Research Article

Knowledge, attitude, and practice among primary health-care physicians toward smoking cessation in Makkah, Saudi Arabia

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Abstract

Background: Tobacco smoking is one of the main preventable reasons for death on the planet and is a noteworthy general well-being issue in both developed and developing nations. The primary health-care (PHC) doctors speak to an imperative resource in the battle against smoking.

Objective: To detect the prevalence of smoking, smoking-cessation knowledge, and attitude among physicians in PHC centers in Makkah and evaluate the smoking-cessation counseling practices of these physicians.

Materials and Methods: A cross-sectional study was conducted at 80 PHC centers in Makkah over a period of 2 months. Data were collected by a validated self-administered questionnaire "Global Health Professional Survey" that was adopted from the WHO.

Result: The study included 262 PHC physicians. The prevalence of daily current smoking was (18.7%), while male and female prevalences were 26.7% and 1.2%, respectively. Only (7.3%) were occasional smokers. Majority of ever-smoked physicians reported thinking of quitting smoking. Incorrect knowledge was reported among 25.6% of physicians. Logistic regression revealed that physicians of experience ranged between 2 and 10 years were less likely to express incorrect smoking-related knowledge compared with those with an experience of 1 year or less. Current smokers have approximately four-fold risk for incorrect smoking-related knowledge compared with nonsmokers [adjusted odds ratio (AOR) = 4.04; 95% CI: 2.21–7.36]. Negative attitude was reported among 26.2% of physicians. Logistic regression revealed that physicians aged between 36 and 45 years showed a significant negative attitude toward smoking compared with those in the age group 25–35 years (AOR = 5.83; 95% CI: 2.88–11.79). Bad practice regarding smoking cessation was reported among 52.7% of the physicians. Logistic regression revealed that physicians with longer experience of working in PHC centers were significantly less likely to show bad practice regarding smoking cessation compared with those with an experience of 1 year or less. When compared with residents, senior registrars were less likely to exhibit bad practice regarding smoking cessation (AOR = 0.19; 95% CI: 0.05–0.69).

Conclusion: The prevalence of smoking among PHC physicians in Makkah was relatively high. Current smokers either occasionally or daily are more likely to show incorrect smoking-related knowledge compared with nonsmokers. Most of PHC physicians showed positive attitudes toward smoking cessation activities, with no significant difference between current smokers and nonsmokers. Almost a 25% of primary health-care physicians did not receive sufficient training in smoking cessation activities.

KEY WORDS: Primary health-care physicians, smoking, smoking cessation

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Introduction

Although the hazards of smoking are now illustrious all over the medical profession, physicians have not always set a good example for patients. In the twentieth century, for example, some physicians even advertised cigarettes. Smoking rates among them were also somewhat high.[1]

Health-care workers seem as showing a high degree of trustworthiness in health-related issues by the general public and are strategically placed to advance the antismoking message. Smokers employed in hospital settings set a poor example of health-promoting behaviors and possess the potential to unintentionally affect the smoking behaviors of others through modeling.[2] In addition, smoking by nurses and physicians may impede their ability to help patients quit smoking.[3]

A study reported smoking health-care providers are less likely to record patient smoking status, to provide smoking cessation messages to patients, and to model healthy lifestyle behaviors, despite societal expectations.[4]

In developed countries, doctors assume a key part in advancing smoking discontinuance, and proposals to draw in doctors all the more effectively in the smoking end exertion backtrack decades.[5,6] However, physicians in developing countries are less involved in smoking cessation exertion and tobacco control.[7] This may be for the reason that a significant proportion of smoker physicians in these countries are reported. In a recent review, a study done among Chinese male physicians showed that the smoking prevalence ranged from 26% to 61%.[8] Prevalence of high smoking among physicians was also reported in several other developing countries containing Bosnians (40%)[9] and Pakistanis (50%).[10] Within the most recent two decades, various studies have tended to tobacco use among doctors in developed nations; however, numerous have been distributed in nearby diaries and were not open globally. An understanding of the differences in the findings from earlier studies to that of newer studies would provide insights about the changing trajectories of tobacco use and cessation counseling delivered by physicians in developing countries.[11]

In Saudi Arabia, on World No Tobacco Day 2001, the Late King Fahd announced that Makkah and Medina would become smoke-free cities. This directive, although not a formal law, has a similar force more widely across the Kingdom of Saudi Arabia (KSA). Since then, it has adopted a religion-inspired policy to strengthen tobacco control. Working within this faith-based standard, a National Tobacco Control Program that focuses on primary prevention and supporting tobacco cessation has been adopted. National legislation also bans smoking in health and educational facilities and on public transport.

