Introduction

Tobacco smoking is one of the main causes of preventable deaths worldwide. Globally, 4 million individuals die due to tobacco-related diseases, which is expected to increase by 10 million each year in the next 20 years. Over the past decades, smoking cessation has emerged as a crucial public health problem and the fourth major health risk factor. Smokers are more prone to develop lung cancer, coronary heart disease, double stroke, and chronic obstructive lung disease. Smoking not only deteriorates physiological processes but also lowers self-esteem and quality of life of an individual.

Developing countries including Pakistan still face an alarming increase in rate of cigarette smokers. The current prevalence of cigarette smoking among adults is 15.2% in Pakistan which indicates an enormous health and economic burden in the country.

Interventions to stop this dilemma are gaining much importance as the prevalence of smoking is elevating rapidly each year. The interventions made by healthcare professionals (HCPs) are quite effective however; medical settings have numerous hurdles in implementation of smoking cessation interventions, including insufficient skills, lack of knowledge, inadequate incentives, and time limitation. One of the most noticeable and low-cost forms of smoking prevention is the recommendation of smoking cessation interventions among healthcare professionals in Pakistan. The purpose of this study was to assess the smoking habits and attitude toward smoking cessation interventions among HCPs in Pakistan.

Methods: A descriptive cross-sectional study design was used. A prevalidated semi-structured question developed by the University of Arizona was used. The sample size was calculated to be 382 with 95% confidence interval and 5% level of error. Data were cleaned, coded, and analyzed statistically using SPSS 21. Chi-square test \((P \geq 0.05)\) was used to find association among different variables.

Results: The results of the study showed that a majority of the HCPs were smokers (57.6%, \(n = 220\)). Use of nicotine patches and other cessation medications, educational programs, and discussion with other healthcare providers were most effective methods for quitting smoking. Significant association \((P < 0.05)\) was found among smokers and nonsmokers regarding self-respect and feeling of loneliness.

Conclusion: The study concluded that a majority of the HCPs in twin cities were smokers and smoke more than five cigarettes a day. Training programs should be designed and implemented for HCPs to reduce the rate of tobacco smoking.

Keywords: Healthcare professionals, Pakistan, smoking
cessation by HCPs to their patients. Despite the fact, participation of HCPs in such activities is relatively low.[6] Another major barrier for effective cessation interventions is that a majority of HCPs are smokers themselves. As a role model, it is important that HCPs must not smoke, only then they could best persuade patients to quit smoking.[6]

Assessment of smoking habits and attitude toward smoking cessation strategies among HCPs can be helpful to identify the barriers faced by them in effective counseling of smokers. So far, limited studies have been conducted on prescribers, but no such study has been conducted among entire HCPs. Thus, this study was designed to assess the smoking habits and attitude toward smoking cessation interventions among HCPs in Pakistan.

Methods
Aim, design, and setting of study
The aim of the study was to assess the smoking habits and attitude toward smoking cessation interventions among HCPs, that is, physicians, nurses, and pharmacists working in twin cities of Pakistan. A cross-sectional study design was used. Study approval was taken from the Ethical Committee of Hamdard University (Ref. no. HU/DRA/2017/558). For collection of data, approval was taken from MS of hospitals, chief executives of pharmaceutical industries, proprietors of community pharmacies, and heads of healthcare educational organizations. Informed consent for participation was also taken from the respondents.

Study settings and respondents
Study site for this research included public and private healthcare facilities, specialist clinics, general practitioner clinics, pharmacies, healthcare educational institutes, and pharmaceutical industries of Pakistan. Study respondents included prescribers, pharmacists, and nurses working in academia, hospitals, specialist clinics, general practitioner clinics, community pharmacies, industries, marketing, and regulatory authority.

