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PREVALENCE AND DETERMINANTS OF TOBACCO USE AMONG RESTAURANT EMPLOYEES FOLLOWING COMPREHENSIVE SMOKING BAN IN RESTAURANTS IN MUMBAI, INDIA."

Community Medicine

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ABSTRACT

Background: India introduced ban on smoking in public places including restaurants in 2008. While there is strong support for anti-smoking policies in restaurants the personal behavior practices of restaurant employees also demands that they too should not smoke or use tobacco where food products are handled.

Aims: The current study determines the extent of tobacco use and its addiction among restaurant employees in Mumbai .

Settings and Design:

A community based cross-sectional survey was conducted among the restaurant workers in Mumbai, India between September 2012-January 2013. Representative random sample of 26 restaurants from two randomly selected administrative wards in Mumbai was undertaken through two stage sampling.

Methods and Material: Socio demographic information of restaurant workers along with tobacco use were collected by pretested questionnaire .Nicotine dependence was measured using the Fagerström Test score.

Statistical analysis : Bivariate analysis with logistic regression were conducted to assess the presence and strength of association between the independent variables and tobacco use status.

Results and Conclusions: Total 210 restaurant employees from 26 restaurants were surveyed for tobacco use.116 (55.2%) were found to be current tobacco users in some form. Smokeless tobacco use was predominant (63.7%) and nearly 57.8 had medium to high Fagerstrom addiction score. Regression analysis showed Illiteracy (OR=0.5, CI 0.28, 0.96; P=0.03), Religion (OR= 2.57, CI 1.55, 5.77; P=0.022), Marital status (OR=0.51, CI 0.26, 1.01; P =0.05) were associated with tobacco use after controlling for age. The study findings calls for targeted tobacco prevention and cessation efforts among restaurant workers to supplement effective anti smoking regulation in place.

KEYWORDS

Smoking Bans , Restaurant Employees, Tobacco Use Addiction

INTRODUCTION

Tobacco is one of the major risk factors contributing to non communicable diseases burden and is the single largest preventable cause of death worldwide.[1] Tobacco use is increasing at an alarming rate in developing countries including India. As per the Global Adult Tobacco Survey (GATS) 2009-2010, 47.9% of males and 20.3% of females were reported to be using tobacco in any form.[2] Studies across many countries including India has also reported that tobacco use is much more common among the less educated and underprivileged sections of the society.[3,4]

In one of the major tobacco control measures adopted by the country, India introduced **the** Cigarette and Other Tobacco Products (Prohibition of Advertisement and Regulation of Trade and Commerce, Production, Supply and Distribution) Act (COTPA) 2003 which aims to regulate both smoking and smokeless forms of tobacco**.** Section 4 of the COTPA, 2003, prohibits smoking in all public places including hotels and restaurants.[5]

Though extensive literature exists on effects of second hand smoke on restaurant workers and employees as health risks and as an occupational health hazard, very little empirical research exists on tobacco use and consumption by hotel and restaurant employees themselves. **Since the** personal behavior practices of workers in restaurants demands that they should not smoke or use tobacco where food products are handled, investigation was necessary to understand the extent of tobacco use and its addiction among employees in restaurants in Mumbai. Our study investigated the prevalence, patterns of tobacco consumption and predictors of tobacco use behavior among hotel employees to better understand the factors for the development of effective and focused tobacco control interventions for this population.

METHODS:

This was a community based descriptive cross-sectional survey conducted on a pilot basis in Mumbai Metropolitan city, India between September 2012-January 2013. The study sample comprised of the food-handling personnel including waiters and kitchen staff employed in the restaurants located in the pilot study area. A food handler was any person who handles food, regardless of whether he actually prepares or serves it to the customers.[6]

Representative random sample of restaurants from two randomly selected administrative ward in Mumbai was undertaken through two stage sampling. In the first stage total 139 restaurants from the two administrative wards were enumerated and were accorded a unique number . In the second stage every fifth of the total pool of restaurants was randomly selected to select 26 restaurants for the study sample. The restaurant owners / managers of the randomly selected restaurants were contacted by the project investigators for their consent to participate in the study. Out of the total 26 restaurants, 23 agreed to participate in the study.

