


Cigarettes and Water Pipe Smoking Prevalence, Knowledge, and Attitudes Among the Palestinian Physicians in the West Bank

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ABSTRACT

BACKGROUND: Tobacco use is one of the major public health threats nowadays. Smoking can affect everybody organ. Health professionals should play pivotal roles in tobacco control, and their attitude and practice toward tobacco use can affect the health of the community. Therefore, assessing and influencing physicians' attitudes and practice are one of the alternatives to reduce smoking prevalence in the community. We aimed to assess smoking status among medical physicians in the West Bank, Palestine to better understand their future role in any smoking cessation program.

MATERIAL AND METHODS: A cross-sectional study using the World Health Organization Global Health Professional Survey questionnaire was conducted. A non-probability sampling technique from a total of 6500 physicians registered in the Palestinian Medical Association in the West Bank was used.

RESULTS: The age ranged from 23 to 78 years with a mean of 34.92 years. Current smokers represented 60.3%. Of them, 18.5% were both cigarettes and water pipe smokers. The main reason that motivates the physician to smoke is experimenting (57.9%). Also stress (31.8%) and social pressure (26.4%) were of the most common causes to start smoking. Almost all medical doctors have a high level of knowledge regarding the health consequences of smoking. Smokers were less likely to hold favorable attitudes toward smoking cessation and support tobacco control policy compared with non-smokers (P -values < .05).

CONCLUSIONS: Physicians' degree of awareness and knowledge about their role in aiding patients to quit smoking are high. However, smokers' attitudes toward smoking cessation programs need to be improved to increase their involvement in such interventional programs.

KEYWORDS: Palestine, physicians, smoking, tobacco, water pipe

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Introduction

Health professionals especially medical physicians are a group of people who help in identifying, preventing, or treating illness based on their professional knowledge and skills. Therefore, they can be a motivation for their patients to feel confident in refusing habits that are harmful to their health and to make patients more aware about their health conditions.^{1–3} In terms of tobacco control, one of the alternative ways to prevent and reduce smoking prevalence among the community is to influence attitudes and practice of health professionals positively and to increase the awareness of their professional responsibility. Because of these considerations, health professionals should play pivotal roles in tobacco control, and their attitude and practice toward tobacco use can affect the health of the community and the country in general.^{1–3}

According to the statistics of the World Health Organization (WHO), there are more than 1 billion smokers

in the world. Globally, the use of tobacco products is increasing, although it is decreasing in high-income countries, killing up to half of all users (5.4 million people a year—an average of one person every 6 s—and accounts for one in 10 adult deaths worldwide).⁴

Smoking can affect everybody organ, leaving the smoker at increased risk of lung and cervical cancers, respiratory disease, cardiovascular disease, stroke, osteoporosis, rheumatoid arthritis, impotence, infertility, ectopic pregnancy, miscarriage, low birth weight babies, and many other disorders.^{4–6}

In the meanwhile, tobacco use is one of the biggest public health threats the world has ever faced. Tobacco users who die prematurely deprive their families of income, raise the cost of health care, and hinder economic development.^{4,5} It is a risk factor for six of the eight leading causes of deaths in the world.⁴ Most of these deaths occur in low- and middle-income countries, and this disparity is expected to widen further over the



next several decades. If current trends continue, WHO anticipated that by 2030, tobacco will kill more than 8 million people worldwide each year, with 80% of those are premature deaths among people living in low- and middle-income countries. The Global Youth Tobacco Survey reported that the trend for tobacco smoking in the Eastern Mediterranean Region is increasing, along with the use of other forms of tobacco such as *shisha* (water pipe); this increase is mostly due to the low price of tobacco in the region and the weak policies of tobacco control.⁵

Significant insights regarding the smoking epidemic can be obtained from studying specific subgroups of interest within the population, such as adolescents, women, and health professionals.⁶ The best way to reduce one's risk of developing tobacco-related diseases is to stop smoking.⁷ Physicians are highly respected in their communities and people turn to them for advice, so they should act as positive role models. However, they often do not seriously address the issue of smoking or perhaps smoke themselves, which makes it even more difficult to discuss this problem with their patients or take an active role in anti-smoking efforts.^{8,9} Studies have shown that a decline in smoking rates among physicians often precedes a similar reduction in the general population.^{10,11} Such a reduction in smoking rates was observed in most Westernized countries.¹² Having recognizing the important role of physicians in tobacco control, the Tobacco Free Initiative, WHO started a project, the Global Health Professional survey, to estimate the prevalence of tobacco use among health professionals and to determine the smoking habits, knowledge and attitude toward tobacco control of health professionals in several countries around the world.⁵ In this study, we aimed to establish an estimate of the prevalence of smoking among physicians in Palestine, and to explore their attitude toward issues related to smoking to understand their future role in a smoking cessation interventional program.