Sample size and sampling technique
Calculation of sample size was performed by Raosoft® sample size calculator to determine the size of sample representing the study population. The calculated sample size was 382 to achieve 95% confidence interval and 5% margin of error. As there is no updated list of HCPs, therefore, convenient sampling technique was used for the study and all the respondents who were available at the time of data collection and willing to participate in the study were selected.

Data collection tool
Data were collected using prevalidated semi-structured questionnaire developed by the University of Arizona, USA. Prior permission for using the questionnaire was obtained by the university. The questionnaire comprised four sections. The first section included information regarding respondent demographic characteristics such as gender, age, occupation, marital status, religion, and qualification. In the second section, perceptions of HCPs regarding different sources for obtaining information regarding smoking and nonsmoking were explored. In the third section, practices of HCPs regarding tobacco usage and smoking trends were explored, while section 4 included questions regarding effective strategies for smoking cessation. Two focused group discussions were carried out at different time intervals with four different groups of experts including clinicians, specialists, physicians, and doctors from academia. Each group comprised three to four participants for the development, finalization, face, and content validity of data collection tool. Pilot testing was carried out on 10% of the total sample size before execution of the final study. A Cronbach’s alpha value of 0.71 confirmed the reliability and internal consistency of the questionnaire.

Statistical analysis
After data collection, data were cleaned, coded, and entered in SPSS version 21. Skewness test was performed to check the distribution of data. Descriptive statistics comprises frequency and was calculated. Chi-square (P ≤ 0.05) test was performed to find out association among different variables.

Results
Demographic characteristics
Of 382 respondents, 85.3% (n = 326) were male, whereas 14.7% (n = 56) were female. Of 382 respondents, 156 (n = 40.8) were prescribers, 48.7% (n = 186) were pharmacists, and 10.5 (n = 40) were nurses. Regarding qualification, 57.6 (n = 220) hold bachelor’s degree, 38.5% (n = 38.5) master’s/FCPS, whereas 3.9% (n = 15) had done PhD [Table 1].

Smoking status and pattern of smoking among healthcare professionals
Regarding current smokers, of 382 respondents, 57.6 (n = 220) were smoking currently, whereas 16.2% (n = 62) were smoking in the past [Table 2].

Of the total respondents, 67% (n = 256) had tried smoking cigarettes greater than four times in their lifetime, whereas 55.2% (n = 211) tried to smoke in the last 30 days. Regarding smoking cigars, 73.8% (n = 282) never smoked cigars in their entire life, whereas only 2.9% (n = 11) had smoked cigars greater than four in the last 30 days. Most of the respondents, 76.7% (n = 293) never smoked hookah in their life, whereas only 3.9% (n = 15) smoked hookah in the last 30 days. A detailed description is given in Table 3.

Perception of healthcare professionals toward different smoking cessation strategies
Different smoking cessation strategies considered effective by HCPs were as follows: nicotine gum or lozenges (68.1%, n = 260), nicotine patch (62.9%, n = 240), cessation medication (60.4%, n = 231), discussion with healthcare provider (58.9%, n = 225),
Malik, et al.: Smoking habits and attitude of healthcare professionals

Journal of Family Medicine and Primary Care 168

Assessment of mental state among smokers and nonsmokers

Significant association ($P < 0.05$) was found among smokers and nonsmokers when feeling lonely. The majority of the smokers (10.4%, $n = 23$) agreed that they felt lonely (10.4%, $n = 23$). A detailed description is given in Table 5.

Assessment of self-esteem in smokers and nonsmokers

Significant association ($P < 0.05$) was found among smokers and nonsmokers’ self-respect as they wish to have more respect. A detailed description is given in Table 6.

Effective methods to quit smoking

The results of this study highlighted that most of the respondents were of the view that the effective methods to quit smoking were nicotine gums (68.1%, $n = 260$), educational programs (59.7%, $n = 228$), and medications (60.4%, $n = 231$). A detailed description is given in Table 7.

