

Prevalence, knowledge, attitude and nicotine dependence among ESI-insured populations of Delhi NCR region: Institutional study

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ABSTRACT

Aim: To assess the prevalence of tobacco consumption among the ESI-insured patients. The study also assessed the knowledge, practice, and attitude among industrial workers as well as nicotine dependence with different forms of tobacco products consumed. **Materials and Methods:** A cross-sectional study was conducted among industrial workers from various industries (small and large scale) insured under the employee state insurance corporation scheme. The study was conducted for 3 months included 500 workers of which 470 were males and 30 were females. A predesigned, pretested, and structured interviewed administered questionnaire was used to collect the data on sociodemographic factors, reasons for tobacco consumed, and level of dependencies among industrial workers. Questionnaire also included questions related to awareness regarding health hazards and lesion present in the oral cavity as a result of tobacco consumption. Fegarstrom scale was used to access nicotine dependency level. A Hindi translated version of Fegarstrom test for Nicotine dependence in the questionnaire was used which included six standard questions for both smokeless and smoked form. **Result:** Majority of both males and females consumed tobacco in smokeless (58.8%) form. Out of which 92.85% in males and 7.15% in females followed by the smoke (28.8%) form. 93.04% in males and (7%) in females (79.86%) of the tobacco users in our study were aware that consuming tobacco causes health related problems. 38.6% of the users have moderate dependency in both smoke and smokeless form. Seventy six percent of the consumers feel that they didn't have any changes in the mouth by consuming tobacco and thus never thought of quitting tobacco. **Conclusion:** Tobacco consumption among the ESI-insured patients is high. Execution of tobacco cessation programs are required to curb this trend.

Keywords: Fagerstrom test, nicotine dependence, prevalence, smokeless tobacco, WHO

Introduction

Tobacco is the one of the leading cause of preventable death worldwide. In developing countries like India about half of the

population of tobacco user die from complications of tobacco. Since few years, the vices of tobacco consumption have come to the forefront in various populations across the world.^[1] Tobacco smoke is estimated to contain over 4,000 compounds, many of which are pharmacological active, toxic, mutagenic, and carcinogenic. The active content of tobacco "Nicotine" leads to physical and psychological dependence comparable to the dependence on Heroin.^[2] According to Global Adult

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tobacco survey (GATS INDIA 2010) more than 3/4th of the Indian population consumes tobacco on a daily basis of which higher rate is that of men.^[3] The situation of tobacco consumption in India is due to fact that there is a vast spectrum of tobacco products available for smoking as well as smokeless use. Cigarettes, beedis, and hookah is smoke form of tobacco use while smokeless tobacco use consist of chewing khaini, gutkha (betel nut), or pan masala.^[4] Tobacco use is one of the most important preventable public health issues of the world. It has one of the largest numbers of people with oral cancer attributable to tobacco use. The consumption of tobacco reports to have an adverse impact on an individual's health, higher rate of absentees, impaired perceptual and motor skills and poor endurance as compared to non-consumers.^[5,6] According to the WHO, tobacco consumption is responsible for death of more than 8 million people each year out of which More than 6.5 million deaths are the result of direct tobacco use while around 1.2 million are the result of passive smoking or non-smokers being exposed to second-hand smoke.^[7] Around 80% of the world's 1.1 billion smokers live in low and middle income countries.^[8] ESIC is an organization catering to insured person working in various small and large scale industries. The study was aimed to assess the prevalence of tobacco consumption among the ESI-insured patients in ESI dental college and Hospital, Rohini, Delhi. The study also assessed the knowledge, attitude, and practice among industrial workers and nicotine dependency level with different forms of tobacco products consumed. Moreover, the association between tobacco consumption, social demographic factors, reasons for tobacco consumed among industrial workers insured under the employee state insurance corporation scheme were also assessed by this study.

Materials and Method

A study was conducted among industrial workers from various industries (small and large scale) insured under the employee state insurance corporation scheme. The study included 500 workers of which 470 were males and 30 were females. The inclusion criteria included only the willing participants who consumed tobacco in both smoked and smokeless form. Workers who were mentally challenged or were not willing to participate were excluded. Written informed consent was taken after explaining the nature and objective of the study in the local language. The approval from the Institute's ethical committee was also taken. A predesigned, pretested, and structured questionnaire was used to collect the data on sociodemographic factors, reasons for tobacco consumed, and level of dependencies among industrial worker. The questionnaire included three sections which were of the demographic profile, social demographic factors, knowledge, attitude, and practice regarding tobacco consumption. Questionnaire also included questions related to awareness regarding health hazards and pre-cancerous lesion present in the oral cavity as a result of tobacco consumption. Fegarstrom scale was used to access nicotine dependency level. A Hindi translated version of Fagerstrom test for Nicotine dependence in the questionnaire was used which included 6

standard questions for both smokeless and smoked form. For the smoked form, It included questions such as how soon after waking up the patient consume his/her first cigarette, which cigarette would the patient hates to give up, how many cigarettes one consume in a day, do the patient smoke more frequently in the morning and do the patient even smoke when he/she is sick. A similar set of questions were included for the workers who consumed tobacco in smokeless form.

