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Prevalence and pattern of tobacco addiction among auto-rickshaw drivers of North-Central India

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ABSTRACT

Introduction: Tobacco addiction is the most widespread addiction in the world. There are nearly 1.3 billion smokers in the world, 80% of them are in the developing countries. According to American Cancer Society, India has 2nd largest population of tobacco users (about 24 crores), next only to China. **The aim** of this study was to determine the prevalence and trend towards tobacco use among auto drivers of Gwalior city.
Material & Methods: It was a cross-sectional study conducted with-in 3 months duration by a one-on-one interview among 400 auto-rickshaw drivers of Gwalior city. The study tool was a pre-designed, pre-tested, semi-structured questionnaire.
Results: The overall prevalence of tobacco use among auto drivers was 84.25%, while the prevalence of smoking and tobacco chewing were 58.25% and 70.25% respectively. Night shifts and longer waiting hours were associated with increased trend towards tobacco consumption. 38.27% drivers required one dose of tobacco immediately after waking up in the morning while 45.10% required one dose before going to toilet. 69.43% said that their friends had first introduced them to tobacco use. 88.50% knew about various health hazards associated with tobacco consumption. 68.00% drivers had knowledge about law for smoking in public places.
Conclusion: Recently certain new replacement products have been introduced in the market which are harmless and can also curb the craving for tobacco. Along with mass advertisements against tobacco products, authorities should focus on strict enforcement of law and promoting research for creating new and harmless replacement products.

Keywords: Auto-Rickshaw Drivers, Tobacco, Gutkha, Bidis

Introduction

Addiction is a term commonly applied to maladaptive drug-seeking behavior, often performed despite knowledge of negative health consequences. Nicotine meets the established criteria for a drug that produces addiction, specifically, dependence and withdrawal. Both WHO in its International Classification of Diseases (ICD)[1]. and the APA in its Diagnostic and Statistical Manual (DSM-IV & DSM-IV-TR)[2,3] have issued diagnostic criteria to assess dependence and withdrawal.

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Both WHO and APA recognize dependence as, in essence, the repetitive and compulsive use of a drug.
Tobacco use is one of the important preventable causes of death [4] and a leading public health problem all over the world[5]. Tobacco addiction is the most widespread addiction in the world. There are nearly 1.3 billion smokers in the world, 80% of them are in the developing countries[6].
According to American Cancer Society, India has 2nd largest population of tobacco users (about 24 crores), next only to China. Projected global tobacco attributable deaths by 2015 are 6.4 million worldwide of which the maximum burden would be due to cardiovascular and respiratory diseases (COPD)[7].
As per 2007 data, India is among the leading producers of tobacco with annual produce of 555,000 metric tons,

only behind China and Brazil. India is also one of the top exporters of raw tobacco[7].

Tobacco is used in both smoking and smokeless forms. Smoking forms include cigarettes, *bidis*, *hukka*, pipes and *chilam* (*ganja*). Smokeless tobacco products include tobacco that is used in *pan*, *gutkha*, *zarda*, *khaini* etc. In India chewing form of tobacco (Gutkha) is most commonly used followed by Bidis[8].

Bidi is the most heavily consumed smoked tobacco product in India. Despite their small size bidis deliver more tar and carbon mono-oxide than manufactured cigarettes because users are forced to puff harder to keep bidis lit[7].

All forms of tobacco are harmful. Smoking tobacco is the major cause of lung cancer, chronic obstructive pulmonary disease (COPD), peripheral vascular disease, and various throat and mouth cancers. Tobacco smoking is a known cause of stroke, coronary heart disease, bladder cancer, aortic aneurysm, perinatal mortality, cervical cancer, and leukemia. Oral smokeless tobacco is associated with precancerous lesions and cancers of the oral cavity. In addition to the increased risk for developing these specific diseases, tobacco users have a significantly higher risk for general health problems than nonsmokers[8].

Although a large number of people know in general terms that tobacco use is harmful to their health, [9,10] many aspects of tobacco use have not been adequately explained and as a result are not well understood by most tobacco users.

This study was undertaken since tobacco addiction is life threatening and no significant work has been done on tobacco use among auto drivers in Gwalior city.

The aim of this study was to determine the prevalence and trend towards tobacco use among auto drivers and to assess the knowledge and attitude of auto drivers towards tobacco products.