Discussion

Smoking can lead to a variety of long-term complications such as lung cancer, heart diseases, and oral cancer. This study reported that most of the HCPs were smokers and smoke on average more than five cigarettes a day. Most of them had smoked tobacco in the last 30 days. Cigars and hookah were never used by most of the HCPs. Similar results were reported in a study conducted in Saudi Arabia which showed that some of the respondents smoked less than 10 cigarettes a day, whereas most of the respondents smoked more than 20 cigarettes a day. In this study, most of the respondents were currently smoking, whereas few were smoking in the past. Similar findings were reported from a study conducted in Saudi Arabia.

### Table 1: Demographic characteristics

| Indicator         | $n$ (%) |
|-------------------|---------|
| Gender            |         |
| Male              | 326 (85.3) |
| Female            | 56 (14.7)  |
| Age (years)       |         |
| 20-30             | 236 (61.8) |
| 31-40             | 108 (28.3) |
| 41-50             | 21 (5.5)   |
| 51-60             | 17 (4.5)   |
| Marital status    |         |
| Married           | 220 (57.6) |
| Unmarried         | 156 (40.8) |
| Divorce           | 6 (1.6)    |
| Profession        |         |
| Prescribers       | 156 (40.8) |
| Pharmacists       | 186 (48.7) |
| Nurses            | 40 (10.5)  |
| Education         |         |
| Bachelor          | 220 (57.6) |
| Master’s/FCPS     | 147 (38.5) |
| PhD               | 15 (3.9)   |
| Religion          |         |
| Muslims           | 373 (97.6) |
| Non-Muslims       | 9 (2.4)    |
| Income level      |         |
| $\leq$30,000      | 136 (35.6) |
| $\leq$60,000      | 136 (35.6) |
| $\leq$90,000      | 43 (11.3)  |
| $\geq$100,000     | 67 (17.5)  |

### Table 2: Smoking status of healthcare professionals

| Indicator                      | Yes, $n$ (%) | No, $n$ (%) | Not applicable, $n$ (%) |
|--------------------------------|--------------|-------------|-------------------------|
| Do you currently smoke?        | 220 (57.6)   | 162 (41.9)  | -                       |
| If you do not currently smoke, did you smoke in the past? | 62 (16.2) | 113 (29.6) | 207 (54.3) |

### Table 3: Pattern of smoking among healthcare professionals

| Indicator     | Lifetime $n$ (%) | Last 30 days $n$ (%) |
|---------------|------------------|---------------------|
| Cigarettes    |                  |                     |
| None          | 100 (26.2)       | None 154 (40.3)     |
| One time      | 14 (3.7)         | One time 10 (2.6)   |
| Two times     | 10 (2.6)         | Two times 4 (1)     |
| Three times   | 2 (0.5)          | Three times 3 (0.8)  |
| Equal and greater than four | 256 (67) | Equal and greater than four 211 (55.2) |
| Cigars        |                  |                     |
| None          | 282 (73.8)       | None 352 (92.1)     |
| One time      | 13 (3.4)         | One time 6 (1.6)    |
| Two times     | 13 (3.4)         | Two times 6 (1.6)   |
| Three times   | 11 (2.9)         | Three times 7 (1.8)  |
| Equal and greater than four | 63 (16.5) | Equal and greater than four 11 (2.9) |
| Hookah        |                  |                     |
| None          | 293 (76.7)       | None 340 (89)       |
| One time      | 9 (2.4)          | One time 10 (2.6)   |
| Two times     | 20 (5.2)         | Two times 10 (2.6)  |
| Three times   | 8 (2.1)          | Three times 7 (1.8)  |
| Equal and greater than four | 52 (13.6) | Equal and greater than four 15 (3.9) |
Smoking can deteriorate mental health and well-being of individuals. The results of this study reported that nearly all the respondents were satisfied and had positive attitude. More than half of them were able to do everyday activities and had no feelings of hopelessness. Similar results were reported from a study conducted in Jordan highlighting high level of satisfaction with profession and self-esteem.\(^9\)