Methodology

Study design and settings

A cross-sectional study was conducted. The study was carried out in and during the medical association activities in the West Bank during the period of January to March 2015. This setting was chosen because most of the Palestinian physicians who practice medicine are registered in this association.

Study population and sampling techniques

The study population was all registered medical physicians in the medical association in the different 11 governorates of the West Bank (6500 physicians). The sample collected according to the distribution of the registered physicians for each city proportionally from the total sample (estimated to be 600 subjects).¹³ Clearly, the Northern cities (Nablus, Tubas, Qalqilya, Jenin, Tulkarem, and Selfit) were 36.8% of the

sample, the Southern cities (Hebron and Bethlahem) were 33.5%, and the Middle cities (Ramallah, Jerusalem, and Jericho) were 29.6%. If available at the time of the study, a physician was included regardless of his or her age. A non-probability (convenient) sampling technique was used. In total, 600 physicians were invited to participate and only 502 completed the questionnaire and therefore were finally recruited (response rate = 83.6%). Nearly, 80.1% of the study participants were males.

Data collection

A previously standardized and validated self-administered questionnaire was used as the study instrument.¹⁴ The questionnaire (The World Health Organization Global Health Professional Survey Questionnaire) was used with some minor additional questions that were added on the socio-demographic section to meet the Palestinian situation. The questionnaire included the following five sections: (1) socio-demographic characteristics; (2) cigarettes use; (3) knowledge, attitudes about smoking and tobacco control; (4) practice on tobacco smoking, behavior, and cessation; and (5) water pipe smoking. The questionnaire was translated from English to Arabic language and was translated back in English to check accuracy. The translated questionnaire (Arabic version) was used and pre-tested by a convenient sample of 20 participants of the study population before use to ensure the clarity, time, ease of administration, and to test the reliability and the validity of the questionnaire. Refinements were made on the basis of the feedback from the pilot testing. Nearly, 15-20 min were needed to fill the questionnaire.

The questionnaire was distributed through the subcommittees of medical association in different governorates of West Bank and filled by the registered physicians. Data for this study was gathered through several weeks (January to March 2015).

Ethical consideration

The study was approval by An-Najah National University Institutional Review Board (IRB; archived number 08/June/2014) and from the Palestinian medical association. Participation was voluntary and a signed informed consent was obtained from each participant before filling the questionnaire. Participant's privacy and confidentiality were assured.

Data analysis plan

The Statistical Package of Social Sciences (SPSS) (version 20) was used for data analysis.¹⁵ Qualitative variables were presented using frequency and percentages and displayed as tables. The associations between the study variables were assessed using the non-parametric Chi-square test with a *P*-value of less than .05 was always considered significant.

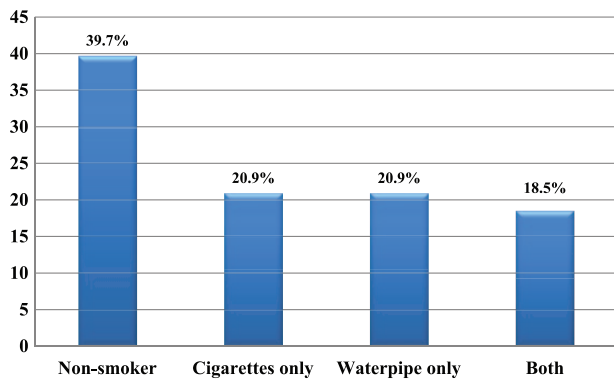


Figure 1. Prevalence of current smoking among different types of smoking (Y-axis represents percentages).

Results

Socio-demographic characteristics and prevalence of smoking

We have invited 600 physicians. Only 502 physicians completed and returned the questionnaire and, therefore, were finally recruited for this study (response rate = 83.6%). Nearly 80.1% of the participants were male. The mean age and standard deviation (SD) were 34.92 ± 11.3 years among the total study population. Nearly, 32.9% were having higher degree of medicine (MD followed by specialty in medicine and/or a research PhD).

Indeed, non-smokers represented 39.7%. However, those who smoke cigarettes only were 20.9% and those who smoke water pipe only were also 20.9%. Those who smoke both (cigarettes and water pipe) were 18.5%. Therefore, the total prevalence of current smoking (regardless of the type of smoking) was 60.3% (ie, $20.9\% + 20.9\% + 18.5\%$; Figure 1). Smokers were more likely to be males compared with non-smokers (P -value $< .001$). Furthermore, there were significant differences between smokers and non-smokers in regard to type of specialty and professional status (P -values $< .05$). Table 1 shows the socio-demographic characteristics of the study population by smoking status.