Director of the antismoking program at Ministry of Health in Saudi Arabia confirms that smoking in the Kingdom is rising at an alarming scope. The cigarette imports in the country were SR1.7 billion per year, and the economic losses caused by smoking were SR25 billion from 2005 to 2010.[12]

The total population of Saudi Arabia is 26.5 million according to a July 2012 estimate by Central Intelligence Agency, US. It is estimated that about a quarter of residents smoke. Smokers in Saudi Arabia pay out more than SR5 billion to purchase 40,000 tons of tobacco per annum, which is similar to the cost of the Kingdom's import of essential food items such as rice. This frightening fact sheds light on the sternness of direct economic losses gained by the Kingdom as an outcome of smoking, not to mention other losses related to the high cost of the treatment of serious illnesses associated with smoking.[13]

Quitting smoking brings down the threat of cancer and other illnesses, such as heart disease and chronic obstructive pulmonary disease, caused by smoking. People who leave smoking, irrespective of their age, are less likely than those who carry on smoking to decease from smoking-related illness. Studies have shown that smokers who quit at about 30 years of age reduce their chance of dying prematurely from smoking-related diseases by more than 90%.[14,15] However, people who stop at about age 50 bring down their risk of death prematurely by 50% compared with those who continue to smoke.[15]

Reduction of physician smoking is important; so, medical organizations should adopt active policies to establish physicians as role models in regard to smoking and health. Smoking prohibition in hospitals and all structures connected with health care should be obligatory, and such policies should be intensely supported by medical associations.[16]

Physicians are held at high esteem in their communities; they act as role models in issues related to health, and people depend on them for advice and consultation. For this reason, they possess the potential to help or hurt smoking control policies. Physicians, however, often do not seriously address the issue of smoking or may even smoke themselves, which makes it more difficult to discuss this problem with their patients or take an active role in antismoking efforts.[17] Nonsmoking doctors were more active in encouraging patients not to smoke than those physicians who smoked.[18]

The primary health-care physicians (PHCPs) represent an important asset in the fight against smoking, owing to their role in the society as a first source of health information. Moreover, PHCPs are the role models for the laity in regard to smoking habits. The WHO has involved occurrence of tobacco use among subgroups such as physicians, nurses, and other health workers among the indicators, which should be observed by each country.[19]

Current statistics show that it will be improbable to bring down tobacco-related deaths over the next 30–50 years, unless adult smokers are stimulated to quit. In this regard, health professionals in general and physicians in particular play a key role through the health-care system to encourage and counsel smokers to quit.[20]

PHCPs are the first line of medical contact for most patients, and they come into contact with a large number of smokers, and if they are smokers, it is difficult to advice the patients.

To best of our knowledge, this study will be the first attempt to assess knowledge, attitude, and practice (KAP) in smoking cessation among PHCPs in Makkah city, Saudi Arabia, and this considering as significance of this study. This study will provide complete identification of knowledge and attitude related to smoking cessation and how to deal with and prevent it to increase rate of smoking cessation and consequently decrease in smoking prevalence.

Materials and Methods

A cross-sectional study was conducted at 80 governmental primary health-care centers (PHCCs) in Makkah city (Holy capital in Saudi Arabia) over a period of 2 months (November–December 2014). The total number of physicians in all 80 PHCCs was 330 (administrative and nonadministrative), and data were collected from 262 physicians (nonadministrative). Exclusion criteria were administrative jobs (26 physicians) and physicians who were not available on the duration of the study (42 physicians).

After taking the written consent from the physician to participate, they were instructed to completely answer and fill in all the questions provided in the questionnaire. Questionnaire was designed based on questionnaire of Global Health Professionals Survey (English version), developed by the WHO in collaboration with Centers for Disease Control and prevention and the Canadian Public Health Association. Its measurement reliability is high, with an alpha of 0.815.[21] This questionnaire was further modified to meet the objectives of this study and pretested. The information obtained in the questionnaire was divided into four parts: part one: demographic profile, including age, gender, marital status, position, working place, and years of medical practice in primary health care (PHC); part two: smoking status history, which contains 18 yes or no and multiple choice questions. The definitions used to describe the smoking behavior are based on the WHO standardized definitions for tobacco use.[18] Respondents were classified as: "current smoker" is someone who at the time of the survey smoked any tobacco product daily; "occasional smoker" is someone who smokes but not every day; "ex-smoker" is someone who was formerly a daily smoker but currently does not smoke at all; and "never-smoker" is someone who either never smoked at all, have never been a daily smoker, or have smoked less than 100 cigarettes in his/her lifetime; part three: smoking-related knowledge and attitude containing 14 questions; and part four: smoking cessation counseling practice containing seven multiple choice questions, in addition to two questions inquiring about obstacles to smoking cessation counseling.

