

Determinants of smoking cessation counseling favorable practice for primary care physicians: A cross-sectional study from Palestine

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ABSTRACT

Background: Smoking cessation counseling is not well established in Middle East countries including Palestine. This study assesses the practice of smoking cessation counseling among primary healthcare (PHC) physicians in Palestine and its determinants. **Methods:** Over the period from April to September 2019, general practitioners, family medicine physicians, obstetricians and gynecologists, and dentists working at the PHC Centers in Palestine were approached through a cross-sectional design using a self-reported questionnaire. Proportionate stratified random sampling approach has been used. Sociodemographic, medical background, smoking cessation counseling training, smoking history, practice, knowledge, attitude, and confidence were evaluated. The proportion of favorable practice has been determined and its relationship with all variables has been evaluated. Ethical approval was received from the National University of An-Najah. **Results:** 295 physicians were enrolled in the study with an 86% response rate. 75.5% ($n = 222$) were males with a mean age of 39.9 ± 9 years. The majority were General Practitioners (76.5%, $n = 252$). Most of them (84.3%, $n = 215$) had not received any training. The favorable practice was seen in 36.6% (95% CI 31–41%). Attitude is the main predictor of favorable practice (P value = 0.002, adjusted OR = 1.1). **Conclusion:** Palestinian PHC physicians have a low level of counseling for smoking cessation. Given the efficacy of counseling for smoking cessation and the high level of the tobacco epidemic in the area, health policy to ensure all healthcare personnel-especially physicians-receive training in cessation counseling and call for a public health campaign for control of tobacco should be taken into account.

Keywords: Counseling, Palestine, Physicians, primary health care, smoking cessation

Introduction

The tobacco crisis is one of the world's greatest challenges to public health, killing over 7 million people worldwide. Over 6 million of the deaths have been caused by direct ingestion of tobacco. Some 890,000 have been caused by non-smoking exposure.^[1]

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Tobacco dependency is a chronic condition that also needs repeated treatments and several attempts to stop. Various types of treatments are recommended and have been shown to be successful in a wide variety of communities, including smoking cessation counseling and pharmacotherapy.^[2] Many studies have explored the efficacy of smoking counseling as a smoking cessation strategy, and the findings of systematic analyses have shown that physician counseling is an effective tool for quitting smoking in various settings.^[3–5]

Primary healthcare (PHC) is the first link to the healthcare system, covering a significant number of people in the community. In this

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respect, healthcare providers in general, and physicians in particular, play a crucial role in inspiring and encouraging smokers to quit.^[6] The US Preventive Task Force recommended that physicians refer to tobacco use for all grown-ups, including pregnant women, advise them of stopping tobacco use, conduct behavioral interventions, and administer cessation pharmacotherapy.^[7] The World Health Organization (WHO) also recommends smoking therapy for each PHC patient, using the 5 A Framework, to enable doctors to provide smoking cessation counselling in busy clinical practices.^[8] Research shows, however, that the PHC may not enforce smoking cessation therapy adequately. In Middle Eastern countries, Al-Jdani *et al.* concluded that primary health workers are not adequate regarding smoking cessation counseling practices in Saudi Arabia.^[9] Another recent study in Egypt found that a low percentage of physicians performed tobacco cessation counseling or explored pharmacotherapy alternatives with patients, and suggested training was required for better practice.^[10] Moreover, a recent systematic study found that because of their limited time with patients and inadequate training to provide smoking cessation services, physicians were less likely to advise patients to pursue smoking cessation in Gulf Council countries.^[11]

Addressing determinants of a favorable practice has been studied extensively in Arab World to promote smoking cessation among communities. Although PHC medical advice to quit is correlated with a patient's increased likelihood of quit, several barriers play a role in delivering this advice both at the physician-and patient-level.^[12] Addressing factors that can lead to the availability of smoking cessation counseling at the level of PHC physicians can help to resolve these factors and encourage this simple, inexpensive, evidence-based preventive measure. Factors as encountered by physicians influenced their smoking cessation counseling practice; physicians with longer experience span and those who registered higher attitudes were more likely to have favorable practices in Saudi Arabia.^[13] Smoking physicians are less likely to advise, support, or enable patients to quit smoking than non-smoking physicians.^[14,15] Healthcare professionals with different job titles have shown a range of smoking cessation treatment approaches, surprisingly, doctors are less able to give recommendations on quitting, motivate, assist with quitting and follow-up than other healthcare personnel.^[16]

