Prevalence of Smoking and Associated Risk Factors Among Medical Professionals in Hospitals of Karachi, Pakistan

Mubashir Zafar

Department of Community Health Sciences, Aga Khan University, Karachi, Pakistan

Correspondence to:
Dr. Mubashir Zafar,
Department of Community Health Sciences, Aga Khan University,
Karachi, Pakistan.
E-mail: mubashirzafar900@gmail.com

ABSTRACT

Background: Cigarette smoking is the largest preventable risk factor for morbidity and mortality in developed countries where at least one in four adults smoke cigarettes. Healthcare providers who smoke are less likely to advise patients to quit smoking. The aim of this study is to find out the frequency of tobacco smoking among medical professionals in tertiary care hospitals of Karachi, and to identify the common factors responsible for the continuation of smoking among healthcare providers.

Methods: This descriptive cross-sectional study was carried out at public and private tertiary Care Hospitals/Institutes at Karachi. A self-administered questionnaire was used to collect data from 180 subjects. An informed consent was obtained from all the subjects. The data were analyzed using SPSS version 16.0.

Results: Prevalence of smoking was 29%. High prevalence of smoking was among male doctors as compared to female doctors. Sixty-eight per cent of smokers started smoking between 20 to 30 years of age. Age less than 35 years, male and public sectors hospitals were more likely OR 1.23, CI (0.98-2.41), 6.40 CI (4.48-10.52) and 2.61 CI (2.20-3.78) respectively.

Conclusions: The Result of the study suggests that while healthcare smoking habits appear to be high, they are not uniformly low when compared from an international perspective. Health promotion programs focused on self-efficacy may be an effective tool for reducing the initiation, frequency, and amount of cigarette smoking among healthcare providers.

Keywords: Cigarettes, healthcare providers, prevalence, smoking, tobacco

INTRODUCTION

Cigarette smoking is the largest preventable risk factor for morbidity and mortality in developed countries where at least one in four adults smoke cigarettes.[1] Situation in the developing countries is even worse. It is estimated that by 2030, the developing world is expected to have 7 million deaths annually from tobacco use.[2]

Original Article

Unfortunately, Pakistan is one of those countries where despite escalating knowledge and awareness programs, cigarette smoking is ever rising. With the smoking epidemic, the role of medical professionals is most crucial in lowering down the smoking rates among the masses, thereby preventing many avoidable diseases.[2]

Most ironical and unfortunate fact is that healthcare providers too have a tendency to smoke. This is a global issue. Healthcare providers all over the world have been identified to be involved in smoking, at least to some extent. An American study[3] indicates that in 2006/2007, Licensed Practical Nurses had the highest prevalence of tobacco smoking (20.55%), followed by respiratory therapists (19.28%). Physicians had a prevalence of 2.31%, dentists - 3.01%, pharmacists - 3.25%, and Registered Nurses - 10.73%. The overall prevalence of smoking among healthcare providers was 9.85%. Similarly, a study from China[4] identified 20.8% of healthcare providers as current smokers. Smoking among physicians was very high (35.7%) according to this study and 59.7% of the respondents believed that inadequate knowledge is responsible for their continuation of smoking.[4]

There were very few local studies addressing this problem. Little work has been done on a large scale to find the prevalence of smoking among healthcare providers and the significant factor responsible for their continuation of smoking besides its hazardous effects. A recent study from Lahore[5] conducted at Mayo hospital found out the frequency of smoking among doctors to be 37.18% and in paramedical staff to be 35.74%. Most of them initiated smoking due to the influence of friends. Majority of doctors and paramedics found smoking as relaxing and addiction and was the main reason they couldn't quit. Main factors responsible for continuation of smoking are addiction (Doctors - 38%, Paramedics - 42%), lack of will power (Doctors - 21%, Paramedics - 27%), and lack of incentive (Doctors - 24, Paramedics - 12%). On the other hand, among general practitioners, 36% are found to be cigarette smokers, who consume 12.48 cigarettes per day and have 18.76 average years of smoking. Half of them have been smoking for more than 20 years.[6]