Before beginning the main study, a questionnaire was pretested by ten PHCPs working in Jeddah city (six male and four female subjects) to check on any ambiguity. The questionnaire required 10–15 min to administer.

Smoking is defined as inhalation and exhalation of the fumes from burned tobacco (cigarettes, shisha (water pipe), moasel, cigars, and hand rolled).

The dependent variables of the study are: prevalence of cigarette smoking and other tobacco use; knowledge about the health effects of tobacco use, and attitudes for tobacco and smoking cessation, whereas the independent variables are demographic variables: age, position, working place, and years of medical practice in PHC.

Ethical approval was obtained from the Institutional Review Board in the King Abdulaziz University, and official approval letters were taken from the Directorate of Health Affairs in Makkah city, which takes into account the Helsinki Declaration for all right and interest of the participants. All participants were given a clarification about the study, and an informed written consent was obtained from all who accepted to participate in the study.

Data Analysis

The collected data were analyzed using SPSS software, version 20. Double-checking of data was done. Data were presented using descriptive statistics in the form of frequencies and percentages for categorical variables and mean and standard deviation (SD) for continuous variables. The χ^2-test or Fisher's exact test were used for categorical variables, and a p value of less than 0.05 was considered statistically significant with two-tailed probability. Resulting significant variables in the bivariate analysis were entered into the logistic regression model using stepwise approach with 95% CI.

Total questions in the sections included 21 questions with one best answer, five questions for knowledge, nine questions for attitude, and seven questions for practices. For example, one of the knowledge questions was: Do you think active smoking increase the risk of ischemic heart diseases in smokers? There were three response answers provided for each question: "agree," "unsure," and "disagree." A scoring system was assigned for each response answers as follows: agree = 2, unsure = 1, and disagree = 0. Physicians who scored at the level or above the mean score were considered as presenting a correct knowledge, positive attitude, or good practice, while those under the mean score were categorized as showing incorrect knowledge, negative attitude, or bad practice.

Result

The total number of participants in this study was 262 PHCPs. More than half (51.1%) was between 25 and 35 years of age. Almost two-third of them were male subjects (68.7%). More than three-quarters (77.5%) were married. About two-thirds (64.9%) were residents, and 25.2% were registrars. Most of the study group (81.7%) worked in urban places. Almost one-fifth (20.2%) revealed experience of 1 year or less in PHC, whereas 21.8% revealed experience exceeding 10 years.

As shown in Figure 1, almost two-thirds (66.4%) were nonsmokers, whereas 7.3% and 18.7% were occasional or daily smokers, respectively. The remaining 7.6% were ex-smokers. Among ex-smokers (n = 20), 45% stopped smoking completely at age older than 38 years.

Among ever smokers (n = 88), 78.4% reported smoking every day for contiuous 6 months or more. Moreover, 72.7% first smoked on a regular basis between 18 and 28 years of age, whereas 13.6% smoked regularly before age 18. Serious trials to quit smoking were reported by 77.3%. Almost two-thirds (64.7%) of ever-smoked physicians showed no experience of withdrawal symptoms.

Table 1 shows some details of smoking habits of ever-smoked physicians. Almost one-third (36.4%) reported starting smoking within 30 min from waking up. About one-quarter (22.7%) cited difficulty in stopping smoking when it is prohibited. More than half the number (52.3%) of them revealed the greatest craving for smoking in the morning. Exactly two-thirds (67%) reported hiding their smoking behavior from others, and more than half (53.4%) of them smoked when they were sick in bed for most of the day. Regarding type of smoke, manufactured cigarettes was most frequently reported (79.5%), followed by moasel (19.3%). Almost two-thirds (64.8%) sometimes inhaled the smoke deeply, whereas 17% reported doing this always. More than half (54.5%) smoked outside the medical facilities and/or at home/car.

Regarding reason for smoking, more than half (56.3%) mentioned that smoking relieves their stress and 40% believed that smoking lets them feel relaxed, whereas 19.5% reported that they smoke to stay awake. Fifteen physicians (17.2%) reported no reason for smoking, while nine physicians (10.3%) claimed that they cannot quit smoking.

The majority of ever-smoked physicians (86.2%) reported thinking of quitting smoking. Regarding the reasons for thinking of quitting, the majority (88%) cited that it is not good for health, whereas 61.3% mentioned that it is not good from the professional point of view, and 44% cited complaints from family and friends. Only 12% reported that smoking causes trouble regarding daily consultation and guidance for patients.

Regarding ever-smoked physicians opinion, the reasons related to relapse in smoking cessation, living or working with smokers, or having smoking friends were the most common reasons mentioned (45.5%), followed by feeling stress, depression, and/or anxiety (37.5%), addiction to nicotine (35.2%), and craving to smoke (26.1%). Withdrawal symptoms were mentioned by 21.6%.