Results

Out of 500 individuals, 470 (94%) were males and 30 (6%) were females. 5 forms were not taken into consideration as they were incomplete. Majority of both males and females consumed tobacco in smokeless (58.8%) form, out of which 92.85% in males and (7.15%) in females followed by the smoke (28.8%) form (93.04% in males) and (7% in females). Most common form of chewing tobacco in both sexes was khaini followed by bidi being the commonest among the smokers. Rest of the study population consumed in combination of both smoked and smokeless (11.4%) form.

Age of the participants ranged from 15 to 75 and above. Smokeless tobacco use was highest in the age group of 36–45 years (32%). Tobacco consumption in the smoked and the dual form was highest in the age group 46–55 years. Detailed description of the tobacco use by age is given in Table 1.

In the study population, 495 were nicotine dependent. Graph 1 and Graph 2 reveals that majority of the population had moderate nicotine dependence in both smokeless form.

Graph 3 and Graph 4 reveals that among the dual tobacco users, 38.6 (~39)% of the users have moderate dependency in both smoke and smokeless form. 79.86% of the tobacco users in our study were aware that consuming tobacco causes health related problems. The difference in the knowledge about the facts regarding tobacco use in males and females was statistically significant in both the study population who consumed tobacco in smoked form ($P = 0.023$) and in smokeless form ($P = 0.093$). Majority of the population consuming smokeless tobacco lies

Table 1: Distribution of study population according to the form in which tobacco is consumed

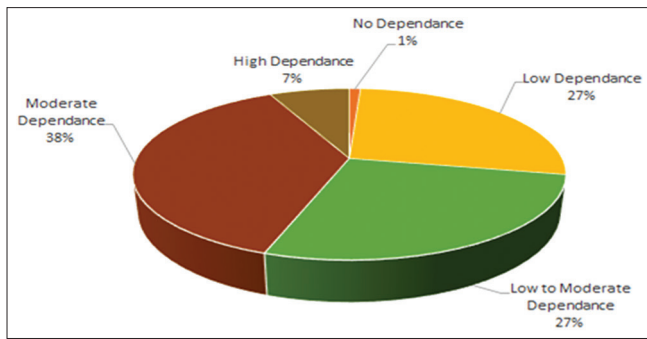
Age (years)	Current Tobacco Usage		Smokers (%)
	Smokeless users (%)	Dual Users (%)	
0-15	NA	NA	NA
15-25	6.5 (19)	7.0 (4)	5.6 (8)
25-35	17.7 (52)	17.5 (10)	15.3 (22)
35-45	32.0 (94)	22.8 (13)	27.1 (39)
45-55	29.6 (87)	31.6 (18)	30.6 (44)
55-65	8.8 (26)	15.8 (9)	12.5 (18)
65-75	4.8 (14)	5.3 (3)	9.0 (13)
75+	0.7 (2)		
TOTAL (n=495)	100.0 (294)	100.0 (57)	100.0 (144)

in the age group of 36–45. These have moderate knowledge regarding tobacco related health hazards and pre-cancerous lesions of the oral cavity and have moderate level of nicotine dependence. Table 2 gives the detailed description of the level of knowledge and the nicotine dependence in variation with the different age groups amongst the study population consuming tobacco in smokeless form. In the population which is smoking tobacco, 19 patients were of ages between 46 and 55 years and have the highest amount of knowledge and have moderate nicotine dependence. Table 3 gives the detailed description of the level of knowledge and the nicotine dependence in variation with the different age groups among the study population consuming tobacco in smoked form. Similar results are seen among the dual users of tobacco. Table 4 gives the detailed description of the level of knowledge and the nicotine dependence in variation with the different age groups among the study population consuming tobacco in both smoke and smoked form. 76.38% of the consumers feel that they didn't have any deleterious effect

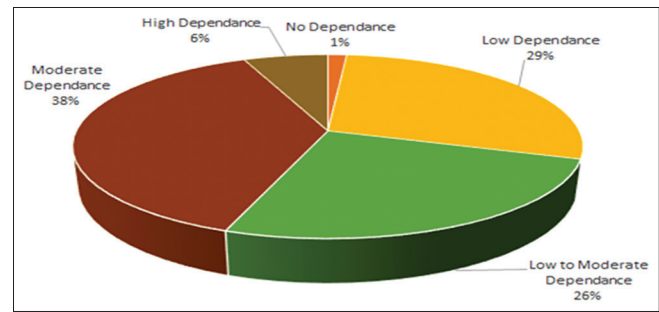
and changes in their mouth by consuming tobacco and never tried of quitting tobacco habit.