Furthermore, about 39.5% of the physicians were current cigarettes smokers, while 12.2% of them were ex-cigarettes smokers and 48.4% never tried cigarettes smoking. The mean age \pm SD of starting cigarettes smoking was 20.08 ± 2.95 years. The overall mean \pm SD number of cigarettes smoked per day of the currently smokers was 16.48 ± 9.43 . For male physicians, it was 16.82 ± 9.45 cigarettes per day, compared with 9.28 ± 8.89 for females (P -value = .003). Nearly, 41% of smokers answered that they are not ready to quit smoking within the next 6 months and only 23% reported they are thinking to quit within the coming 6 months.

The main reason that motivates the physician to smoke is experimenting (57.9%). Also stress (31.8%) and social pressure (26.4%) were of the most common causes to start smoking.

Knowledge of health effects associated with smoking

Only a minority of the physicians (2.0%) disagreed that smoking is harmful to their health, and this was significantly higher among the current smokers group (P -value = .015). Less than half (39.5%) of physicians reported that they disagree or unsure regarding the statement “neonatal death is associated with passive smoking”; and this was significantly higher among current smokers group (P -value = .003). Less than one-fifth of physicians (15.4%) reported that they disagree or unsure regarding the statement “maternal smoking during pregnancy increases the risk of Sudden Infant Death Syndrome,” and this was not significant among current smokers group compared with non-current smokers one (P -value = .565). Moreover, more than one-tenth of the physicians (12.2%) disagreed or were unsure that passive smoking increases the risk of heart disease in non-smoking adults (P -value = .019). However, only a minority of the physicians (6.2%) disagreed or were unsure that paternal smoking increases the risk of lower respiratory tract illnesses in children (P -value = .022). Table 2 shows more details regarding knowledge of adverse effects of smoking among the studied population.

Attitudes toward tobacco smoking

Interestingly, it was found that less than half of the physicians (42.8%) disagreed or were unsure that the health professionals serve as role models for their patients and the public. As expected, these percentages were significantly higher among the smokers group compared with non-smokers (P -value = .014). Regarding the statement that “a health professional should set a good example by not smoking,” significantly higher percentage of the smokers who reported this statement were disagreed or unsure compared with non-smokers (P -value = .000). The difference between current and non-current smokers regarding the statement “patient’s chances of quitting smoking will increase if a health professional advises him or her to quit” was also statistically significant (P -value = .012), as more of those who disagreed were smokers. As expected, there is a significant difference (P -value = .001) between smokers and non-smokers in the belief that health professionals should routinely advise their smoking patients to quit smoking; a higher percent of those who disagree were smokers.

Surprisingly, 20.9% of physicians were against or unsure about the need to receive a specific training on cessation techniques, and these percentages were borderline significant (higher among smokers, P -value = .055). Minority of the physicians (2.6%) disagreed that health professionals should speak to community groups about smoking, and this was significantly higher among the smokers (P -value = .001). Only a minority of the physicians (3.6%) have negative attitude toward prohibition of smoking in enclosed public places, and this was significantly

Table 1. Socio-demographic characteristics of the study participants by smoking status (n=502).

VARIABLE	NON-SMOKER, N (%)	SMOKER, N (%)	χ^2 , P-VALUE
Gender			
Male	273 (67.9%)	129 (32.1%)	<.001
Female	30 (30%)	70 (70%)	
City			
North cities (Nablus, Tubas, Qalqilya, Jenin, Tulkarem, Selfit)	104 (56.2%)	81 (43.8%)	.329
South cities (Hebron, Bethlahem)	107 (63.7%)	61 (36.3%)	
Middle cities (Ramallah, Jerusalem, Jericho)	92 (61.7%)	57 (38.3%)	
Age			
Mean, SD	34.71 ± 10.17	35.26 ± 12.93	.014*
Marital status			
Married	196 (62.8%)	116 (37.2%)	.148
Other (single, divorce, and widow)	107 (56.3%)	83 (43.7%)	
Education			
Higher degree of medicine (PhD, specialist)	103 (62.4%)	62 (37.6%)	.508
First degree of medicine (master, bachelor, others)	200 (59.3%)	137 (40.7%)	
Type of specialty			
Surgical (ENT, OBS/GYN, anesthesia)	105 (66.5%)	53 (33.5%)	.044
Non surgical (internal medicine, pediatrics)	98 (61.2%)	62 (38.8%)	
Others (trainee/intern, academy)	56 (49.6%)	57 (50.4%)	
GP	44 (62.0%)	27 (38.0%)	
Professional status			
Trainee/intern	52 (48.1%)	56 (51.9%)	.009
Resident	91 (65.9%)	47 (34.1%)	
Attending physician	140 (60.9%)	90 (39.1%)	
Others (academy, director, vice director, head of department)	20 (67.9%)	6 (23.1%)	
Workplace			
Hospitals (governmental, private, and NGO)	244 (61.6%)	152 (38.4%)	.445
Non hospitals (private clinic, primary health care, and private medical centers)	45 (54.2%)	38 (45.8%)	
Both (hospital and private clinic)	14 (60.9%)	9 (39.1%)	