Among those who currently smoke either daily or occasionally, the reasons for returning to smoking are having smoking friends and living or working with smokers, and stress, depression, anxiety were the highest reported reasons as reported by 55.9%, 44.1% and 36.8%, respectively. Nicotine dependence, craving for smoking, and withdrawal symptoms were mentioned by 33.8%, 27.9% and 23.5%, respectively.

Table 2 shows that there was a statistically significant difference in the frequency of daily smoking between age groups ($p = 0.011$), male and female subjects ($p < 0.001$), position ($p = 0.003$), urban and rural workplace ($p = 0.027$), and experience in PHC ($p = 0.001$); but, no statistically significant difference between marital status groups ($p = 0.499$) was observed. Age group of 25–35 years (27.6%), male subjects (26.7%), registrars (33.3%), urban workplace (21%), and physicians with shorter experience (working for less than or equal to 1 year) showed higher rates of daily smoking than the other groups.

Smoking-Related Knowledge, Attitude, and Practice

Smoking-Related Knowledge

As shown in Figure 2, participants who scored at or above the mean score were categorized as showing a correct knowledge, positive attitude, or good practice, while those below the mean score were classified as showing incorrect knowledge, negative attitude, or bad practice. The mean scores were 9.5 for knowledge, 16.0 for attitude, and 10.8 for practice. For knowledge, 74.4% achieved the score at level or above the mean, while 25.57% achieved a lower score than mean.

The majority of physicians were knowledgeable about smoking-related questions. The highest frequency was reported in response to a question regarding whether physicians should routinely advise patients who smoke to avoid smoking around children (98.9%), whereas the lowest frequency was reported in response to a question regarding whether passive smoking increases the risk of lower respiratory tract illnesses such as pneumonia in exposed children (81.3%).

As displayed in Table 3, nonsmoking physicians showed significantly higher rates of knowledge than smoking physicians regarding whether active smoking increases the risk of ischemic heart disease (99% vs. 92.6%, $p = 0.016$), passive smoking increases the risk of lung disease (92.8% vs. 61.8%, $p < 0.001$), and passive smoking increases the risk lower respiratory tract illnesses (87.6% vs. 63.2%, $p < 0.001$). No significant difference was observed regarding whether maternal smoking during pregnancy increases the risk of sudden infant death syndrome and whether physicians should routinely advise patients who smoke to avoid smoking around children ($p = 0.675$, $p = 0.454$, respectively).

Physicians who scored in knowledge at or above the mean (9.5) were categorized as revealing a correct knowledge (195) while those below the mean score were classified as having incorrect knowledge (67). Physicians in the age groups of 25–35 years and 36–45 years, and >55 years were significantly more likely to exhibit correct smoking-related knowledge (Crude OR = 0.35; 95% CI: 0.17–0.72) in comparison to age group 25–35 years. Female physicians were significantly more likely to show correct smoking-related knowledge when compared with male physicians (Crude OR = 0.39; 95% CI: 0.20–0.78). Similarly, physicians of low experience (≤1 year) when compared with those of higher experience were more likely to show correct smoking-related knowledge (Crude OR = 0.28; 95% CI: 0.13–0.62). In addition, current smokers either occasionally or daily had relative odds of 4.04 of showing incorrect smoking-related knowledge compared with nonsmokers (Crude OR = 4.04; 95% CI: 2.21–7.36). Other physician characteristics (position, marital status, and workplace) were not significantly associated with smoking-related knowledge.

As shown in Table 4, physicians with working experience in PHC centers of 2–5 years and 6–10 years were significantly more likely to express correct smoking-related knowledge compared with those with experience of 1 year or less [adjusted odds ratio (AOR) = 0.31, 95% CI: 0.14–0.71; AOR = 0.25, 95% CI: 0.11–0.57, respectively]. Current smokers either occasionally or daily had approximately four-fold increased risk for incorrect smoking-related knowledge compared with nonsmokers (AOR = 3.69; 95% CI: 2.08–7.51). Physicians' age, gender, and work place were not significantly associated with incorrect smoking-related knowledge.