Total 236 food handlers working in these restaurants were enumerated out of which 210 food handlers (88.9%) consented to participate in the study. Those food handlers who could not be contacted even after three visits and the ones who refused to participate were excluded from the study. Informed consent was taken and the respondents were interviewed with the help of an investigator administered questionnaire. The questionnaire was field tested and validated for appropriateness and modifications were made based on the feedback elicited from the participant responses. Socio demographic and personal information including tobacco use, knowledge about harms of tobacco and awareness about tobacco legislation, was collected by standardized pretested questionnaire by trained Social workers. For tobacco users nicotine addiction was measured using the Fagerström Test for Nicotine Dependence for both smoking and smokeless forms of tobacco.[7]

Descriptive analysis was done to estimate frequencies of the independent variables with tobacco use status. Bivariate analysis and final stepwise logistic regression were conducted to assess the presence and strength of an association between the independent variables and tobacco use status using SPSS 18 statistical package.

RESULTS:

Total 210 male food handler employees from 23 eating establishments were surveyed for tobacco use. With regards to the socio-demographic characteristics of the study participants it was found that majority (65.7%) were between the age group of 18-25 years. Nearly 139 (66.2%) had obtained education upto middle school level, whereas 60

(28.6%) were illiterate. More than 50% were unmarried. All of the study participant hotel employees were migrants outside of Mumbai city. Whereas 51(24.3%) came from within the state of Maharashtra, majority 129 (61.4%) of the workers hailed from the northen part of the country. Since none of them belonged to the city, almost 129 (61.4%) resided in the workplace premises and 68 (32.4%) stayed in Bachelor accommodation with peers. Majority of them 186 (88.6%) earned a monthly income of less then 5000 Indian Rupees. (Table 1)

With respect to tobacco consumption 124 (59%) were ever tobacco users while 116 (55.2%) were found to be current tobacco users. Among the tobacco users, smokeless tobacco use was the most common (63.8%), 15.5% were smokers and nearly 20.7% were consuming both smoked and smokeless forms of tobacco. It was found that about 83% of tobacco users were on an average spending less than Rupees 500 per month on tobacco. On inquiry about tobacco consumption by close family members, almost 155 (73.8%) admitted tobacco use in some form by family members. (Table 1)

Among the tobacco users 77 (66.7%) were consuming tobacco for less than 5 years duration. On inquiry into frequency of tobacco use per day majority 70 (60.3%) reported consuming tobacco more than 5 times in a day. Almost 60 (51.7%) of the tobacco users had initiated consumption of tobacco below 18 years of age. Fagerstrom scoring was undertaken to determine the level of tobacco addiction and the study found that nearly 67 (57.8%) had medium to high addiction and 49 (42.2%) were graded with low addiction score. (Table 2)

Food handler hotel employees were assessed for their awareness and perception about harms of tobacco use. Majority of the participants 181 (86.2%) were aware of cancer as a likely consequence of tobacco use, with 14.3% reporting respiratory diseases and another 10% quoted heart diseases as the health consequences due to tobacco consumption. Participants were also questioned about their knowledge and perception about which tobacco products were considered more harmful among the variety of tobacco products available for consumption. Among the smoking forms of tobacco, more than 90% depicted cigarettes and beedi's as harmful to health, however only 63% considered hookah smoking as harmful. Among the smokeless tobacco varieties, products like gutkha (commercial preparation containing areca nut, slaked lime, catechu and condiments and powdered tobacco) and khaini (mixture of sun-dried tobacco and slaked lime) was considered unhealthy by more than 80% of the participants whereas only 53% considered masheri being harmful to health. Passive smoking too was noted as harmful by 176 (83.8%) participants.On inquiry into sources of information about harmful effects of tobacco, mass media (57.6%) and relatives with friends (38.6%) were cited as major source of information followed by health care providers (15.7%). (Table 3)

Information was also sought on awareness about anti tobacco legislation and certain provisions for tobacco control with in the legislation. Though none of the participants were aware about the Cigarettes and Other Tobacco Products Act (COTPA) 2003, but 79% knew about the ban on smoking in public places, 74% were aware about the pictorial warnings, 33.3% knew that tobacco products cannot be sold to children below 18 years and 32.4% had knowledge of ban on tobacco advertisement.

