnan to see the nicotine dependence among smokers in a selected rural population in Kerala, India, the authors found that FTND scores increased with age. On the contrary, present study did not reveal a significant association between age groups and FTND score.<sup>12</sup>

Studies have been conducted by Karinagannanavar A to see the impact of the current pictorial warnings on tobacco consumers. It was found that (72.5%) had seen the pictorial warnings and among them 25.5% had interpreted correctly. While in the present study 100% had seen the pictorial warnings and among them 75% had interpreted correctly. This means awareness and its

impact on tobacco consumption were good among our study subjects.<sup>13</sup>

The findings suggest that most people have seen text and pictorial warnings on smokeless and smoking tobacco products, but they lacked relevance to the text messages. Irrespective of education, the early proposed pictorial warnings by the government were more effective than the currently implemented warnings. As stated by Oswal KC's study, individuals might in on perceive those warnings mostly in hindi and marathi (local language) and they desire them to be located on the top or middle of both sides of tobacco packaging.<sup>14</sup> People were aware of the harmful outcome of tobacco, but they had an ignoring mentality.

Duration of habit was not considered in the present study, which is a factor in relation to tobacco consumption habit. The FTND questionnaire records only physical dependence, and it taps only a narrow aspect of dependence. So there is a need for an tool that report both physical and psychological dependence.

A positive correlation was found between the FTND scores and the form of tobacco, which is a point of concern for the government and policy makers. The main cause was nicotine dependence. Therefore, individual intervention promoting tobacco cessation is a key for management of tobacco users and also to increase awareness by administering health talks in outreach programs. The present study, most of the users were in the age group of 15-35 years. This is an alarming situation. Hence, those children's ought to be focused to tobacco discontinuance therapy, regardless of kind of susceptibility to tobacco utilization.

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