Table 1: Smoking habits of ever-smoked physicians

Smoking habits	*N* = 88	%
After how long from waking do they start smoking		
After 30 min	56	63.6
Within 30 min	32	36.4
Difficult to stop smoking when it is prohibited		
Yes	20	22.7
No	68	77.3
Time of day when they have the greatest craving for smoking		
In the morning	46	52.3
Afternoon	6	6.8
Evening	36	40.9
Hide smoking behavior from others		
Yes	59	67
No	29	33
Smoking even when sick in bed for most of the day		
Yes	47	53.4
No	41	46.6
Type of smoke[a]		
Manufactured cigarettes	70	79.5
Moasel	17	19.3
Shisha	3	3.4
Inhale smoke deeply		
Never	16	18.2
Sometimes	57	64.8
Always	15	17
Place where they smoke[b]		
Inside the medical facilities	15	17
Coffee shop in PHCC	5	5.7
Restroom	17	17
Outside the medical facilities	48	54.5
At home/car	48	54.5
Others	3	3.4

[a]One physician smoked all forms (sum exceeds 100%).
[b]Not mutually exclusive (sum exceeds 100%).

Attitude Toward Smoking

Most respondents (76.3%) reported positive attitude toward smoking. Table 5 reveals that there were no statistically significant differences between smoker and nonsmokers regarding attitude statements, with one exception. The majority of nonsmokers (97.9%) compared with 88.2% of current smokers agreed that physicians should speak to community groups about smoking. This difference was statistically significant ($p = 0.001$).

Physicians who scored attitude at or above the mean (16) were categorized as showing a positive attitude (200) while those below the mean score were classified as showing negative attitude (62). Physicians in the age groups of 36–45 years and 46–55 years were significantly more likely to show a negative attitude toward smoking (Crude OR = 5.62, 2.46, respectively) in comparison with age group 25–35 years. Physicians working in rural areas were also more likely to show a negative attitude toward smoking compared with those working in urban areas (Crude OR = 2.06, 95% CI: 1.05–4.05). In contrast to physicians of low experience (≤1 year), those with higher experience were more likely to show a negative attitude toward smoking.

Multivariate logistic regression [Table 6] revealed that physicians aged 36–45 years were significantly more likely to report a negative attitude toward smoking compared with age group 25–35 years (AOR = 5.83, 95% CI: 2.88–11.79). Physicians working in rural places were also more likely to report a negative attitude toward smoking compared with those working in urban areas (AOR = 2.24, 95% CI: 1.18–4.26). Physicians' experience of working in PHC centers was not significantly associated with a negative attitude toward smoking.

Table 2: Physicians' personal characteristics associated with daily current smoking status

Characteristics	Current smoking		χ^2	*p*
	No, *N* = 213, *N* (%)	Yes, *N* = 49, *N* (%)		
Age (in years)				
25–35 (*n* = 134)	97 (72.4)	37 (27.6)	15.6	0.011
36–45 (*n* = 74)	65 (87.8)	9 (12.2)		
46–55 (*n* = 40)	37 (92.5)	3 (7.5)		
>55 (*n* = 14)	14 (100)	0 (0.0)		
Gender				
Male (180)	132 (73.3)	48 (26.7)	<0.001*	
Female (82)	81 (98.8)	1 (1.2)		
Marital status				
Single (*n* = 203)	163 (80.3)	40 (19.7)	1.39	0.499
Married (*n* = 45)	37 (82.2)	8 (17.8)		
Divorced (*n* = 14)	13 (92.9)	1 (7.1)		
Position				
Resident (*n* = 170)	144 (84.7)	26 (15.3)	15.74	0.003
Registrar (*n* = 66)	44 (66.7)	22 (33.3)		
Senior registrar (*n* = 21)	21 (100)	0 (0.0)		
Consultant (*n* = 5)	4 (80.0)	1 (20.0)		
Workplace				
Urban (*n* = 214)	169 (79.0)	45 (21.0)	0.027*	
Rural (*n* = 48)	44 (91.7)	4 (8.3)		
Experience in primary health care (years)				
≤1 (*n* = 53)	34 (64.2)	19 (35.8)	17.34	0.001
2–5 (*n* = 74)	62 (83.8)	12 (16.2)		
6–10 (*n* = 78)	63 (80.8)	15 (19.2)		
>10 (*n* = 57)	54 (94.7)	3 (5.3)		

*Fisher's exact test.

Table 3: Comparison between nonsmokers and current smokers regarding their knowledge about smoking

Knowledge toward smoking	Smoking status		χ^2 (p value)
	Nonsmoker, *N*= 194, *N* (%)	Current smoker, *N* = 68, *N* (%)	
Active smoking increases the risk of ischemic heart disease	192 (99.0)	63 (92.6)	8.24 (0.016)
Passive smoking increases the risk of lung disease	180 (92.8)	42 (61.8)	37.63 (<0.001)
Passive smoking increases the risk of lower respiratory tract illnesses	170 (87.6)	43 (63.2)	19.99 (<0.001)
Maternal smoking increases the of risk of sudden infant death syndrome	185 (95.4)	65 (95.6)	0.79 (0.675)
Routinely advise patients who smoke to avoid smoking around children	192 (99.5)	67 (98.5)	0.454*

*Fisher's exact test, including those currently occasionally smoke.