Material and Methodology

It was a cross-sectional study conducted with-in 3 months duration by a one-on-one interview among 400 auto-rickshaw drivers of Gwalior city. The study tool was a pre-designed, pre-tested, semi-structured questionnaire. A pilot study was carried out on 50 auto-rickshaw drivers to check the feasibility of questionnaire. Apart from the socio-demographic profile of auto-rickshaw drivers, the questionnaire also included details like driving and waiting hours, type of tobacco product used, time of 1st intake, amount spent on tobacco per day, knowledge about harmful effects of tobacco use etc.

Selection of Subjects

The study was conducted in the area governed by the municipal corporation of Gwalior district (i.e. Gwalior city). As per the RTO department, Gwalior city has 80 authorized auto stands and some 4000 auto rickshaw drivers are registered with it. The auto stands have been numbered from 01 to 80. Simple random sampling was applied and 20 auto stands were selected randomly using random number table and from each selected auto stand, 20 auto-rickshaw drivers were interviewed. Only registered drivers were included in the study.

Informed consent was obtained from study participants and they were assured about the confidentiality of the interview. Before start of study, necessary ethical consideration was done. All the data gathered was transferred to suitable statistical software and analysis was carried out by percentage, proportion and chi-square and P value was calculated utilizing EpiCalc 2000.

Results

A total of 400 drivers were included in the study for analysis. The mean age of the drivers was 34.90 ±11.34 (SD) years. All the drivers were male. Three hundred twelve (78.00%) drivers were married and Eighty three (20.75%) were unmarried; the rest were divorced or widowed. Religion-wise 307 (76.75%) drivers were Hindus, 71 (17.75%) were Muslims and 22 (05.50%) were Sikhs. (Table 1)

In general, the education level of auto-rickshaw drivers was very low. 77 (19.25%) drivers were illiterate, 32 (08.00%) were educated upto primary/informal education, 107 (26.75%) upto middle/8th std, 110 (27.50%) upto high school and 73 (17.75%) were educated upto higher secondary. An extremely significant negative association was found between education and tobacco consumption (p=0.0014). (Table 1)

313 (78.25%) drivers were residing in slum areas, 63 (15.75%) in rural areas and rest of the drivers lived in urban posh areas. 17.21% tobacco users were living in rural areas as against 07.93% tobacco non-users (p=0.00001) (Table 1)

In this study, tobacco addiction was more prevalent among hindu drivers- 81.00% among tobacco users as against 53.97% among tobacco non-users (p=0.00003). 242 (60.50%) drivers belonged to nuclear families while 114 (28.50%) lived in joint families and rest were staying as single person. 41.27% of tobacco non-users were living in joint families as against 26.11% tobacco users. Number of married drivers was higher among both

tobacco users and non-users and the difference was not statistically significant. (Table 1)

Almost half of the drivers 48.75% (195/400) were driving till 9.00pm in the evening while 26.00% (104) were working till late night. In our study, the number of tobacco users was higher among night shift drivers as compared to those driving in morning hours (p=0.0011). The mean of waiting duration was 2.495±1.121 hrs. 77.25% (309) drivers had spare time of 02-04 hrs. Increased waiting duration was associated with higher possibility of tobacco use. (Table 1)

The mean income of workers was Rs. 8456.42±936.66 (SD) per month. (Table 1) Thus, as per the revised Kuppuswamy scale, all workers were of low socioeconomic status. 44.50% (148) drivers were spending almost 20% of their income for tobacco addiction. (Table 3)

The overall prevalence of tobacco use among auto drivers was 84.25% (337/400), while the prevalence of smoking and tobacco chewing were 52.25% (209/400) and 64.25% (257/400), respectively. Amongst all the tobacco users, 23.73% (80/337) workers were only smokers, 37.98% (128/337) used only chewing tobacco, and 38.28% (129/337) workers used both. (Table 2)

38.27% (129) drivers required one dose of tobacco immediately after waking up in the morning while 45.10% (152) required one dose before going to toilet. 59.34% (200) drivers required next dose within one hour of taking the previous dose. (Table 3)

12.75% of drivers reported that they were initiated into the habit by a family member, 69.43% said that their friends had first introduced them to tobacco use, and 17.82% said that they had been induced to try out tobacco products by seeing various celebrities in mass media (TV shows and movies). Peer pressure (67.60%) and pleasure (32.40%) were the two major factors that instigated the continued consumption of tobacco by the drivers. (Table 3)

Almost all the drivers agreed that tobacco consumption was an addiction and majority of them 88.50% (354/400) also knew about various health hazards associated with tobacco consumption. (Table 4) However, 48.07% said that they don't want to quit tobacco. Only 23.44% said that they were willing to quit tobacco use and 28.47% also tried to get rid of tobacco use. (Table 3)