Abbreviations: ENT, ear, nose, and throat specialist; GP, general practitioner; NGO, non-governmental organization; OBS/GYN, obstetrician and gynecologist; PhD, doctor of philosophy; SD, standard deviation.

*t-test P-value.

higher among the smokers (P -value = .000). Surprisingly, 25.9% of physicians were against or unsure that the health warnings on cigarette packages should be in big print, and these percentages were significantly higher among the current smokers (P -value = 0.010). Further details about physicians' attitude toward smoking are in Table 3.

Worksite practice

Most of the physicians (94.8%) were urban resident. Regarding the availability of a smoke-free policy at workplace, 31.9% of participants reported that it was available, while 5.6% self-reported that smoking rooms were available. Interestingly,

Table 2. Smoking knowledge stratified by smoking status of the participants (N=502).

VARIABLE	TOTAL, N (%)	SMOKER, N (%)	NON-SMOKER, N (%)	χ^2 , P-VALUE
Smoking is harmful to health				
Disagree	10 (2.0%)	9 (90.0%)	1 (10.0%)	.015
Unsure	15 (3.0%)	13 (86.7%)	2 (13.3%)	
Agree	477 (95.0%)	281 (58.9%)	196 (41.1%)	
Neonatal death association with passive smoking				
Disagree	40 (8.0%)	33 (82.5%)	7 (17.5%)	.003
Unsure	158 (31.5%)	101 (63.9%)	57 (36.1%)	
Agree	304 (60.6%)	169 (55.6%)	135 (44.4%)	
Increased risk of Sudden Infant Death Syndrome with maternal smoking during pregnancy				
Disagree	15 (3.0%)	11 (73.3%)	4 (26.7%)	.565
Unsure	62 (12.4%)	38 (61.3%)	24 (38.7%)	
Agree	425 (84.7%)	254 (59.8%)	171 (40.2%)	
Increased risk of lung disease in passive smokers				
Disagree	5 (1.0%)	4 (80.0%)	1 (20.0%)	.229
Unsure	44 (8.8%)	31 (70.5%)	13 (29.5%)	
Agree	453 (90.2%)	268 (59.2%)	185 (40.8%)	
Increased risk of heart disease in passive smokers				
Disagree	10 (2.0%)	10 (100.0%)	0 (0.0%)	.019
Unsure	51 (10.2%)	34 (66.7%)	17 (33.3%)	
Agree	441 (87.8%)	259 (58.7%)	182 (41.3%)	
Increased risk of lower respiratory tract illnesses in case of paternal smoking				
Disagree	5 (1.0%)	4 (80.0%)	1 (20.0%)	.022
Unsure	26 (5.2%)	22 (84.6%)	4 (15.4%)	
Agree	471 (93.8%)	277 (58.8%)	194 (41.2%)	
Advising smoker patients to avoid smoking around children				
Disagree	6 (1.2%)	5 (83.3%)	1 (16.7%)	.183
Unsure	14 (2.8%)	11 (78.6%)	3 (21.4%)	
Agree	482 (96.0%)	287 (59.5%)	195 (40.5%)	

45.2% reported that no smoking policy was available. Table 4 presents the smoking practice and policy at workplace by smoking status.

Water pipe smoking practice

The mean age of starting water pipe smoking was 24.19 ± 7 years old. Nearly, 39% of the physicians were current smoker, and 5% were ex-smokers of water pipe. In the meanwhile, 33.5% were daily smokers, 35.5% were weekly smokers, and 31% were monthly water pipe smokers.

Discussion

Prevalence of smoking among physicians

To the best of our knowledge, this is the first study addressing the issue of smoking among medical doctors in the Palestinian society. One of the main findings was that the prevalence of smoking among physicians is higher than the general population in Palestine and some nearby countries. In our study, non-smokers represented 39.7%. However, the overall prevalence of current smoking (regardless of the type of smoking) was 60.3%, Figure 1. According to the

Table 3. Smoking attitudes stratified by smoking status of the participants (N=502).