Table 4: Predictors of incorrect smoking-related knowledge among physicians: Multivariate logistic regression analysis*

Predictors	β	SE	AOR	95% CI	*p*
Experience in primary health care(years)					
≤1 (*n* = 53)[a]			1		
2–5 (*n* = 74)	–1.162	0.419	0.31	0.14–0.71	0.005
6–10 (*n* = 78)	–1.397	0.429	0.25	0.11–0.57	0.001
>10 (*n* = 57)	0.615	0.438	0.54	0.23–1.28	0.16
Current smoking					
No (*n* = 194)[a]					
Yes (*n* = 68)	1.375	0.327	3.96	2.08–7.51	<0.001

[a]Reference category; β, slope; SE, standard error; AOR, adjusted odds ratio.
Terms of age, gender, and workplace were removed from the final model.
*Incorrect knowledge = 1, Correct knowledge = 0.

Table 5: Comparison between nonsmokers and current smokers regarding their attitude toward smoking

Attitude toward smoking	Smoking status		χ^2 (*p* value)
	Current smoker, *N* = 68, *N* (%)	Nonsmoker, *N* = 194, *N* (%)	
Smoking is harmful to health	66 (97.1)	192 (99.0)	2.96 (0.228)
I should routinely ask my patients about smoking habit	67 (98.5)	188 (96.9)	1.07 (0.587)
Physicians who smoke are less likely to advise people to stop	43 (63.2)	134 (69.1)	2.46 (0.292)
Patient's chances of quitting smoking are increased if physicians advise him or her to quit	61 (89.7)	151 (77.8)	4.65 (0.098)
Physicians should get specific training on smoking cessation techniques	67 (98.5)	184 (94.8)	2.53 (0.283)
Because I am a physician, I should not smoke	65 (95.6)	189 (97.4)	2.70 (0.260)
Smoking in enclosed public places should be prohibited	62 (91.2)	185 (95.4)	3.64 (0.162)
Tobacco sales to children and adolescents should be banned	68 (100)	189 (97.4)	1.79 (0.409)
Physicians should speak to community groups about smoking	60 (88.2)	190 (97.9)	13.37 (0.001)

Table 6: Predictors of negative attitude toward smoking among physicians: multivariate logistic regression analysis*

Predictors	β	SE	AOR	95% CI	*p*
Age (in years)					
25–35 (*n* = 134)[a]			1	–	
36–45 (*n* = 74)	1.762	0.36	5.83	2.88–11.79	<0.001
46–55 (*n* = 40)	0.815	0.459	2.26	0.92–5.55	0.075
>55 (*n* = 14)	1.057	0.657	2.88	0.79–10.43	0.108
Workplace					
Urban (*n* = 214)[a]					
Rural (*n* = 48)	0.808	0.371	2.24	1.18–4.26	0.029

[a]Reference category; β, slope; SE, standard error; AOR, adjusted odds ratio.
Term of experience in primary health care removed from the final model.
*Negative attitude = 1, Positive attitude = 0.

Table 7: Smoking cessation guidance given by physicians to their patients

Guidance	*N* (*N* = 262)	%
First advice provided to your smoker patients		
They should not smoke, because they are sick	191	72.9
Depending on their sickness, they may smoke	10	3.8
Whether or not they smoke should be their decision	52	19.8
I do not know	9	3.4
Time spent by resident physicians in giving smoking cessation guidance (minutes)		
3	82	31.3
8	104	39.7
>5	76	29
Type of smoking cessation measure(s) given by resident physicians		
Asking new patients about their smoking history	199	76
Asking patients of their smoking history if necessary	68	26
Keeping records on the answers to my question on smoking	67	25.6
Others	4	1.5
Did not do anything	2	0.76
Interventions used to help patients to stop smoking		
Traditional remedies	54	20.6
Self-help materials	75	28.6
Counseling	198	75.6
Medication	67	25.6
Others	2	0.8

Table 8: Predictors of bad practice regarding smoking cessation among physicians: multivariate logistic regression analysis*

	β	SE	AOR	95% CI	*p*
Experience in primary health care (years)					
≤1 (*n* = 53)[a]			1	–	
>1–5 (*n* = 74)	−1.65	0.501	0.19	0.07–0.51	0.001
>5–10 (*n* = 78)	−2.481	0.498	0.09	0.03–0.22	<0.001
>10 (*n* = 57)	−2.543	0.535	0.08	0.03–0.22	<0.001
Position					
Resident (*n* = 170)[a]			1	–	
Registrar (*n* = 66)	−0.386	0.33	0.67	0.36–1.30	0.242
Senior registrar (*n* = 21)	−1.66	0.658	0.19	0.05–0.69	0.012
Consultant (*n* = 5)	−1.036	1.15	1.4	0.04–3.38	0.368

[a]Reference category; β, slope; SE, standard error; AOR, adjusted odds ratio.
Terms of age and current smoking removed from the final model.
*Bad practice = 1, Good practice = 0.