Tobacco smoking causes serious morbidity and mortality in Palestine. The latest Palestinian STEPS survey showed that 20.2% of adults are smokers, with 37.6% prevalence in males and 2.6% in females.^[17] The Palestinians' average monthly spending on cigarettes and tobacco was higher than the education spending.^[18] The Palestinian law of 2005 prohibited advertisement and promotion of smoking in public places as well as the sale of cigarettes to minors (people <18 years old).^[19] In addition, Palestinian national policies and strategy proposals for the prevention/management of non-communicable diseases include a priority goal of "strengthening the enforcement of the existing antismoking law and implementation of measures to reduce tobacco use" as a priority objective.^[20] These laws must however be followed and there is no current regulatory mechanism (law enforcement or non-compliance sanctions).

There is minimal literature in Palestine about cessation of smoking. A Palestinian survey recently found that many of those who work in hospitals were persuaded that their patients should be encouraged to avoid smoking, irrespective of smoking status, irrespective of the prevalence and personal behavior.^[21] Even so, cessation counseling in Palestine is not well established, hence the study aimed at evaluating the practice and its determinants among primary care physicians.

Materials and Methods

Study design and population

The research was performed using cross-sectional questionnaires for PHC physicians in Palestine between April and September 2019, which included the recruitment of general practitioners, family medicine physicians, obstetricians, gynecologists and dentists.

The sample size for each primary health department was determined in proportion to the total number of physicians using a proportionate stratified, random sampling method. A 95% confidence level and 0.05 absolute accuracy were used for the sample size. According to the results of the nearby study in Jordan, the prevalence of the dependent variable was estimated to be 20%.^[22] Given the estimated physician non-response rate of about 40%, the total sample size was 343.^[23,24]

Measures

The Data Collection Method was a systematic self-governing pen-and-paper questionnaire with five sections: sociodemographic, practical, knowledge, attitude, and confidence. Sociodemographic data included medical experience (job description, years of practice, average number of patients seen per day and, if any, formal smoking cessation training) and personal history of smoking (smoking status, smoking duration, and, if any, quit attempt). The questionnaire was constructed after a systematic review of the literature.^[8,13,22,25,26] Some of its domains were taken from pre-validated tools with the permission of corresponding authors.^[13,27]

Nine questions assessed the practice with Yes, No answers. Negative practice scored "0" and positive practice scored "1." The total practice score was thus between 0 and 9. The total score for each participant was multiplied by 100 and divided into 9 by the "overall practice percentage score." It was also rated as favorable (>65) and unfavorable (≤65) according to literature.^[13]

The knowledge score was obtained by adding knowledge response scores (range 0–10). The overall knowledge percentage ranking was then calculated by multiplying the total knowledge score of each participant by 100 by 10.

Attitude and confidence were measured using the Likert response scale of 9 and 5 sentences, respectively. The 'overall attitude/confidence percentage score' was determined by multiplying 100 by 45 and multiplying 100 by 25 for the total attitude and confidence scores for each person.

The questionnaire was revised by three experts in the field who made minor improvements, before being piloted by 20 PHC physicians in order to ensure its validity and reliability. Cronbach's alpha of the questionnaire was 0.77 which indicates good reliability.^[28]

The Ethical Review Board of An-Najah National University approved the study protocol (Reference No: MED 1/2/2019). Palestinian Ministry of Health approved the study data collection as well. Informed consent was obtained and confidentiality and privacy were assured for all the participants. Written consent was obtained.

Statistical analysis

Version 20 of the Social Sciences Statistical Package (SSPS) was used for data management. Frequencies and means described the characteristics of the sample. The proportion of favorable practice among primary health physicians and their relationship to background variables, knowledge, attitude, and confidence was explained, as assessed by the Chi-square and *t*-test, where applicable, and *P* values of ≤ 0.05 for significance. Finally, the weighted binary logistic regression enter model was used in a multivariable analysis to track possible confounders of significant associations.