Regression analysis was carried out to understand the determinants of tobacco use among the hotel food handlers using tobacco. Analysis showed literate participants (OR=0.5, CI 0.28, 0.96; P=.03) were less likely to consume tobacco. Individuals belonging to Other than Hindu Religion (OR= 2.57, CI 1.55, 5.77; P=0.022) were 3 times more likely to consume tobacco and, Unmarried individuals were less likely to use tobacco (OR=0.51, CI 0.26, 1.01 ; P =.05) after adjusting for age. (Table 4)

DISCUSSION :

Among growing concern of rise in tobacco use in low and middle income countries, these countries are predicted to contribute to an increasing share of the global burden of disease in future decades.[8] Though extensive literature exists on the detriments to health of workers through hazardous workplace exposures due to smoking in hotels and restaurants , there is no data or information on tobacco use by the restaurant workers themselves.The present study therefore focuses on the issue of tobacco consumption by food handler in restaurants where there is ban on smoking as per the provisions with in anti tobacco legislation, COTPA 2003.

Our study points towards high rates (55.2) of current use of tobacco among the restaurant workers with smokeless tobacco forms (63.8) predominantly being used by the workers. Rates for tobacco consumption in general were relatively more among illiterate restaurant workers and the current study analysis showed that literate participants (OR=0.5, CI 0.28, 0.96; P=.03) were less likely to consume tobacco , the study findings conforms to an earliar national cross sectional household study from India.[3] In a another study undertaken in a Mumbai cohort, Sorensen et al too has reported more prevalence of smokeless tobacco among less educated and unskilled workers.[9,10] Apart from regional preferences due to differing socio-cultural norms, the preference for smokeless tobacco has been reported to be inversely proportional to education and income in India and South Asia.[11]

All of the restaurant workers were migrants, most of them (61.4%) hailing from northern part of the country. Mumbai the commercial capital of the country has always attracted skilled and unskilled workforce from across the country. Large number of migrant workforce are employed in various food establishments as is evident from our study findings. Male migrants workers are likely to be more vulnerable to tobacco abuse due the stress of displacement, being away from the family and the harsher working conditions that they are generally exposed to due to exploitation and survival in the city . As is evident from our study majority of the participant hotel employees had no residence of their own with 61 percent residing in the hotel workplace premises and another 32 percent shared bachelor accommodation in crowded conditions. tobacco consumption as high as 50.48% among migrant construction workers has been reported in a study from Mumbai.[12]

The study participants were well aware of association of tobacco to cancer (86.2) as compared to other non communicable diseases and were also well informed about passive smoking being harmful to health. More than 50% attributed mass media as the source of information about the ill effects of tobacco. Findings from 16 years of tobacco control mass media advertising in Australia stated that mass media campaigns played an important role for ensuring reductions in adolescent smoking prevalence.[13] With television becoming the household items even amongst the poor , mass media tobacco control campaigns has the potential to penetrate to large numbers of people across both rural and urban households. Cochrane systematic review 2008 has reported evidence that comprehensive tobacco control programmes which include mass media campaigns can be effective in changing smoking behaviour in adults.[14]

The investigators found good knowledge about anti tobacco measures among the hotel employees with more than 70% being aware of ban on smoking in public places and presence of pictorial warnings on cigarette packs. In a recent study on awareness regarding tobacco legislation among adolescents in rural Kerala, more than half of the respondents (55.9%) were aware of the ban on smoking in public places, with the awareness being maximum among those 18 years and above.[15]In a School Tobacco Survey conducted in the city of Mumbai, awareness of the current smoking ban in public places was high among boys (78.4%) and girls (82.2%).[16] High awareness levels among the present study participants could be attributed to the Bloomberg funded Smoke-free Mumbai (SFM) campaign's initiative to sensitize hotel and restaurants employees across Mumbai city towards smokefree laws and their implementation in the city.