VARIABLE	TOTAL, N (%)	SMOKER, N (%)	NON-SMOKER, N (%)	χ^2 , P-VALUE
Health professionals serve as role models for their patients and the public				.014
Disagree	109 (21.7%)	62 (56.9%)	47 (43.6%)	
Unsure	106 (21.1%)	77 (72.6%)	29 (27.4%)	
Agree	287 (57.2%)	164 (57.1%)	123 (42.9%)	
Health professionals set a good example by not smoking				<.001
Disagree	41 (8.2%)	38 (92.7%)	3 (7.3%)	
Unsure	36 (7.2%)	26 (72.2%)	10 (27.8%)	
Agree	425 (84.7%)	239 (56.2%)	186 (43.8%)	
Patient's chances of quitting smoking will increase if a health professional advises him or her to quit				.012
Disagree	58 (11.6%)	44 (75.9%)	14 (24.1%)	
Unsure	162 (32.3%)	102 (63.0%)	60 (37.0%)	
Agree	282 (56.2%)	157 (55.7%)	125 (44.3%)	
Asking about patients' smoking habits				.225
Disagree	6 (1.2%)	3 (50.0%)	3 (50.0%)	
Unsure	22 (4.4%)	17 (77.3%)	5 (22.7%)	
Agree	474 (94.4%)	283 (59.7%)	191 (40.3%)	
Advising patients to quit smoking				.012
Disagree	16 (3.2%)	12 (75.0%)	4 (25.0%)	
Unsure	30 (6.0%)	25 (83.3%)	5 (16.7%)	
Agree	456 (90.8%)	266 (58.3%)	190 (41.7%)	
Smokers are less likely to advise people to stop smoking				.061
Disagree	82 (16.3%)	59 (72.0%)	23 (28.0%)	
Unsure	149 (29.7%)	88 (59.1%)	61 (40.9%)	
Agree	271 (54.0%)	156 (57.6%)	115 (42.4%)	
Receiving training on cessation techniques				.055
Disagree	31 (6.2%)	21 (67.7%)	10 (23.3%)	
Unsure	74 (14.7%)	53 (71.6%)	21 (28.4%)	
Agree	397 (79.1%)	229 (57.7%)	168 (42.3%)	
Speaking to community groups about smoking				.001
Disagree	13 (2.6%)	11 (84.6%)	2 (15.4%)	
Unsure	51 (10.2%)	41 (80.4%)	10 (19.6%)	
Agree	438 (87.3%)	251 (57.3%)	187 (42.7%)	
Prohibition of smoking in enclosed public places				<.001
Disagree	18 (3.6%)	18 (100.0%)	0 (0.0%)	
Unsure	32 (6.4%)	25 (78.1%)	7 (21.9%)	
Agree	452 (90.0%)	260 (57.5%)	192 (42.5%)	

Table 3. (Continued)

VARIABLE	TOTAL, N (%)	SMOKER, N (%)	NON-SMOKER, N (%)	χ^2 , P-VALUE
Health warnings on cigarette packages in a big print				.010
Disagree	48 (9.6%)	37 (77.1%)	11 (22.9%)	
Unsure	82 (16.3%)	55 (67.1%)	27 (32.9%)	
Agree	372 (74.1%)	211 (56.7%)	161 (43.3%)	
Ban of tobacco sales to children and adolescents				.892
Disagree	3 (0.6%)	2 (66.7%)	1 (33.3%)	
Unsure	4 (0.8%)	2 (50.0%)	2 (50.0%)	
Agree	495 (98.6%)	299 (60.4%)	196 (39.6%)	
Ban of sport sponsorships by tobacco industry				.030
Disagree	24 (4.8%)	20 (83.3%)	4 (16.7%)	
Unsure	62 (12.4%)	41 (66.1%)	21 (33.9%)	
Agree	416 (82.9%)	242 (58.2%)	174 (41.8%)	
Ban on the advertising of tobacco products				.001
Disagree	16 (3.2%)	15 (93.8%)	1 (6.2%)	
Unsure	54 (10.8%)	40 (74.1%)	14 (25.9%)	
Agree	432 (86.1%)	248 (57.4%)	184 (42.6%)	
Smoke-free hospitals and health care centers				<.001
Disagree	13 (2.6%)	13 (100.0%)	0 (0.0%)	
Unsure	24 (4.8%)	22 (91.7%)	2 (8.3%)	
Agree	465 (92.6%)	268 (57.6%)	197 (42.4%)	
Increase price of tobacco products sharply				<.001
Disagree	143 (28.5%)	127 (88.8%)	16 (11.2%)	
Unsure	105 (20.9%)	62 (59.0%)	43 (41.0%)	
Agree	254 (50.6%)	114 (44.9%)	140 (55.1%)	