Discussion

Tobacco consumption predominantly has negative effects on human health and is considered as the one of the most preventable reason of worldwide mortality. In the present study, the prevalence of tobacco use in smokeless form was 58% and in smoked form was 28.8%. However, the prevalence of smokeless tobacco users were 28% in the study held in western region of India by K.J Divinakumar *et al.*^[9] and 32.9% in GATS India,^[10] whereas the prevalence of smokers were 28.8% in our sample which was comparable to 23% in K.J. Divinakumar *et al.* and GATS India with 24.3%. In our study among the types of tobacco consumed, khaini was most utilized one, persuaded by gutka and bidi. However, according to GATS India 16–17 bidi was the most utilized form of tobacco persuaded by khaini and gutka.^[11]



Graph 1: Distribution of smokeless tobacco chewers according to their nicotine dependence level (n = 294/495)



Graph 2: Distribution of smokers according to their nicotine dependence level (n = 144/495)

Table 2: Distribution of study population consuming tobacco in smokeless form according to the knowledge and nicotine dependence level in relation with different age groups. (n=294/495)*p<0.05, statistically significant

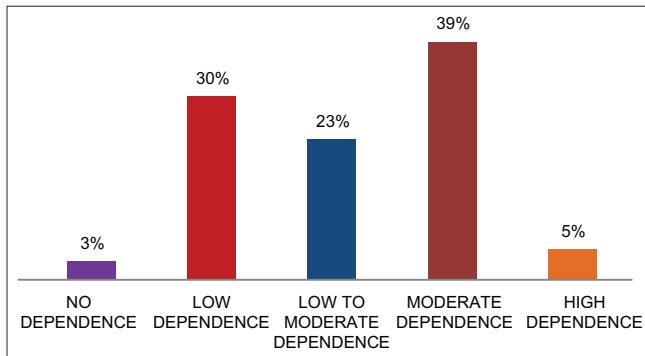
DEPENDENCY*						KNOWLEDGE		
	AGE	NO	LOW	LOW-MOD	MODERATE	HIGH	HIGH	MODERATE
15-25	0	7 (36.8%)	7 (36.8%)	4 (21.1%)	1 (5.3%)	10	6	3
26-35	0	15 (28.8%)	16 (30.8%)	16 (30.8%)	5 (9.6%)	30	7	15
36-45	0	28 (29.8%)	27 (28.7%)	30 (31.9%)	9 (9.6%)	31	43	18
46-55	2 (2.3%)	27 (31.4%)	24 (27.9%)	29 (33.7%)	4 (4.7%)	37	30	19
56-65	1 (3.8%)	1 (3.8%)	2 (7.7%)	20 (76.9%)	2 (7.7%)	11	8	7
66-75	0	0	4 (28.4%)	10 (71.4%)	0	6	5	3
75+	0	0	1 (50%)	0	1 (50%)	0	1	1

Table 3: Distribution of study population consuming tobacco in smoke form according to the knowledge and nicotine dependence level in relation with different age groups. (n=144/495)*p<0.05, statistically significant

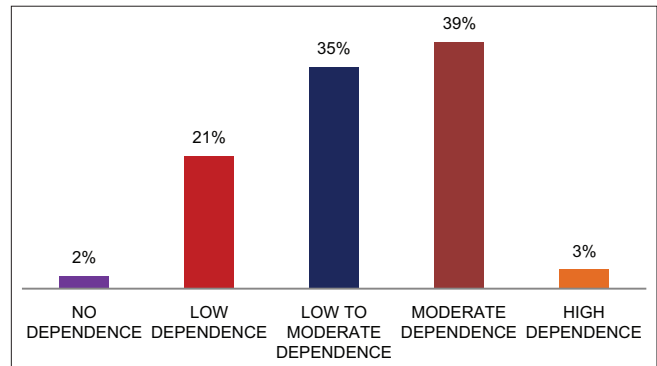
DEPENDENCY*						KNOWLEDGE		
	AGE	NO	LOW	LOW-MOD	MODERATE	HIGH	HIGH	MODERATE
15-25	0	4 (50%)	3 (37.5%)	1 (12.5%)	0	4	2	1
26-35	1 (4.5%)	10 (45.5%)	4 (18.2%)	6 (27.3%)	1 (4.5%)	15	6	1
36-45	0	17 (43.6%)	9 (23.1%)	13 (33.3%)	0	19	7	2
46-55	1 (2.3%)	5 (11.4%)	12 (27.3%)	19 (43.2%)	7 (15.9%)	20	19	5
56-65	0	3 (16.7%)	4 (22.2%)	11 (61.1%)	0	9	6	3
66-75	0	2 (15.4%)	5 (38.5%)	5 (38.5%)	1 (7.7%)	3	6	4
75+	0	0	0	0	0	0	0	0