While assessing the determinants for tobacco use in this hotel employee group, besides illiteracy, individuals belonging to other than Hindu religion (OR= 2.57, P=0.022) were 3 times more likely to consume tobacco. The socioeconomic differentials in tobacco consumption with respect to education and religion from this study compares well with the findings from previous study from Mumbai, India.[17]

With nearly 58 percent of tobacco user hotel employees with medium to high Fagerstrom addiction scores, reflects strongly on the need for provision and access for tobacco cessation services. Given the difficulty in assessing restaurant workers due to their day long schedules extending into the night to serve the clients in a busy commercial metropolitan city, and that the tobacco use behaviour of these workers has never been studied previously, the results of the

present study provide a unique perspective into the challenges of tobacco control for such hard to assess high risk migrant population subgroups which is particularly important for future public health efforts to channelize tobacco control initiatives.

In conclusion in the light of the comprehensive ban on smoking in public places across the country with major focus on making hotels and restaurants smoke free, the high prevalence of tobacco use among young males working in the restaurants with a medium to high tobacco addiction would become a major deterrent for effective implementation of smoke free and tobacco free initiatives of the government and enforcement authorities. Strategies for targeted interventions for tobacco control and cessation for tobacco users with in the hospitality industry needs to be addressed with hotels and restaurant associations in order to complement the benefits of a comprehensive smoke free ban to achieve tobacco control objectives.

Table 1: Socio-demographic profile of the restaurant workers.

Socio-demographic characteristics		Number (%) (N=210)*
Age (years)	<25	138 (65.7)
	36-45	49 (23.3)
	>35	23 (11.0)
Education a.	Illiterate	60 (28.6)
	Primary & Middle school	139 (66.2)
	Higher secondary & Above	11 (5.2)
Religion	Hindu	170 (81.0)
	Others	40 (19.0)
Marital status	Married	88 (41.9)
	Unmarried	122 (58.1)
Permanent Residence	Maharashtra State	51 (24.3)
	Southern INDIA	13 (6.2)
	Northern INDIA	129 (61.4)
	Eastern INDIA	17 (8.1)
Accommodation status	With Family/Relatives	13 (6.2)
	Bachelor (with peers)	68 (32.4)
	At Workplace	129 (61.4)
Total monthly income (Rs)	≤ 5000	186 (88.6)
	>5000	24 (11.4)
Self tobacco consumption (Lifetime prevalence)	1. Ever Users (Current/Past)	124 (59.0)
	Never Users	86 (41.0)
	2. Current User	116 (55.2)
	Non User (Past/Never)	94 (44.8)
Forms of Tobacco use	Smoking	18 (15.5)
	Smokeless	74 (63.8)
	Mixed	24 (20.7)
Average monthly tobacco expenditure (Rs) for current users (N=116)	≤500	96 (82.8)
	>500	20 (17.2)
Tobacco consumption by any of the family members/ friends/relatives	Yes	155 (73.8)
	No	55 (26.2)

(*- 100% of the study subjects were males)

Table 2: Patterns of self tobacco consumption by the current users (N=116)

Tobacco Use		Smoking (N=18)	Smokeless (N=74)	Mixed (N=24)	Total (N=116)
a. Duration (years)	≤5	8 (44.4)	55 (74.3)	14 (58.3)	77 (66.7)
	>5	10 (55.6)	19 (25.7)	10 (41.7)	39 (33.6)
b. Frequency (times/day)	≤5	13 (72.2)	47 (63.5)	10 (41.7)	70 (60.3)
	>5	5 (27.8)	27 (36.5)	14 (58.3)	46 (39.7)
c. Age of initiation (years)	≤18	7 (38.9)	38 (51.4)	15 (62.5)	60 (51.7)
	>18	11 (61.1)	36 (48.6)	9 (37.5)	56 (48.3)
d. Fagerstrom Addiction score	Low	7 (38.9)	38 (51.4)	4 (16.7)	49 (42.2)
	Medium*-High**	11 (61.1)	36 (48.6)	20 (83.3)	67 (57.8)

(*Medium score for Smokers: 4-6, Smokeless: 7-12,
**High score for Smokers: 7-10, Smokeless: 13-16)