Palestinian Central Bureau of statistics, the percentage of individuals aged 18 years and above that reported as smokers in the State of Palestine was about 22%, of which 27% in the West Bank and 15% in Gaza Strip.¹⁶ Data collected in our study showed a high prevalence of water pipe smoking which was equal to cigarettes smoking among physicians, and this is unlike other countries. For example, cigarettes were the most common form of used tobacco products in each of Bahrain, Kuwait, and Saudi Arabia, followed by water pipes then by cigars. In Kuwait, the prevalence of current smoking among physicians was 30.4%, 18.4% of the physicians were of current cigarettes smokers, while 12% of water pipe.¹⁷⁻¹⁹ In Egypt, the overall prevalence for current physicians smoking was 51.1%, cigarettes were also found to be the most common type of smoking with prevalence of 37.1% followed by water pipe (12.9%), and 10.7% smoke both of them.²⁰ In Israel, the overall smoking prevalence was

lower than our results where only 16.7% of the physicians found to be current smokers.²¹

The higher prevalence rate of smoking in our study compared with other countries could be explained by the stressful conditions and the overloaded systems on physicians in our hospitals. Furthermore, our political situation could have played a role. These conditions could have constricted the time and place to have some activities to release the stress among physicians other than smoking. Indeed, smoking prevalence was found to be nearly significant in some neighboring Arab countries with unstable political situations. For example, in Egypt, Syria, and Iraq, the prevalence of smoking among male physicians was found to be 90% (40.5% in general male population), 41% (60% in general male population), and 31% (30.84% in general male population), respectively.^{20,22,23} These results are in accordance with our study which might imply that unstable political conditions could have a role.

Table 4. Worksite practice stratified by smoking status of the participants (N=502).

VARIABLE	TOTAL, N (%)	SMOKER, N (%)	NON-SMOKER, N (%)	χ^2 , P-VALUE
Workplace/practice location				.773
Urban	476 (94.8%)	289 (60.7%)	187 (39.3%)	
Rural	22 (4.4%)	12 (54.5%)	10 (45.5%)	
Camp	4 (0.8%)	2 (50.0%)	2 (50.0%)	
Sort of smoke-free policy available in workplace				.618
Smoking policy is available in workplace	160 (31.9%)	135 (59.5%)	92 (40.5%)	
No smoking policy is in workplace	227 (45.2%)	94 (58.8%)	66 (41.2%)	
Smoking rooms are available	28 (5.6%)	20 (71.4%)	8 (28.6%)	
No smoking allowed at all in the building	87 (17.3%)	54 (62.1%)	33 (37.9%)	
Availability of traditional remedies (eg, acupuncture, herbal teas)	43 (8.6%)	30 (69.8%)	13 (30.2%)	.187
Availability of self-help materials (eg, health education booklets)	147 (29.3%)	87 (59.2%)	60 (40.8%)	.729
Availability of counseling	353 (70.3%)	210 (59.5%)	143 (40.5%)	.540
Availability of medications (nicotine gum, patch, bupropion)	129 (25.7%)	78 (60.5%)	51 (39.5%)	.977
Usage of traditional remedies (eg, acupuncture, herbal teas)	38 (7.6%)	23 (60.5%)	15 (39.5%)	.982
Usage of self- help materials (eg, health education booklets)	150 (29.9%)	82 (54.7%)	68 (45.3%)	.089
Usage of counseling	367 (73.1%)	220 (59.9%)	147 (40.1%)	.755
Usage of medications (nicotine gum, patch, bupropion)	108 (21.5%)	66 (61.1%)	42 (38.9%)	.857
Preparation physician feels when counseling patients on how to stop smoking				<.001
Very well prepared	231 (46.0%)	116 (50.2%)	115 (49.8%)	
Somewhat prepared	204 (40.6%)	142 (69.6%)	62 (30.4%)	
Not at all prepared	67 (13.3%)	45 (67.2%)	22 (32.8%)	
Ever received any formal training in smoking cessation approaches to use with patients				.163
No. did not	285 (56.8%)	164 (57.5%)	121 (42.5%)	
Formal training during medical study	61 (12.2%)	44 (72.1%)	17 (27.9%)	
Formal training during specialization programs	25 (5.0%)	17 (68.0%)	8 (32.0%)	
Special conferences, seminars or workshops	131 (26.1%)	78 (59.5%)	53 (40.5%)	