Results

Of the 343 primary health care physicians approached and invited to participate in the study, 295 answered and returned valid questionnaires, making the response rate 86%. Of them, 75.5% were males with an average age of 39.9 ± 9 years. The majority were general practitioners (76.5%), 9.9% were Family doctors, obstetricians, and gynecologist, and 13.6% were dentists. As far as medical experience is concerned, 47.6% had experience between 6 and 15 years. Just 15.7% ($n = 40$) received some formal smoking cessation training. For smoking history and cigarette use, 53% ($n = 156$) were ever smokers with a mean smoking age of 17 ± 9.3 years, of whom 66% ($n = 90$) registered at least one quit smoking trial, and 34% ($n = 48$) had never tried smoking as seen in Table 1.

The attitude score toward counseling patients on smoking cessation was 74.7 ± 9.7 , and the overall mean for the confidence score was 64.6 (SD = 16.7). The mean score for knowledge statements was 47.3 (SD = 18.3).

Although two-thirds of participants (66.7%, $n = 182$) reported that they regularly used smoking advice when appropriate and 76% ($n = 218$) reported smoking advice regardless of patient request, few (13%) reported smoking advice based on WHO guidelines. The average mean smoking cessation practice was 52 ± 22 and a favorable practice was found in 36.6% (95% CI 31.1–41.1) of participants. Half of the participants (51%, $n = 146$) offer advice on smoking cessation only if it is applicable to patients' complaints, and 50% ($n = 143$) only if there is enough time. In addition, 66% ($n = 93$) offer advice, but do not take any further action, such as a follow-up plan. Please see Figure 1.

Using the Chi-square test, statistically significant associations have been identified between the favorable smoking cessation counseling practice and the physician's job title and training status. Specialists (gynecologists and family physicians) were more

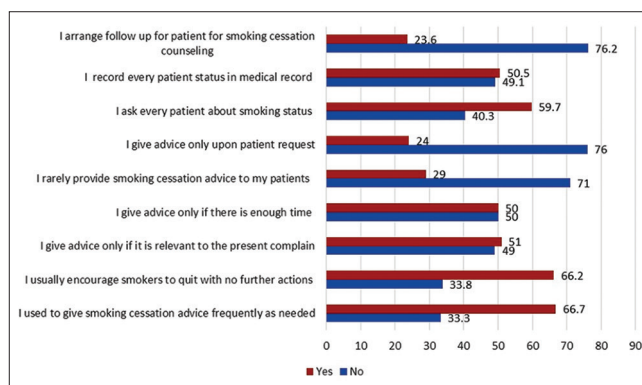


Figure 1: The practice of smoking cessation counseling among PHC physicians (n = 295)

Table 1: Socio-demographic characteristics of the participants (n=295)

Variable	Frequency	Percentage
Gender		
Male	222	75.5%
Female	72	24.5%
Age* groups		
≤ 30 years	62	21.0%
31-45 years	155	53.0%
46-60 years	75	25.7%
Marital status		
Married	248	84.4%
Unmarried	46	15.6%
Job title		
General Practice	225	76.5%
Specialist [†]	29	9.9%
Dentist	40	13.6%
Practice		
≤ 5 years	51	17.3%
6-15 years	140	47.6%
≥ 16 years	103	35.0%
Average number of patients/day		
> 30 patients/day	194	66.7%
≤ 30 patients/day	96	33.0%
Training (n=255)		
Yes	40	15.7%
No	215	84.3%
Smoking status		
Ever	156	53.0%
Never	138	47.0%
Smoking duration (n=156)**		
≤ 15 years	67	42.7%
> 15 years	69	34.9%
Quit attempt (n=156)		
Yes	93	66.0%
No	48	34.0%

*Mean=39.9 (SD=9) Min.=23 Max.=6 **Mean=17 (SD=9.3) Min.=1 Max.=40, [†]Family doctor, Obstetrician/Gynecologist

likely to have a favorable practice than general practitioners and dentists (P -value = 0.008). In addition, physicians who earned smoking cessation training were more likely to have above-average practice ratings as non-training physicians ($P \leq 0.05$). Moreover, ever-smoked physicians who had quit attempts had a significantly higher percentage of favorable practice than others did. Please refer to Table 2.