68.00% (272/400) drivers had knowledge about law for smoking in public places but none of the drivers had seen any person being fined for breaking the law. Similarly 61.50% (244/400) drivers had knowledge about ban on production and selling of gutkha but all the drivers confessed that gutkha was freely available in the market. In general, knowledge about ban on smoking in public places and gutkha was higher among tobacco users and the difference was statistically significant. (Table 4)

Table No.1: Socio-demographic Profile of the Auto Drivers

S. No.	Variables	% of Tobacco Users (n=337)	% of Tobacco Non-Users (n=63)	Statistics
A.	**Age of Respondents**			
1.	18 - 20	08.30	00.00	**Mean age= 34.90**
2.	21 - 25	21.36	04.76	**SD= 11.34**
3.	26 - 30	18.40	12.70	
4.	31 - 35	19.29	47.61	
5.	Above 35	32.64	34.92	
B.	**Residence**			
1.	Urban	06.82	01.59	**P=0.00001**
2.	Urban slum	75.96	90.48	**χ^2= 89.54**
3.	Rural	17.21	07.93	
C.	**Religion**			
1.	Hindu	81.00	53.97	**P=0.00003**
2.	Muslim	15.43	30.16	**χ^2= 21.73**
3.	Sikh	03.56	15.87	
4.	Others	00.00	00.00	
D.	**Marital Status**			
1.	Married	77.45	80.95	P=0.5381
2.	Unmarried	21.66	15.87	**χ^2= 0.38**
3.	Divorcee	00.89	03.17	
E.	**Literacy Status**			

1.	Illiterate	21.96	04.76	**P=0.0014**
2.	Primary	08.90	03.17	**χ^2= 10.10**
3.	Middle	25.52	33.33	
4.	High School	26.11	34.92	
5.	Higher Secondary	16.62	23.81	
6.	Graduate	00.89	00.00	
F.	**Type of Family**			
1.	Single	12.76	01.59	P=0.0147
2.	Nuclear	61.13	57.14	**χ^2= 5.94**
3.	Joint	26.11	41.27	
G.	**Hours of Driving**			
1.	09.00AM - 05.00PM	21.95	42.87	**P=0.0011**
2.	09.00AM – 09.00PM	48.96	47.61	**χ^2= 10.55**
3.	Night shift	29.08	09.52	
H.	**Waiting Duration (hrs)**			
1.	1 – 2	16.91	11.11	**Mean= 2.495**
2.	2 - 4	78.93	68.25	**SD= 1.121**
3.	More than 4	04.15	20.63	
I.	**Mean Monthly Income (Rupees)**			**Mean= 8456.42 SD= 936.66**

Table No.2: Prevalence and type of Tobacco use

S. No.	Variables	Percentage of Respondents
A.	**Prevalence of Tobacco use**	
1.	Yes	84.25 (337)
2.	No	15.75 (63)
B.	**Prevalence of Type of Tobacco Product (n=337)**	
1.	Only Smoking	23.73
2.	Only Chewing	37.98
3.	Smoking and Chewing both	38.28

Table No.3: Pattern of Tobacco use among Auto Drivers

S. No.	Variables	Percentage of Respondents (n=337)
A.	**Time of 1st Intake**	
1.	Immediately after waking up	38.28
2.	Before Toilet	45.10
3.	Before/After meals	07.71
4.	Any time	08.90
B.	**Duration within which next dose required**	
1.	Less than 1 hr.	59.34
2.	1 – 2 hrs.	28.78
3.	More than 2 hrs	11.86
C.	**Amount spent on Tobacco per day (Rupees)**	

1.	Less than 50	55.48
2.	50 - 100	37.38
3.	More than 100	07.12
D.	**Influencing Factor**	
1.	Family History	12.75
2.	Friends	69.43
3.	Celebrity advertisements	17.82
E.	**Attitude**	
1.	Willing to stop use	23.44
2.	Don't want to quit tobacco	48.07
3.	Tried to get rid of Tobacco	28.47
G.	**Reason of Continued Tobacco Consumption**	
1.	Pleasure	32.40
2.	Peer Pressure	67.60

Table No.4: Knowledge of Auto Drivers

S. No.	Variables	Tobacco Users (n=337)	Tobacco Non-Users (n=63)	Total (n=400)
A.	**Knowledge about harmful effects of Tobacco use (p=0.0677, χ^2= 3.34)**			
1.	Yes	294 (87.24%)	60 (95.24%)	**354 (88.50%)**
2.	No	43 (12.76%)	03 (04.76%)	**46 (11.50%)**
B..	**Knowledge about Law for Smoking in Public places (p=0.00001, χ^2= 24.54)**			
1.	Yes	246 (72.99%)	26 (41.27%)	**272 (68.00%)**
2.	No	91 (27.01%)	37 (58.73%)	**128 (32.00%)**
C.	**Knowledge about Gutkha Ban (p=0.00001, χ^2= 29.89)**			
1.	Yes	225 (66.76%)	19 (30.16%)	**244 (61.50%)**
2.	No	112 (33.24%)	44 (69.84%)	**156 (38.50%)**

Discussion

The aim of this study was to determine the prevalence and various aspects of tobacco use among the auto-rickshaw drivers of Gwalior city.