Physicians who smoke are less likely to advise patients to quit smoking. Also, it is less expected from them to assess patient's will to refrain from smoking.[7] In addition to all the smoking-related health hazards that healthcare providers are exposed to, they are also not been able to counsel their patients effectively. It is evident that if healthcare providers themselves smoke, they cannot educate masses regarding smoking cessation.[7]

There is a need of a large-scale study involving more than one tertiary care hospitals to find out the frequency of smoking among healthcare providers (both doctors and paramedics) and to appraise the reasons behind their continuation of smoking despite their medical edification. This study was helpful in identifying factors responsible for continuation of smoking, so that recommendations can be made for its cessation among healthcare providers and thereafter the community. The objective of the study was to find out the frequency of tobacco smoking among healthcare providers and to identify the common factors responsible for the continuation of smoking among healthcare providers in tertiary care hospitals of Karachi.

OPERATIONAL DEFINITIONS

Medical professionals
All professionals involved in the delivery of healthcare in a tertiary care hospital including physicians, paramedical staff, registered nurses, and operation theater technicians.

Smoker
A person who smokes at least five cigarettes a day for at least one year.

Non-smoker
A person who has quit smoking for at least one year after being smoker or has never smoked.

Factors leading to continuation of smoking
All those factors, like influence of friend and peer pressure, addiction, lack of will power, and lack of incentive, which have previously been identified as significantly associated with smoking among healthcare providers.[4]
- Influence of friends and peer pressure. If a person spends more than 6 hours (25% of the day) in the company of those friends or colleagues the majority (>50%) of who are smokers, he is influenced by them
- Addiction. A person is addict if he smokes even at workplace and home and the absence

of smoking causes inability to continue routine work

- Lack of will power. It is the inability to try to quit smoking ever in the past
- Lack of incentive. Lack of due promotion or due increments in salary despite putting in efforts.

METHODS

It was a cross-sectional study conducted at working places (OPDs, Wards) of three selected hospitals of Karachi. Using Open Epi sample size calculator for proportion, at 95% CI, a total of 180 healthcare providers were enrolled in the study. Proportionate sampling technique was used for selection of hospitals and stratified sampling technique was used for selection of healthcare providers from hospitals.

Inclusion criteria for study participants were all doctors and paramedics (nurses and technicians) of either gender currently working in tertiary care hospitals; all HCPs who give consent to participate in this study and only employed doctors and paramedics were enrolled. Exclusion criteria for study participants were those from hospitals where beds are less than 200; postgraduate students, house officers, and trainee are not included.

Approval for the study was obtained from ethical review committee of DUHS. Permission from the hospitals was taken prior to the study. No financial compensation was provided for participation. Data were collected by trained data collector. Principal investigator was explaining the nature and purpose of study to all the selected participants.

Data were collected through a self-administered questionnaire. Informed consent was taken from all the participants. The objectives of the study were explained to the subjects. All the participants were asked about their demographic profile. Smokers were asked about the age of starting smoking, type of smoking, reason of the starting smoking, number of cigarettes per day, and brand of cigarette. All the information was collected on a predesigned proforma. Confidentiality and anonymity were maintained to obtain as frank answers as possible.

A structured questionnaire was filled by a principal investigator. The questionnaire is relatively valid and a reliable indicator of prevalence and associated risk factors. This questionnaire is commonly used around the world for tobacco survey.[8] The questionnaire comprises three parts.

Part A is designed to measure socio-demographic data including age, gender, type of healthcare provider, department, specialty, and duration of occupation. Part B is about the smoking status. Part C rates the sociodemographic, environmental, and personal factors, which contributed in the continuation of current smoking among healthcare providers, on the basis of five-point Likert scale ranging from strongly agree (1) to strongly disagree (5). Informed consent was obtained prior to conducting study.