The higher the attitude, knowledge, and confidence of the participants the more likely they are to provide smoking cessation counseling in their practice settings. The t -test showed significant differences between the means of attitude, knowledge, and confidence in favor of physicians with favorable practice compared with those who did not counsel about smoking cessation ($P \leq 0.05$). See Table 2.

To control confounders and predict favorable practices, multivariate logistic regression was performed. After adjusting all variables and monitoring all potential confounding factors, the only factor with significant association with favorable practice

was the attitude of the participants (P value = 0.002, adjusted OR = 1.1) as shown in Table 3.

Discussion

Like other Eastern Mediterranean countries (EMR), Palestine faces great challenges because of high consumption rates of tobacco,^[29] with 37.7% of Palestinian males smoking.^[17] However, in our study, 65% of Palestinian PHC physicians (mostly males) were smokers at some time during their lives and 40.5% are current smokers. These results are higher than whole population rates, and national hospital setting smoking prevalence. In fact, they are higher than the international prevalence in the region.^[9,30,31] Occupational stress has been cited as a reason for rates higher than the general population.^[32] The reasons for the higher smoking prevalence among PHC physicians compared to health care professionals in hospital settings^[33,34] is less clear and an area for further research.

Despite the high smoking rates, more than one third of Palestinian PHC physicians (36.6%) has above-average practice

Table 2: Relationships between Background variables, knowledge, attitude and confidence and physician's practice

Variable	Frequency (%)		F/T	P
	Favorable Practice	Unfavorable Practice		
Gender			0.19	0.660
Male	80 (36.0)	142 (63.9)		
Female	28 (39.0)	44 (61.0)		
Age groups			2.50	0.270
≤30 years	28 (45.0)	34 (55.0)		
31-45 years	52 (33.5)	103 (66.4)		
46-60 years	28 (37.0)	47 (62.7)		
Marital status			0.49	0.480
Married	89 (36.0)	159 (64)		
Unmarried	19 (41.3)	27 (58.6)		
Job title			9.60*	0.008
GP	89 (39.5)	136 (60.4)		
Dentist	6 (15.0)	34 (85.0)		
Specialist	13 (44.8)	16 (55.2)		
Practice			0.55	0.760
≤5 years	20 (39.2)	31 (60.7)		
6-15 years	53 (37.8)	87 (62.0)		
≥16 years	35 (33.9)	68 (66.0)		
Average number of patients/day			2.50	0.160
>30 patients/day	77 (39.6)	117 (60.3)		
≤30 patients/day	29 (30.2)	67 (69.7)		
Training			4.20*	0.040
Yes	20 (50.0)	20 (50.0)		
No	71 (33.0)	144 (66.9)		
Smoking status			0.64	0.420
Ever	54 (34.6)	102 (65.4)		
Never	54 (39.1)	84 (60.9)		
Quit attempt			3.50*	0.050
Yes	36 (38.7)	57 (61.3)		
No	11 (22.9)	37 (77.1)		
Attitude (Mean±SD)	77.78 (±9.4)	72.9 (±9.3)	4.30*	0.001
Knowledge (Mean±SD)	56.1 (±18.44)	49.4 (±20)	2.80*	0.050
Confidence (Mean±SD)	71.2 (±15.7)	60.8 (±16)	5.40*	0.001

*Significance level ≤ 0.05

Table 3: Factors significantly associated with favorable practice

Domain	Logistic regression Favorable practice				
	β	SE	Adjusted OR	P	95%CI
Job title					
GP ¹					
Specialist	0.240	0.910	0.78	0.790	0.133-4.68
Dentist	0.770	0.700	0.46	0.280	0.117-1.84
Training					
Yes	0.830	0.530	2.30	0.120	0.81-6.56
No ¹					
Quit attempt					
Yes					
No ¹	0.530	0.460	1.70	0.250	0.69-4.15
Attitude	0.073	0.026	1.10*	0.004	1.023-1.13
Knowledge	0.004	0.12	1.00	0.730	0.98-1.03
Confidence	0.016	0.013	1.01	0.200	0.99-1.04