The overall prevalence of tobacco use in the present study was 84.25%, which is higher than that reported by earlier community-based studies of tobacco use from other parts of the country. According to the National Sample Survey Organization, the prevalence rate of tobacco use in the country (rural + urban) is 35.5%[11].In a study done in central jail Bhopal, a total of 77% study inmates, which comprised of 87.7% psychiatrics and 66.4% nonpsychiatrics had a habit of tobaccoconsumption(smokelessorsmoking)[12].According to a study done by M Rani et al, thirty percent of the population 15 years or older—47% men and 14% of women—either smoked or chewed tobacco.[13].In a study of tobacco use in a rural area of Bihar, tobacco use had a prevalence of 78% among men and 52% among women[14].

In current study, the prevalence of smoking and tobacco chewing were 58.25% (233/400) and 70.25% (281/400), respectively. Amongst all tobacco users, 23.73% (80/337) workers were only smokers, 37.98% (128/337) used only chewing tobacco, and 45.40% (153/337) workers used both. A study done in rural area of UP revealed that most of the participants (49%) were using smoking form of tobacco (Cigarette, Bidi, Hukka) and 34.4% were using smokeless form of tobacco (Gutkha, Khaini) and 15.5% were using both.[15].In this study, we found that 44.51% (148/337) drivers were spending almost 20% of their income for tobacco addiction. This expenditure on tobacco is very high. Money spent on tobacco means that there is less to be spent on basic human needs such as food, shelter, education, and health care. Tobacco can also worsen poverty among users and their families since tobacco users are at much higher risk of falling ill and dying prematurely of cancers, heart attacks, respiratory diseases, or other such tobacco-related diseases, imposing additional costs for health care and depriving families of much-needed income. The WHO says that in

many societies the poorest people tend to smoke the most and bear the greatest health and economic burdens[16].

A study done among employees of a chemical industry at Ratnagiri, Maharashtra reveals that the tobacco users spent Rs. 66.65 (1.39 USD), (Rs. 48 = 1 USD) every month on tobacco; among which, the employees using smoking forms were spending Rs. 293.33 (6.11 USD) per month, the employees using non-smoking forms spent Rs. 22 (0.46 USD) per month, and the employees using a combination of smoking and non-smoking forms spent Rs. 73.50 (1.53 USD) per month.[17].

In our study, 17.82% drivers said that they had been induced to try out tobacco products by seeing various celebrities in mass media and peer pressure (67.60%) was an important factor that instigated the continued consumption of tobacco. A study done in North India revealed that the important factors for initiation of tobacco use were peer pressure (62%), imitating elders (53.4%) and imitating celebrity (63.5%). Tobacco users were significantly less likely than non-tobacco users to recall watching the spots during movie (72.1% vs. 79.1%). Anti-tobacco advertisement gave inspiration to 37% of subjects not to use tobacco. The celebrity in advertisement influenced the people's attention.[18].

In this study, 88.50% drivers had knowledge about the harmful effects of tobacco addiction. According to the report of WHO and MOHFW, India, although a large number of people know in general terms that tobacco use is harmful to their health, many aspects of tobacco use have not been adequately explained and as a result are not well understood by most tobacco users.

A study done in Odisha revealed that'70% of the illiterates consumed tobacco as compared to 34% post graduates[19]. 52.1% of the respondents were aware of Indian tobacco control laws, while 80.8% had knowledge about the provision of the law prohibiting smoking in public places.[19].

Conclusion

The present study clearly reflects the continued high prevalence rates of tobacco use among various sections of society. Mass advertisements against tobacco products and certain legal steps taken by the Governments don't seem to be very effective and have been largely unable to cease the consumption of tobacco products by the people. This failure also points towards the fact that de-addiction is a difficult task which not only requires motivation and self control but also time, money and other resources. Recently certain new replacement products have been introduced in the market which are harmless and can also curb the craving for tobacco. Apart from mass advertisements against tobacco products, authorities should focus on strict enforcement of law and promoting research for creating new and harmless replacement products.

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