Data were entered and analyzed using Statistical package for social science (SPSS version 16). Mean ± Standard Deviation was calculated for continuous variables like age, duration of employment, etc., Frequencies and percentages were calculated for gender, specialty, smoking status, and reasons for continuation of smoking. Categories were made on the basis of gender, duration of occupation, and smoking status. Stratification was done on the basis of gender, age, type of hospital, type of healthcare provider, and department. Chi-square test was applied to see any effect of independent variables on smoking at $\alpha = 0.05$. The Sociodemographic characteristics of healthcare providers by smoking status were reported as odd ratio and confidence interval. Confounders were managed through randomized selection of subjects.

RESULTS

Table 1 shows sociodemographic characteristics of healthcare providers. Mean age of data sets was 34 years ± 10 SD, more than half of the participants were male and belong to age between 18 and 35 years. Two-third of participant belongs to public sector hospitals and half of them were working in medicine department. Among study participants, one-third were smokers and more than 5 cigarettes were used daily by 41.5% of healthcare providers. More than one-third of the participants were influenced for smoking by friends, and half of the smokers have put an effort to abandon smoking.

Table 2 shows the association of smoking status with sociodemographic factors contributing to smoke among healthcare providers. The study participants were divided into two groups on the basis of smoking status. When the age, gender, hospital type, department of hospital, and type of healthcare providers were compared between the two groups, the only characteristics found

Table 1: Sociodemographic characteristics of medical professionals in tertiary care hospital of Karachi

Variables	Frequency *n*=180	Percentages
Age (years)		
18-35	106	58.9
36-56	74	41.1
Gender		
Male	116	64.4
Female	64	35.6
Hospitals		
Private	53	29.4
Public	127	70.6
Department of hospitals		
Medicine	99	55
Surgery	81	45
Healthcare providers		
Doctors	43	23.9
Paramedics	137	76.1
Smoking status		
Smoker	53	29.4
Non-smoker	127	70.6
Frequency of smoking*		
<5 cigarettes/day	31	58.5
>5 cigarettes/day	22	41.5
Influencing factors for smoking*		
Friends	18	34.0
Advertisement	35	66.0
Smoking quit efforts*		
Yes	23	43.4
No	29	56.6

*Variable not equal to 100%

statistically significant with smoking status was gender (OR 5.35, 95 CI = 2.24-12.75, *P* < 0.00). When adjusted the OR, gender and public hospital were found statistically significant (OR: 6.40, 95 CI = 4.48 to 10.52 and OR: 2.61, 95 CI = 2.20 to 3.78, respectively).

DISCUSSION

The result of our investigation indicated that healthcare professionals, though aware of risks and hazards of smoking, had a quite prevalent smoking habit. There are several risk factors which contribute to smoking prevalence and if these factors are addressed on time, prevalence will be reduced. Yet, only few studies have examined this issue. Most of the previous studies have addressed smoking habits among general population.

The prevalence of smoking among medical professionals in our study was 29%. Compared to previous studies carried out in Asian countries, the smoking prevalence among healthcare providers in this study (29%) is higher than in Malaysia (25%),[9] but lower than in China (32%) and[10] India (33%).[11] In our study, it was found that a small percentage of female physicians smoke, which was higher that Malaysia, Hong Kong, and China, where none of the females smoke. In general, patterns of smoking in male and female differ between developing and developed countries. Significantly, more male (40-60%) but fewer female (2-10%) smoke in developing countries compared with 25-30% of both male and female in developed countries.[12] Female in developing countries tend to lower the rate of smoking, starts smoking at a later age compare to male, and consume less cigarette daily. Smoking is not common among Muslim female because Islamic teaching forbid smoking, considering it to be both distasteful and unlawful.[13] This is consistent with our study, which showed that male healthcare providers smoke more as compared to female, and this difference is statistically significant. It is evident that smoking entailed mostly males in the studied sample. This is largely due to social unacceptability of female smoking.[14] Conversely, previous study carried out in Italy found the highest prevalence of smoking among female physicians (34%).[14] In a recent local study, the prevalence of smoking among male healthcare providers was 50.31% and that among female healthcare providers was 7.04%, which are comparable with our results. In other study, prevalence of smoking in male healthcare providers was 38.6% and in female it was 3.3%.[15,16]