¹Reference group, *Significance level ($P \leq 0.05$)

for smoking cessation counseling. This is similar to the practice in other middle east countries, where less than 50% of primary care providers deliver these interventions.^[8] This proportion is perceived to be poor in the era of healthy people 2020, the target to minimize smoking, diseases with disabilities, and deaths because of tobacco use and exposure to second-hand smoker is one of the key goals.^[35]

Attitude is the primary predictor of smoking cessation practice in our study. This observation is confirmed by the literature. Pakistani studies have shown that the majority of physicians believe in the importance of their position in discussing tobacco cessation treatment with their patients, that counseling attitude, as well as adequate confidence, and that specific knowledge and skills are needed to effectively enforce and manage smoking cessation.^[36] In addition, a recent study in Palestine indicated that hospital physicians were persuaded of the importance of their role in urging patients to stop smoking, although this conviction was not tested in relation to their practice.^[21] Furthermore, PHC physicians who represent a military group in Saudi Arabia offered smoking cessation advice substantially related to their attitudes.^[13] The authors concluded that the training improves confidence and attitude and recommended that all physicians have daily smoking cessation sessions and the culture of smoking cessation counseling as standard practice be established among doctors.

Factors influencing professional attitude in counselors are not reviewed in the literature. We do believe that information on the negative health implications of smoking influences doctors' attitudes toward cessation counselling practice even though there is no awareness of what affects our sample attitude. However, the fact that the positivity of their attitude doesn't reflect on their own smoking status and the low proportion of favorable practice may be attributed to the lack of training and the absence of policies needed to support smoking cessation practice.^[37] A culture of smoking cessation needs the support of a public

health campaign to enhance public awareness and to build an environment that supports tobacco control.

Our sample was over-weighted with general practitioners who don't receive smoking cessation training during their medical education. This may explain why training was not associated with favorable practice as it has been in other studies.^[10,38,39] Given that the percentage of training among primary care physicians in the region is not satisfactory,^[10,24,27,30] the importance of high quality, sustained, evidence-based training programs are especially important. Guidelines recommend that smoking cessation counseling and brief advice be integrated into all health systems.^[40] Although the brief tobacco interventions should be available at all levels of service delivery throughout a country's health system, the primary care setting should be the main focus. This approach is proven to be cost-effective in regional health care systems.^[39]

The key strength of the study lies in the fact that a random sampling approach with a high response rate targets all PHC physicians at the national level. The non-responders were either not Palestinians (Russian female doctors) or not involved in direct contact with patients, or had a more administrative role in the PHC. On the other hand, possible limitations include the cross-sectional design with results based on a self-administered questionnaire. Even with the odd response rate, self-desirability bias is a concern. However, the anonymous nature of our study makes this unlikely.

Conclusion

In summary, the high level of attitude has not been expressed in the smoking cessation counseling practice. While clinicians have a strong understanding of and positive intent on, the need for smoking cessation counseling, other factors, such as subjective standards, policy enforcement, and a favorable setting, affect smoking cessation interventions. Building a supportive environment and enhancing the ability of physicians to focus on their self-efficiency will increase the morale of physicians and enhance their practice. Taking into account that cessation counseling is a cost-effective intervention in the treatment of tobacco dependence and the high magnitude of the tobacco epidemic in the area, it is necessary to incorporate smoking cessation counseling in clinical practice guidelines at PHC level as well as to ensure that all health care providers, particularly physicians, are trained in smoking cessation counseling. The implications for prospective research in this field are strongly recommended to explore the impact of training aimed at improving the competence of PHC physicians in the cessation of smoking counseling. Finley, regional campaigns to control tobacco should be a priority.

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Conflicts of interest

There are no conflicts of interest.