Socio-demographic characteristics by smoking status

When stratified by sex, two-thirds of males were current smokers while only one-third of females were current smokers. This could be largely explained by the social unacceptability of female smoking in traditional societies. In Iraq, none of the female physicians were smokers. In Egypt, nearly 22.7% of female physicians were current smokers. In Syria, 11.4% of

female physicians were current smokers. In Israel, no significant difference was found between current male and female physicians smoking as 19% of male physicians were current smokers compared with 14% among females.²⁰⁻²³

Compared with a study carried out in Turkey, our study showed that there was no significant difference between different levels of medicine education with slightly higher prevalence of

current smoking for higher degree. This is opposite to the results in Turkey, where the smoking rate was found to decrease with increased levels of education.²⁴ In terms of specialty, the highest prevalence reported for surgical one, followed by general practitioner, then medical specialty. This was similar to results in a study carried out in Israel, where internists were less likely to be smokers than their peers in surgical specialties.²¹

Looking at the Professional status among physicians, we found that the highest prevalence of current smokers belonged to administrative and academic physicians, followed by residents, then attending physicians, and the least belonged to trainee or interns. While in Southwest Saudi Arabia, the highest prevalence of current smokers was among residents.¹⁸ Compared with a study conducted in Jordan at King Hussein Medical Center, there was no difference in resident and specialist subgroups.²⁵ However, in Israel, the results were similar to our finding.²¹ Our results could be explained by that spending more hours under stressful duty like surgical operations may increase the prevalence of smoking.

Cigarettes smoking practice

In our study, 39.4% of the physicians were current cigarettes smokers, while 12.2% of them were ex-cigarettes smokers and 48.4% never tried cigarettes smoking. It is considered high comparing this percentage to Kuwait and Israel. In Kuwait, current cigarette smokers' physicians were 18.4% while 15.8% were ex-smokers.¹⁷ In Israel, 16.7% of the medical physicians were current smokers, 23.3% were past smokers, and 60% were never smokers. In Jordan, the prevalence of current cigarettes smoking at King Hussein Medical Center was a little bit higher (43%) than reported in our study. In Istanbul, it has been found that health care professionals had higher prevalence (43.9% were currently smokers and 15.5% were ex-smokers).^{17,21,24,26}

The mean \pm SD age of starting smoking was 20.08 ± 2.95 years. These finding was consistent with other studies performed in Turkey and Laos.²⁷⁻²⁹ The overall mean \pm SD number of cigarettes smoked per day of the currently smokers was 16.5 ± 9.4 in our study. However, for male physicians, it was 16.8 ± 9.5 cigarettes per day, and for females, it was 9.3 ± 8.9 . Although not comparable, it worth mentioning that in São Paulo, Brazil, the overall mean \pm SD was found to be 16.3 ± 7.8 cigarettes per day. The study reported that females' mean \pm SD daily consumption of cigarettes was 14.1 ± 8.8 cigarettes, compared with 17.7 ± 6.8 among males with no statistically significant differences. In Syria, male current daily smokers were found to smoke 21 ± 0.7 (mean \pm SD) cigarettes per day while females reported smoking 14 ± 1.7 (mean \pm SD) cigarettes per day.^{23,29}

Reason for starting smoking

The main reason that drives the physicians to smoke was found to be experimenting (57.9%). As well, the majority of them

reported that it is the stress that causes them to start smoking (31.8%), which was the most common reason of starting smoking in South Western Saudi Arabia (67.9%). Nearly, 26.4% of smoker physicians stated that the reason was the social pressure; this was the most common reason of starting smoking in Pakistani male physicians and in Eastern Saudi Arabia physicians (66.7%).^{18,30,31}

Knowledge and attitudes

Physicians who smoke were found to be less knowledgeable regarding the hazards of smoking and have less favorable attitude toward tobacco control. This finding was similar to that found in other studies conducted in Kuwait, Bahrain, Japan, Egypt, and Oman. The opposite has been found in a study in Laos where smokers have more positive attitudes toward anti-smoking than non-smokers.^{19,20,27,31,32} Our results could be explained by that there is a correlation between knowledge, attitude, and practice in human behavior. So having a high level of knowledge might lead to positive attitudes and good practice.

In our study, the majority of the physicians (95.0%) agreed that smoking is harmful to their health which is comparable to the result of a study in Turkey, China, and Iran, where only a slightly (1.2%) of physicians show disagreement to the above statement. In Bosnia, however, nearly all respondents agreed.^{28,33,34} This high level of agreement may be due to their high level of education regarding issues related to health. In this study, non-smokers were more likely to have knowledge regarding the increased risk of lung and heart diseases in non-smoking adults and lower respiratory tract illnesses such as pneumonia in exposed children than smokers. And this has also been found by a study in China.³⁴ Nearly, 60.6% of physicians knew that neonatal death is associated with passive smoking, while in China only 49% of physicians knew that, and in Lakes region only 27.2% of the physicians had no knowledge about this.^{28,35} This low level of knowledge may be explained by the fact that neonatal death is multi-factorial process not directly due to smoking effect.