Different strategies have been developed to cope with high smoking consumption worldwide. This study reported that nicotine gum or lozenges and nicotine patch, smoking cessation strategies, stop smoking programs, cessation medication, and discussion with healthcare providers were effective strategies for smoking cessation. On contrary, the results of a study in France reported that nicotine gum or patches were not effective in quitting smoke, but cessation strategies, stop smoking programs, and counseling HCPs can be effective in quitting smoking.\(^{10}\)

The recent study was conducted in twin cities of Pakistan, and therefore the outcomes of the study may not be generalizable to different parts of the country. Financial constraints were faced during conduction of the study.

**Conclusion**

The study concluded that the majority of the HCPs in twin cities were smokers and smoke more than five cigarettes a day. Smoking cessation programs were effective in quitting smoking, as well as nicotine gum and nicotine patches were considered to be ideal strategies for quitting smoking. There is a need of designing regulatory and educational interventions by concerned stakeholders to control tobacco epidemic. Increasing the prices of cigarettes and other tobacco containing products may help reduce sales of such products. Furthermore, education programs

### Table 4: Perception of healthcare professionals toward different smoking cessation strategies

| Indicators                                      | Agree, n (%) | Neutral, n (%) | Disagree, n (%) |
|-------------------------------------------------|--------------|----------------|-----------------|
| Nicotine gum or lozenges                        | 260 (68.1)   | 64 (16.8)      | 58 (15.2)       |
| Nicotine patch                                  | 240 (62.9)   | 80 (20.9)      | 62 (16.4)       |
| Nicotine inhaler or nasal spray                 | 205 (53.6)   | 101 (26.4)     | 76 (20)         |
| Cessation medication                            | 231 (60.4)   | 88 (23)        | 63 (16.5)       |
| Discussion with healthcare provider            | 225 (58.9)   | 102 (26.7)     | 55 (14.4)       |
| Educational program                             | 228 (59.7)   | 97 (25.4)      | 57 (15)         |
| TV and radio programs against smoking          | 204 (53.4)   | 89 (23.3)      | 89 (23.3)       |
| Discussion at a temple or mosque or church     | 216 (56.6)   | 77 (20.2)      | 89 (23.3)       |
| Stop smoking program                           | 213 (53.8)   | 92 (24.1)      | 77 (20.2)       |