References

- WHO. Tobacco [Internet]. 2018. Available from: <https://www.who.int/health-topics/tobacco>. [Last accessed on 2020 Jan 12].
- Senger CA, Fortmann SP, Thompson JH, Whitlock EP, Henderson JT, Patnode CD. Behavioral counseling and pharmacotherapy interventions for tobacco cessation in adults, including pregnant women: A review of reviews for the U.S. preventive services task force. *Ann Intern Med* 2015;163:608.
- Chen J, Chen Y, Chen P, Liu Z, Luo H, Cai S. Effectiveness of individual counseling for smoking cessation in smokers with chronic obstructive pulmonary disease and asymptomatic smokers. *Exp Ther Med* 2014;7:716–20.
- Omaña-Cepeda C, Jané-Salas E, Estrugo-Devesa A, Chimenos-Küstner E, López-López J. Effectiveness of dentist's intervention in smoking cessation: A review. *J Clin Exp Dent* 2016;8:e78–83.
- Maciosek MV, Coffield AB, Edwards NM, Flottemesch TJ, Goodman MJ, Solberg LI. Priorities among effective clinical preventive services: Results of a systematic review and analysis. *Am J Prev Med* 2006;31:52–61.
- WHO. The Role of Health Professionals in Tobacco Control. 2005.
- Siu AL, for the U.S. Preventive Services Task Force. Behavioral and pharmacotherapy interventions for tobacco smoking cessation in adults, including pregnant women: U.S. preventive services task force recommendation statement. *Ann Intern Med* 2015;163:622–34.
- World Health Organization. WHO | Toolkit for delivering the 5A's and 5R's brief tobacco interventions to TB patients in primary care [Internet]. WHO. 2014. Available from: https://www.who.int/tobacco/publications/smoking_cessation/9789241506946/en/. [Last accessed on 2019 Aug 20].
- Al-Jdani S, Mashabi S, Alsaywid B, Zahrani A. Smoking cessation counseling: Knowledge, attitude and practices of primary healthcare providers at National Guard Primary Healthcare Centers, Western Region, Saudi Arabia. *J Fam Community Med* 2018;25:175–82.
- Elmoghazy EH, Mostafa NS, Zaki LM, Amin WA. Effect of training and smoking status of physicians on smoking cessation practices in Egypt. *Egypt J Chest Dis Tuberc* 2018;67:323–8.
- Monshi SS, Halpern MT. Factors associated with smoking cessation and smoking cessation interventions in the Gulf Cooperation Council countries. *Saudi Med J* 2019;40:119–25.
- Kreuter MW, Chheda SG, Bull FC. How does physician advice influence patient behavior? Evidence for a priming effect. *Arch Fam Med* 2000;9:426–33.
- Al-Ateeq M, Alrashoud A, Khair M, Salam M. Smoking cessation advice: The self-reported attitudes and practice of primary health care physicians in a military community, central Saudi Arabia. *Patient Prefer Adherence* 2016;10:651–8.
- Asfar T, Al-Ali R, Ward KD, Vander Weg MW, Maziak W. Are primary health care providers prepared to implement an anti-smoking program in Syria? *Patient Educ Couns* 2011;85:201–5.
- Abdulateef D, Jamil Ali A, Abdulateef D, Mohesh G. Smoking knowledge, attitude, and practices among health care professionals from Sulaymaniyah City/Iraq. *Tob Use Insights* 2016;9:1–6.
- Meijer E, van der Kleij R, Segaar D, Chavannes N. Determinants of providing smoking cessation care in five groups of healthcare professionals: A cross-sectional comparison. *Patient Educ Couns* 2019;102:1140–9.
- WHO. Palestine STEPS Survey 2010–2011- Fact Sheet -WHO STEPS chronic disease risk factor surveillance. 2011.
- PCBS, State of Palestine Palestinian Central Bureau of Statistics. The Palestinian Expenditure and Consumption Press Report on the Levels of Living in Palestine : Expenditure, Consumption and Poverty. 2018.
- Palestinian National Authority P. Anti-Smoking Law No. 25. 2013.
- Palestinian Ministry of Health. National Health Strategy 2017–2022. Rammalh; 2017.
- Mizher IY, Fawaqa SI, Sweileh WM. Prevalence and personal attitudes towards tobacco smoking among Palestinian healthcare professionals : A cross-sectional study. *Addict Sci Clin Pract* [Internet]. 2018;13:17. doi: 10.1186/s13722-018-0119-z.
- Matouq A, Khader Y, Khader A, Al-Rabadi A, Al Omari M, Iblan I, *et al*. Knowledge, attitude, and behaviors of health professionals towards smoking cessation in primary healthcare settings. *Transl Behav Med* 2018;8:938–43.
- Abdulaziz K, Brehaut J, Taljaard M, Émond M, Sirois M-J, Lee JS, *et al*. National survey of physicians to determine the effect of unconditional incentives on response rates of physician postal surveys. *BMJ Open* 2015;5:e007166.
- Abdulateef DS, Ali AJ, Abdulateef DS, Mohesh MIG. Smoking knowledge, attitude, and practices among health care professionals from Sulaymaniyah City/Iraq. *Tob Use Insights* 2016;9:1–6.
- Abdullah AS, Stillman FA, Yang L, Luo H, Zhang Z. Tobacco use and smoking cessation practices among physicians in developing countries : A literature review (1987–2010). *Int J Env Res Public Health* 2013;11:429–55.
- Klink K, Lin S, Elkin Z, Strigenz D, Liu S. Smoking cessation knowledge, attitudes, and practice among community health providers in China. *Fam Med* 2011;43:198–200.
- Abdullah ASM, Rahman ASMM, Suen CW, Wing LS, Ling LW, Mei LY, *et al*. Investigation of Hong Kong doctors' current knowledge, beliefs, attitudes, confidence and practices: Implications for the treatment of tobacco dependency. *J Chin Med Assoc* 2006;69:461–71.
- Wayne D, Cross CL. *Biostatistics : A Foundation for Analysis in the Health Sciences*. Tenth edit. Wayne W. Daniel, Chad Lee Cross.; 2013.
- Abu Seir R, Kharroubi A, Ghannam I. Prevalence of tobacco use among young adults in Palestine. *EMHJ* 2020;26:75–84.
- Alkhatatbeh MJ, Alefan Q, Alzghool M. Smoking prevalence, knowledge and attitudes among primary healthcare professionals : A study from Jordan.