Table 4: Distribution of study population consuming tobacco in both smoke and smokeless form according to the knowledge and nicotine dependence level in relation with different age groups. (n=57/495)*p<0.05, statistically significant

AGE	DEPENDENCY*										KNOWLEDGE		
	SMOKE LESS FORM					SMOKE FORM					HIGH	MOD	LOW
	NO	LOW	LOW-MOD	MOD	HIGH	NO	LOW	LOW-MOD	MOD	HIGH			
15-25	0	0	2 (50%)	2 (50%)	0	0	1 (25%)	2 (50%)	1 (25%)	0	3	1	0
26-35	0	3 (30%)	3 (30%)	3 (30%)	1 (10%)	1 (10%)	0	6 (60%)	3 (30%)	0	3	3	4
36-45	0	8 (61.5%)	2 (15.4%)	3 (23.1%)	0	0	2 (15.4%)	6 (46.2%)	4 (30.8%)	2	8	5	0
46-55	2 (11.1%)	4 (22.2%)	5 (27.8%)	6 (33.3%)	1 (11.1%)	0	4 (22.2%)	4 (22.2%)	10 (55.6%)	0	12	6	0
56-65	0	0	1 (11.1%)	7 (77.8%)	1 (11.1%)	0	5 (55.6%)	1 (11.1%)	3 (33.3%)	0	3	3	3
66-75	0	2 (66.7%)	0	1 (33.3%)	0	0	0	1 (33.3%)	1 (33.3%)	1	1	0	2
75+	0	0	0	0	0	0	0	0	0	0	0	0	0



Graph 3: Distribution of dual users of tobacco according to the nicotine dependence level in smokeless form (n = 57/495)



Graph 4: Distribution of dual users of tobacco according to the nicotine dependence level in smoke form (n = 57/495)

Mean age of workers in our study was 44.71 ± 12.09 . In the Mamta Prashar *et al.*^[12] study the mean age of the workers was 32.1 ± 11.6 which is lower than that reported in this study. In our study, consumption of tobacco in males is more than the females. Similar results were found in the study conducted in Bangalore.^[13] Nearly 79.86% tobacco users were aware that consuming tobacco causes health related problems. In contrast this study, 50% of tobacco users were aware about the harmful effects of tobacco as in the study of Mamta Prashar *et al.* Moreover, In this study which was also taken place in Delhi, around 64% noticed health hazard warnings on tobacco product packages, whereas in our study it was only 29% of consumers who noticed warning labels on tobacco packages everytime they consumed tobacco.^[14]

According to our study 38.6% of the user of both smokeless and smoked tobacco were moderate-highly dependent on nicotine which was comparable to Mamta Prashar *et al.* study in which 34% of users of both smokeless and smoked tobacco were highly dependent on nicotine. Another study revealed high nicotine dependence was found among smokeless tobacco users and low dependence for the users who consumed tobacco in smoked form.^[15]

In the present investigation, 34% of the study population had pre-cancerous lesions in their oral cavity. This was higher when compared to the study by Punith Shetty *et al.* in Bengaluru where 15% of the tobacco users were detected to have pre-cancerous

lesions in the oral cavity. Some of them had more than one type of pre-cancerous lesions.^[16,17]

This paper is very much relevant to primary care practice as tobacco consumption is very high leading to pre-cancerous lesions and conditions of oral cavity with high mortality rate. At primary care level early screening and prompt diagnosis of such lesions can be done. Also information regarding deleterious effect of tobacco in body and counselling for tobacco cessation can be done at primary care practice.

Our study is a cross-sectional study and limited to workers insured under ESI which limits its generalizability. Another limitation include the self-reported amount of tobacco and nicotine dependence of the individuals may not give a fully reliable data.

Conclusion

Tobacco consumption among the ESI-insured patients is high despite knowing the fact that tobacco is hazardous to health. Our study indicates the need to implement the more no of awareness programmes so as to increase the knowledge regarding different lesions present in the oral cavity. Moreover, effective execution of tobacco cessation programmes is required for the treatment of Nicotine dependence and inculcate positive attitude toward quitting tobacco.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Nil.

Conflicts of interest

There are no conflicts of interest.

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