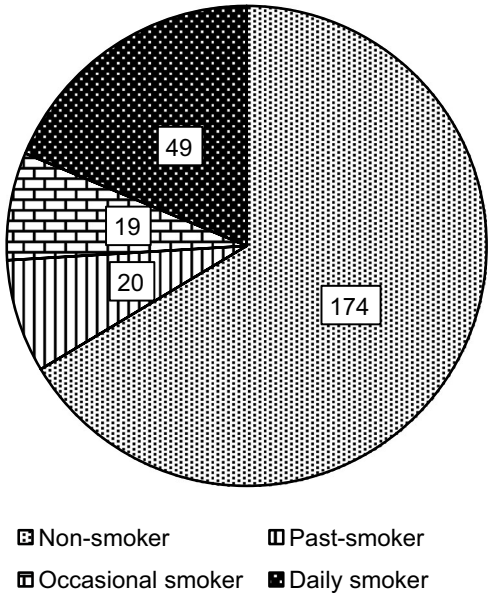

Figure 1: Smoking status of primary health-care physicians in Makkah.

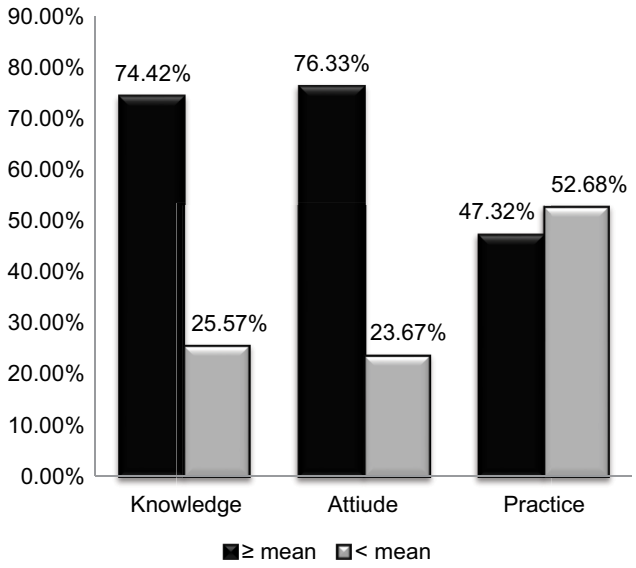

Figure 2: Smoking-related knowledge, attitude, and practice score among physicians.

Practice Regarding Smoking Cessation

Table 7 summarizes the smoking cessation practices of physicians. Most (72.9%) believed that patients should not smoke if they are sick. About 40% of physicians claimed that they spent between 3 and 5 min giving smoking cessation guidance, whereas 31.2% spent between 1 and 2 min. Fortunately, most (76%) claimed that they asked new patients about their smoking history, and 25.6% keep records on the answers to their question on smoking. Regarding interventions used to help patients to stop smoking, counseling was the most frequently reported action (75.6%), whereas self-help materials, medication, and traditional remedies were reported by 28.6%, 25.6%, and 20.6%. respectively.

The most commonly reported obstacles to smoking cessation counseling based on physicians' perspectives are too much time required for guidance, which was the most commonly reported obstacle (68.6%), followed by patients refusing guidance (34.1%), and insufficient education on smoking received by physicians (23.6%)

Logistic regression analysis [Table 8] revealed that physicians with longer experience working in PHC centers were significantly more likely to reveal good practice regarding smoking cessation compared with those with experience of one year or less. Compared to residents, senior registrars were more likely to have good practice regarding smoking cessation (AOR = 0.19; 95% CI: 0.05–0.69). In multivariable

analysis, age and current smoking were not significantly associated with practice regarding smoking cessation.

Discussion

The most effective way to control the tobacco epidemic in Saudi Arabia is to implement a broad, constant, sustainable, and sufficiently funded tobacco control strategy.[22] Health professionals should play an important role in efforts to reduced smoking programs.[17] Unfortunately, in several parts of the world, health professionals utilize tobacco regularly at a frequency comparable to, or even greater than, that of the general community.[23]

The prevalence of current smoking among PHCPs in this survey conducted in Makkah was 26% (18.7% daily and 7.3% occasional). This rate is higher than in other studies carried out in China among rural physicians (16%),[24] in Vietnam (9.2%),[25] and in developed countries such as Denmark (15%),[26] USA (7%),[27] New Zealand (5%),[28] Switzerland (12%),[29] and the UK (4%),[30] even if we consider only daily current smoking. However, it is lower than the figure reported in Italy (28%)[31] and Egypt where a high prevalence rate (45%) was reported among PHC personnel in Alexandria.[32]