The highest smoking rates were seen in the older age group of 36 to 56 years (31.5%), which corresponds to previous studies in China[17] and Japan.[18] Furthermore, there were few smokers younger than 30 years, which is similar to a study in New Zealand.[19] Nevertheless, in some countries such as China,[18,19] Mexico[20] and India,[21] the highest smoking rates were found among the younger age group. About 13% of healthcare providers who currently smoke attempted to quit smoking and 83% indicated that they had made a serious attempt to quit smoking during the last year, compared to more than half of the healthcare providers in Syria.[22] The literature suggested that less than

Table 2: Association of smoking status with the sociodemographic condition of the respondents

Variables	Smoker n=53	Non-smoker n=127	Crude OR	P value	95% CI	Adjusted OR	95% CI	P value*
Age (years)								
<35	28	78	1.42	0.28	0.74-2.71	1.23	0.98-2.41	0.21
≥35	25	49	1.00			1.00		
Gender								
Male	46	70	5.35	0.01	2.24-12.75	6.40	4.48-10.52	0.02
Female	7	57	1.00			1.00		
Hospital								
Public	32	95	1.94	0.53	0.98-3.84	2.61	2.20-3.78	0.03
Private	21	32	1.00			1.00	3.78	
Healthcare providers								
Doctors	11	32	1.28	0.52	0.59-2.79	1.05	0.78-1.68	0.59
Paramedics	42	95	1.00			1.00		
Departments								
Medicine	30	69	1.09	0.780	0.57-2.09	0.88	0.69-1.05	0.65
Surgery	23	58	1.00			1.00		

*Pearson Chi-square test *P*<0.05 is significant, OR=Odd ratio, CI=Confidence interval

5% of self-quitters maintained their abstinence (Smoking cessation, 1993).[21] This study revealed a higher rate among those who quit smoking, but they could not quit totally, an indication that their success rate is minimal unless there are active anti-smoking programs and specialized smoking cessation counseling. Other studies showed that 70% of smoker want to quit, but only 25% per year succeed in quitting smoking permanently.[22] We found a quite clear and significant relationship between the high prevalence of cigarette smoking among healthcare providers and the smoking habit among their close friends and colleague. This finding is also inconsistent with a similar trend that was reported by a study which was conducted in Jordan.[16] However, a study conducted in Iraq[15] did not find such a trend.

The limitations of this study must be acknowledged. The nature of this study is cross-sectional; thus, the causes and effect could not be examined. The target group of this study is healthcare providers who are working in administrative and treatment, including researchers and public health workers; hence, generalization of the findings could be limited to only the medical doctors, nurses, and technicians and not other types of health professionals. It is possible that recall bias or information bias might have occurred as healthcare providers who were smokers might be reluctant to tell the truth.

CONCLUSIONS

This study showed that there is high prevalence rate of cigarette smoking among male doctors and paramedics in tertiary hospitals of Karachi city, while this trend is low among female healthcare providers. This smoking habit could be avoided if favorable environment were available.

It is essential to propose and undertake effective interventions aimed to the implementation of an adequate culture of smoking cessation among healthcare providers, representing behavioral models and points of reference for patients and society. We recommend strict legislations to prohibit cigarette smoking in healthcare offices, hospitals, and primary healthcare centers and a comprehensive multisectorial campaign are needed urgently to overcome this problem. Level of awareness should be raised among healthcare providers and medical and paramedical student through seminars, symposiums, workshops, and cigarette-smoking-quitting clinics.

REFERENCES

1. Thomson NC, Chaudhuri R, Livingston E. Asthma and cigarette smoking. Eur Respir J 2004;24:822-33.

2. Abdullah AS, Husten CG. Promotion of smoking cessation in developing countries: A framework for urgent public health interventions. Thorax 2004;59:623-30.