### Table 5: Assessment of mental state among smokers and nonsmokers

| Indicator                                                                 | None, n (%) | A little, n (%) | Some, n (%) | A lot, n (%) | P  |
|---------------------------------------------------------------------------|-------------|----------------|-------------|--------------|----|
| I was bothered by things that usually don't bother me                     |             |                |             |              |    |
| Smokers                                                                  | 95 (43.1)   | 85 (38.6)      | 29 (13.1)   | 11 (5)       | 0.473 |
| Nonsmoker                                                                | 80 (49.3)   | 53 (32.7)      | 25 (15.4)   | 4 (2.4)      |    |
| I didn't feel like eating; I wasn't very hungry                          |             |                |             |              |    |
| Smokers                                                                  | 78 (35.4)   | 81 (36.8)      | 49 (22.2)   | 12 (5.4)     | 0.583 |
| Nonsmoker                                                                | 77 (47.5)   | 42 (25.9)      | 34 (20.9)   | 9 (5)        |    |
| I felt like something good was going to happen                            |             |                |             |              |    |
| Smokers                                                                  | 55 (25)     | 66 (30)        | 72 (32.7)   | 27 (12.2)    | 0.171 |
| Nonsmoker                                                                | 48 (29.6)   | 50 (30.8)      | 51 (31.4)   | 13 (8)       |    |
| I felt like I was too tired to do things this past week                   |             |                |             |              |    |
| Smokers                                                                  | 53 (24)     | 95 (43.1)      | 59 (26.8)   | 13 (5.9)     | 1.00  |
| Nonsmoker                                                                | 57 (35.1)   | 49 (30.2)      | 40 (24.6)   | 16 (9.8)     |    |
| I felt down and unhappy this week                                        |             |                |             |              |    |
| Smokers                                                                  | 73 (33.1)   | 83 (37.7)      | 53 (24)     | 11 (5)       | 0.251 |
| Nonsmoker                                                                | 73 (45)     | 45 (27.7)      | 34 (20.9)   | 10 (6)       |    |
| I didn't sleep as well as I usually sleep this week                       |             |                |             |              |    |
| Smokers                                                                  | 68 (30.9)   | 70 (31.8)      | 53 (24)     | 29 (13.1)    | 0.103 |
| Nonsmoker                                                                | 75 (46.2)   | 37 (22.8)      | 35 (21.6)   | 15 (9.2)     |    |
| I was happy this week                                                     |             |                |             |              |    |
| Smokers                                                                  | 39 (17.7)   | 48 (21.8)      | 97 (44)     | 36 (16.36)   | 0.851 |
| Nonsmoker                                                                | 23 (14.1)   | 41 (25.3)      | 67 (41.3)   | 31 (19.1)    |    |
| I felt lonely, like I didn't have any friends                             |             |                |             |              |    |
| Smokers                                                                  | 83 (37.7)   | 70 (31.8)      | 44 (20)     | 23 (10.4)    | 0.009 |
| Nonsmoker                                                                | 99 (61.1)   | 34 (20.98)     | 16 (9.8)    | 13 (8)       |    |
focused on smoking cessation strategies should be designed for HCPs. The implementation of on-job training programs on smoking cessation is the need of the hour to control tobacco epidemic.

Financial support and sponsorship
Nil.

Conflicts of interest
There are no conflicts of interest.

References
1. Dinesh R, Prakash C, Poojary N, Kantharajan G, Abraham S. Tobacco (Nicotiana tabacum) - A novel and futuristic sedative for fish transport in India. Intern J Fisheries and Aquatic Studies 2017;5:369-71.
2. Singh T, Agaku IT, Arrazola RA, Marynak KL, Neff LJ, Rolle IT, et al. Exposure to advertisements and electronic cigarette use among US middle and high school students. Pediatrics 2016;137. pii: e20154155.
3. Aslam SK, Zaheer S, Rao S, Shafique K. Prevalence and determinants of susceptibility to cigarette smoking among school students in Pakistan: Secondary analysis of global youth tobacco survey. Subst Abuse Treat Prev Policy 2014;9:10.
4. Ribisl KM. The potential of the internet as a medium to encourage and discourage youth tobacco use. Tob Control 2003;12 Suppl 1:i48-59.
5. Lee DJ, Fleming LE, McCollister KE, Caban AJ, Arheart KL, LeBlanc WG, et al. Healthcare provider smoking cessation advice among US worker groups. Tob Control 2007;16:325-8.
6. Movsisyan NK, Varduhi P, Arusyak H, Diana P, Armen M, Frances SA, et al. Smoking behavior, attitudes, and cessation counseling among healthcare professionals in Armenia. BMC Public Health 2012;12:1028.
7. Vohra M. Smoking habits of preclinical Saudi medical students. Pak J Med Sci 2009;25:906-11.
8. Saeed AA, Khoja TA, Khan SB. Smoking behaviour and attitudes among adult Saudi nationals in Riyadh city, Saudi Arabia. Tob Control 1996;5:215-9.
9. Abughosh S, Wu I, Hawari F, Peters R, Yang M, Crutchley R. Predictors of intention to quit cigarette smoking among Jordanian adults. Epidemiology 2011;1:1-7.
10. Josseran L, King G, Guilbert P, Davis J, Brucker G. Smoking by French general practitioners: Behaviour, attitudes and practice. Eur J Public Health 2005;15:33-8.