Table 3: Awareness and perceptions about tobacco use and tobacco control measures

Variables*	Number (%) (N=210)	
a. Knowledge about various harmful effects of tobacco	Cancer	181 (86.2)
	Respiratory	30 (14.3)
	Cardiovascular	21 (10.0)
	Others**	26 (12.4)
b. Perception about passive smoking being harmful	Yes	176 (83.8)
	No	34 (16.2)
c. Knowledge and perceptionabout tobacco products being harmful	Cigarette	205 (97.6)
	Beedi	193 (91.9)
	Gutka	176 (83.8)
	Khaini	169 (80.5)
	Pan with tobacco	151 (71.9)
	Hookha	129 (62.9)
	Mawa	134 (63.8)
	Masheri	108 (52.7)
d. Sources of informationabout harmful effects of tobacco	Mass media	121 (57.6)
	Health care personnel	33 (15.7)
	Friends/Relatives	81 (38.6)
	Others***	21 (10.0)
e. Knowledge about some Anti-tobacco measures	**1.**Smoking banned in public places	166 (79.0)
	2.Cannot sell tobacco products to children below 18 years	70 (33.3)
	3. Pictorial warnings on tobacco products?	155 (73.8)
	4. Ban on advertisement of tobacco products	68 (32.4)

Table 4: Univariate and multivariate analysis of predictors of tobacco use among hotel employees in Mumbai, India.

Determinants of tobacco usage among the study subjects		Status of current tobacco use		Total (N=210)	Univariate Analysis				Multivariate Analysis*			
		Yes (N=116)	No (N=94)		OR	LL	UL	P Value	OR	LL	UL	P Value
1. Age (years)	**≤25**	74 (53.6)	64 (46.4)	**138 (65.7)**								
	>25	42 (58.3)	30 (41.7)	**72 (34.3)**	1.21	.68	2.15	.515	0.83	.46	1.48	.523

2. Education status	**Illiterate**	40 (66.7)	20 (33.3)	**60 (28.6)**								
	Literate	76 (50.7)	74 (49.3)	**150 (71.4)**	**0.51**	**0.27**	**0.95**	**.037**	**.51**	**.28**	**.96**	**.037**
3. Religion	**Hindu**	86 (50.6)	84 (49.4)	**170 (81.0)**								
	Others	30 (75.0)	10 (25.0)	**40 (19.0)**	**2.93**	**1.35**	**6.37**	**.007**	**2.57**	**1.15**	**5.77**	**.022**
4. Marital status	**Married**	56 (63.6)	32 (36.4)	**88 (41.9)**								
	Unmarried	60 (49.2)	62 (50.8)	**122 (58.1)**	**0.55**	**.31**	**.97**	**.038**	**.51**	**.26**	**1.01**	**.054**
5. Accommodation status	**With Family/relatives**	8 (61.5)	5 (38.5)	**13 (6.2)**								
	Bachelor (peers)	35 (51.5)	33 (48.5)	**68 (32.4)**	.66	.19	2.23	.507	.79	.23	2.82	.727
	At Workplace	73 (56.6)	56 (43.4)	**129 (61.4)**	.81	.25	2.63	.731	.89	.27	2.96	.848
6. Total monthly income (Rs)	**≤5000**	101 (54.3)	85 (45.7)	**186 (88.6)**								
	>5000	15 (62.5)	9 (37.5)	**24 (11.4)**	1.40	.59	3.37	.449	1.59	.63	3.97	.326
7. Use by family members/ friends/ relatives	**Yes**	90 (58.0)	65 (42.0)	**155 (73.8)**								
	No	26 (47.3)	29 (52.7)	**55 (26.2)**	.648	.35	1.20	.168	**.58**	**.30**	**1.09**	**.090**
8. Awareness about various harmful effects of tobacco	**≤2 Harmful effects**	111 (54.7)	92 (45.3)	**203 (96.7)**								
	>2 Harmful effects	5 (71.4)	2 (28.6)	**7 (3.33)**	.48	.09	2.5	.391	0.46	0.08	2.72	.396
9. Positive attitude for ban of tobacco from market	**Yes**	105 (54.4)	88 (45.6)	**193 (91.9)**								
	No	11 (64.7)	6 (35.3)	**17 (8.9)**	1.53	.55	4.32	.416	1.48	0.52	4.22	.463
10. Knowledge regarding anti-tobacco measures	**Yes**	96 (55.5)	77 (44.5)	**173 (82.4)**								
	No	20 (54.0)	17 (46.0)	**37 (17.6)**	.944	.463	1.925	.873	.852	.408	1.78	.670