3. Serna L, Bialuos SA, Sinha K, Yang Q, Wewers ME. Are health care providers still smoking? data from the 2003 and 2006/2007 tobacco use supplement-current population surveys. Nicotine Tob Res 2010;12:1167-71.

4. Yan J, Xiao S, Ouyang D, Jiang D, He C, Yi S. Smoking behavior, knowledge, attitudes and practices among health care providers in Changsha city, China. Nicotine Tob Res 2008;10:737-44.

5. Malick AK, Chaudhry A, Karamat A, Arif N, Cheema MA, Rauf A. Cigarette smoking and health care professionals at Mayo hospital, Lahore, Pakistan. J Pak Med Assoc 2010;60:509-12.

6. Nawaz A, Naqvi SA. Attitudes, perceptions, habits of smoker, Non-smoker general practitioners and why they fail to motivate patients to quit smoking. Pak J Med Sci 2008;24:152-6.

7. Asfar T, Al-Ali R, Ward KD, Vander Weg MW, Maziak W. Are primary health care providers prepared to implement an anti-smoking program in Syria? Patient Educ Couns 2011;85:201-5.

8. Global adult tobacco survey collaborative group. Tobacco questions for surveys: A subset of key questions from the global adult tobacco survey (GATS). 2nd col. Atlanta, GA: Centers of disease control and prevention; 2011.

9. Scollo M, Lal A, Hyland A, Glantz S. Review of the quality of studies on the economic effects of smoke-free policies on the hospitality industry. Tob Control 2003;12:13-20.

10. World Health Organization. Epidemic of Tobacco. 2010. Available from: http://www.who.int/mediacentre/factsheets/fs339/en/. [Last cited on 2013 Mar 10].

11. Gunes G, Karaoglu L, Genc MF, Pehlivan E, Egri M. Attitudes and Practices for Smoking Cessation Counseling in Malatya, Turkey. Patient Educ Couns 2005;56:147-53.

12. Willaing I, Ladelund S. Smoking behavior among hospital staff still influences attitudes and counseling on smoking. Nicotine Tob Res 2004;6:369-75.

13. Lian Z, Gang Z, Weifeng W. Study on risk factors for smoking among doctors in Henan, China. China Med J 2006;4:201-6.

14. Yaacob I, Abdullah ZA. Smoking habits and attitudes among doctors in Malaysian Hospital. Southeast Asian J Trop Med Public Health 1993;24:28-31.

15. Smith DR, Wei N, Zhang YJ, Wang RS. Tobacco smoking habits among a cross-section of rural physicians in China. Aust J Rural Health 2006;14:66-71.

16. Sakar D, Dhand R, Malhotra A, Malhotra S, Sharma BK. Perceptions and attitudes towards tobacco smoking among doctors in Chandigard. Indian J Chest Dis Allied Sci 1990;32:1-9.

17. Ernster V, Kaufman N, Nichter M, Samel J, Yoon SY. Women and tobacco: Movin from policy to action. Bull World Health Organ 2000;78:891-901.

18. Chollat C. Women and tobacco. Geneva: World Health Organization; 1992. Available from: http://www.WHO.int/smoking. [Last cited on 2013 Apr 09].

19. Jawadi A. Smoking habit among Mosul medical students. Jordan Med J 1984;18:79-89.

20. Centers for Disease Control and Prevention. Cigarette smoking among adults. United States, 1993. MMWR Morb Mortal Wkly Rep 1994;43:925-30.

21. Centers for Disease Control and Prevention (CDC). Smoking cessation during previous year among adults-United States, 1990 and 1991. MMWR Morb Mortal Wkly Rep 1993;42:504-7.

22. Al-Saleem T, Butrous GS, Al-Murrani W. Smoking behavior of medical students in the University of Baghdad. J Fac Med 1987;20:4-9