In this study, the lowest agreement (57.8%) was for the statement "health professionals who smoke are less likely to advise people to stop smoking"; this finding was similar to the one found in studies performed in Kuwait and Bahrain and in China.^{17,34} On the other hand, less than half of respondents did not believe that an increase in tobacco prices would have an impact on the prevalence of smoking; this was similar to the research findings in Istanbul and in Lakes region (41.6%).^{24,28} These responses might be explained by that smoking is an addictive behaviors and physicians are usually considered a higher economical class were price elevation is not an issue of concern for them.

The majority of our physicians (84.7%) agreed that a health professional should set a good example by not smoking; this was similar to the results found in a Chinese study (80.0%). In

Italy and Laos, most of physicians believed on this also. However, significantly higher percentages of the current smokers who answer this statement were disagreed or unsure such as the findings from an Estonian study.^{27,35–37} Furthermore, the majority of the physicians in our study (92.6%) have positive attitude toward having a smoke-free hospitals and health care centers, and it was found that a same percent of Chinese physicians had also agreed on this. In contrast, in Mexico only 65% were in favor of banning smoking from their workplaces.^{34,38} Physicians who were current smokers were more likely to be against this, because they spend much of their stressed times in the hospitals when they will be in need for smoking.

The need for specific training for counseling patients to stop smoking was reported by the majority (84.4%) of physicians in this study. This means that physicians are willing to quit smoking only under some kind of encouragements and motivations which emphasizes indeed for such a training and intervention program for them. More non-current smokers had positive attitude toward prohibition of smoking in enclosed public places than current smokers did; this is comparable to findings from other studies in the Arab world.^{17,20,23,19}

Worksite practice

Less than half of physicians (43.2%) received any formal training in smoking cessation approaches to use with patients, the same has been found in a study in Bosnia, but this percent was higher than that found in Iraq (33.3%), Kuwait (12.7%), Bahrain (11.6%), China (27.6%), São Paulo (7%), and Mongolia (11.2%), while lower than that in Riyadh (68%).^{1,17,22,34,39} Regarding the preparation that the physicians feel when they are counseling their patients on how to stop smoking, less than half of physicians (46.0%) self-reported that they feel very well prepared. This was lower than that found in Syria (61.4%) and Italy, but was higher than that in Egypt (16.8%), Yerevan (35%), and Bosnia (36%).^{20,23,27,33,40}

Interestingly, 45.2% of participants noted that no smoking policy was available at their workplace which is in accordance with another study in China (50%).³²

This study could be limited by the non-probability sampling technique which might limit the generalizability of the findings. However, this technique was used due to inaccessibility to every physician, and that trying to visit physicians at their workplace could have been related to a significant effect on the their response rate due to their occupancy and time needed for questionnaire filling. Although the response rate was nearly 83.6% (502 subjects recruited out of 600 invited), we do believe that this was a very good response rate for such an informative group of medical doctors.

Conclusions and Recommendations

The prevalence of smoking among our physicians is higher than that of the general population and the nearby countries. Non-smokers had more positive attitudes and higher support

toward anti-smoking compared with current smokers. Many physicians believed that they are not yet ready to be health educators on smoking.

We believe that policymakers, especially those working in health fields, are the most appropriate people to be role models for stopping smoking because they would have a greater appreciation of the regulations due to their position. This will lead to the implementation of the government's smoke-free policy throughout the entire health system in Palestine. We strongly recommend that courses in tobacco control treatment should be offered or even mandated within the curriculum and to become one of the requirements for graduation or specialization. A focused and sustained anti-smoking campaign by the health facilities and the Ministry of Health may also be useful in controlling the smoking epidemic among the medical physicians.

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Author Contributions

HAZ and SM designed and coordinated the study protocol. HAZ drafted the manuscript. AH and DS collected the data. HAZ, AH, and DS conducted the statistical analysis. AH and DS helped in drafting the manuscript. AH and MG helped in drafting the final version of the manuscript and editing the writing. All authors read and approved the final manuscript.

Availability of Data and Materials

Data are all contained within the article.

Ethical Approval

The study aims, protocols, and the informed consent forms were approved by the Institutional Review Board (IRB) at An-Najah National University (IRB archived number 08/June/2014).

Informed Consent

All authors gave their consent for publication of the manuscript to HAZ to be the corresponding author.

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