References

1. Murray CJ, Lopez AD. Alternative projections of mortality and disability by cause, 1990–2020: Global Burden of Disease Study. Lancet 1997;349:1498-504.
2. Global Adult Tobacco Survey. GATS INDIA Report 2009-10. Available from http://mohfw.nic.in/WriteReadData/l892s/1455618937GATS%20India.pdf accessed on 13th November 2017.
3. Rani M, Bonu S, Jha P, Nguyen SN, Jamjoum L. Tobacco use in India: prevalence and predictors of smoking and chewing in a national cross sectional household survey. Tob Control 2003;12:e4
4. Sorensen G,Gupta PC, Pednekar MS.Social disparities in tobacco use in Mumbai, India: the roles of occupation,education, and gender. Am J Public Health 2005;95:1003-8.
5. The Cigarettes and Other Tobacco Products (Prohibition of advertisement and regulation of trade and commerce, production, supply and distribution) Bill, 2003,G:\WIN1\BILL2000\LS\793LS
6. Food Safety and Standards (Licensing and Registration of Food Businesses) regulation,2011. Available from: http://www.fssai.gov.in/portals/0/pdf accessed on 13th November 2017.
7. Prochaska JO, Diclemente CC. Stages and process of self-change smoking: Toward an integrative model of change. J Consulting Clinical Psychology 1983;51:390-95.
8. Gajalakshmi CK, Jha P, Ranson K, Nguyen S. Global patterns of smoking and smoking-attributable mortality. In: Jha P, Chaloupka FJ, eds. Tobacco Control in Developing Countries. New York, NY: Oxford University Press Inc; 2000:11–39.
9. Glorian Sorensen, Prakash C. Gupta, Mangesh S. Pednekar. Social Disparities in Tobacco Use in Mumbai, India: The Roles of Occupation, Education, and Gender. Am J Public Health 2005;95:1003–08.
10. World Health Organization. Sentinel Tobacco Use Prevalence Survey In India, 2001,WHO, SEARO, New Delhi
11. Gupta PC, Ray CS. Smokeless Tobacco and Health in India & South Asia. Respirology 2003;8:419-32.
12. Adsul BB, Laad PS, Howal PV, Chaturvedi RM. Health problems among migrant construction workers: A unique public-private partnership project. Indian J Occup Environ Med 2011;15:29-32.
13. White V M, Durkin S J, Coomber K, Wakefield M A. What is the role of tobacco control advertising intensity and duration in reducing adolescent smoking prevalence? Findings from 16 years of tobacco control mass media advertising in Australia. Tob Control 2013 Aug 29. doi: 10.1136/tobaccocontrol-2012-050945.
14. Bala M, Strzeszynski L, Cahill K. Mass media interventions for smoking cessation in adults. Cochrane Database Syst Rev. 2008;CD004704.
15. Jayakrishnan R, Geetha S, Binukumar B, Sreekumar, Lekshmi K. Self –reported tobacco use, knowledge on tobacco legislation and tobacco hazards among adolescents in rural Kerala State.Indian J Dent Res 2011;22:195-99.
16. Raute L J, Pednekar M S, Mistry R, Gupta P C, Pimple S A, Shastri S S. Determinants of exposure to second hand smoke at home and outside the home among students aged 11-17 years : Results from the Mumbai Student Tobacco Survey 2010. Indian J Cancer 2012;49: 419-24.
17. Gupta PC. Survey of socio-demographic characteristics of tobacco use among 99,598 individuals in Bombay, India using handheld computers.Tobacco Control 1996 ;5:14–20.