- East Mediterr Health J 2016;22:872-9.
31. Al-Turkstani AHM, Alkail BA, Hegazy AA, Asiri SI. Knowledge, attitude, and practice among primary health-care physicians toward smoking cessation in Makkah, Saudi Arabia. *Int J Med Sci Public Health* 2016;5:714-24.
 32. Ficarra MG, Gualano MR, Capizzi S, Siliquini R, Liguori G, Manzoli L, *et al.* Tobacco use prevalence, knowledge and attitudes among Italian hospital healthcare professionals. *Eur J Public Health* 2010;21:29-34.
 33. Gregory S, Menser T. Burnout among primary care physicians: A test of the areas of worklife model. *J Healthc Manag* 2015;60:133-48.
 34. Picquendar G, Guedon A, Moulinet F, Schuers M. Influence of medical shortage on GP burnout: A cross-sectional study. *Fam Pract* 2019;36:291-6.
 35. Healthy People G. Tobacco Use [Internet]. Washington, DC; 2019. Available from: <https://www.healthypeople.gov/2020/topics-objectives/topic/tobacco-use>. [Last accessed on 2020 Jan 25].
 36. Naeem M, Irfan M, Mawani M, Waheed Z, Haque AS, Zubairi ABS, *et al.* Tobacco cessation treatment : Knowledge, attitude and practices of physician in Karachi, Pakistan: A cross sectional study. *J Heal Med Nurs* 2016;27:90-7.
 37. O'Donnell A, Kaner E, Shaw C, Haighton C. Primary care physicians' attitudes to the adoption of electronic medical records: A systematic review and evidence synthesis using the clinical adoption framework. *BMC Med Inform Decis Mak* 2018;18:101.
 38. Watiri G. Health Care Providers Knowledge, Attitude and Practice of Smoking Cessation Interventions in Puplic Health Facilities in Kiabu Country, Kenya. 2014.
 39. Cornuz J. Smoking cessation interventions in clinical practice. *Eur J Vasc Endovasc Surg* 2007;34:397-404.
 40. West R, Mcneill A, Raw M. Smoking cessation guidelines for health professionals : An update. *Thorax* 2000;55:987-99.