This variation in smoking rates across the studies can be attributed to several reasons including methodological differences in data collection, differing sample sizes, differing periods, and variations in the smoking culture across the countries. Overall, our findings strongly suggest that the smoking prevalence among physicians is high. This has implications for the general population because continued role modeling of smoking by physicians undermines the messages that smoking is harmful and that quitting is important.[5] Studies find that nonsmoking physicians are more successful than smoking physicians in getting their patients to attempt to quit.[33] Moreover, physicians who smoke may decrease the public desire for quitting, with people tending to ask why they should stop smoking when their doctor continues to smoke.[34]

When stratified by gender, we found that the prevalence of current daily smoking was (26.7%) for male and (1.2%) for female subjects. In previous studies, such as the study carried out among physicians in Vietnam, the prevalence of daily smoking among male doctors was 16% while none of the female doctors smoked.[25] Compared to previous studies carried out in Asian countries, the daily smoking prevalence among male primary care physicians in this study is comparable to that reported in Malaysia (25%).[35] However, it is slightly lower than those reported in China (32%)[24] and India (33%).[36] In a study conducted in Japan in 2012, prevalence rates of 12.5% and 2.9% were reported among male and female physicians, respectively.[37] Our study found a small percentage of female physicians who smoked daily (1.2%), slightly higher than in Malaysia[32] and China,[24] where none of the females smoked. It is evident that most smokers were male subjects in the studied sample. This is largely owing to the social unacceptability of female smoking.[38] Conversely, a previous study carried out in Italy found the highest prevalence of smoking among female physicians (34%).[39]

This study also revealed that the majority of the primary care physicians in Makkah, KSA, showed a positive attitude toward prohibition of smoking in enclosed places. Almost all reported that smoking is harmful to health while slightly more than 60% of ever smokers reported that smoking is bad for their profession as doctors. In addition, the majority believed that physicians should not smoke. More than 86% of current smokers reported that they ever thought of quitting smoking. In agreement with that result, the majority of physicians in the United Arab Emirates (91.3%) and Kuwait (75.6%) strongly perceived that smoking is hazardous to health.[40]

Almost everyone who smokes as an adult started smoking by the age of 18, and the earlier age a person begins, the more likely he or she is to continue.[41] In this study, only 13.6% of smokers started smoking at the age younger than 18 years. A higher figure (25.3%) was reported in Alexandria, Egypt.[32] However, in a recent study conducted in Saudi Arabia, the average reported age for initiating the smoking habit was 15.0 (SD 4.7) years, with a median of 16 and a range of 8–30 years.[42]

Many smokers may lack motivation to stop smoking because they may think they are not at risk of diseases related to tobacco after surviving smoking for many years, while others may believe that any damage that may have accumulated is irreversible.[43] This study indicated that only 23% of ever smokers had undertaken serious trials to quit smoking. In addition, the reasons for returning to smoking among current smokers were mainly having smoking friends, living or working with smokers, stress, depression, and anxiety. Similar results were obtained in a study conducted in Ecuador about the prevalence of and attitudes toward smoking among physicians.[44]

Health professionals are role models in their society and that includes their behavior in health-related matters, particularly regarding tobacco.[42] Fortunately, in this study, the majority of the physicians believed that a patient's chance of quitting smoking is increased if a physician advises him or her to quit, that physicians should get specific training on smoking cessation techniques, and that physicians should not smoke.

Some limitations of this study must be kept in mind when considering the results. First, potential of social desirability (information bias) (i.e., they may not say the truth). Finally, considering there were 42 physicians absent during the time period of the study conduction, of which 30 were nonadministrative physicians and forming approximately 10% of the whole sample (262), could be acceptable or it may lead to selection bias that is difficult to verify due to lack of data (information).

Conclusion

In conclusion, the prevalence of daily current smoking among PHCPs in Makkah is relatively high, particularly among male physicians. Therefore the following are recommended:

- The smoke-free policy and regulations related to smoking should be officially reviewed and advocated, and health

professionals should be counseled on the consequences of smoking and quitting smoking techniques regularly. This will remind the health professionals of their responsibilities as role models for a tobacco-free life.
- The government should take steps to prevent smoking in government departments by making hospitals and health facilities smoke free in all parts of the Kingdom.
- Build a network between governmental organizations and nongovernmental organizations to fight against danger of smoking. Efforts and activities of nongovernmental organizations are more visible in our society, and there is a need for supervision of specialized governmental organizations to support and to ensure the quality of counseling provided about smoking.

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