Healthy lifestyle among primary health care professionals

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ABSTRACT

الأهداف: تقييم العوامل الأربعة الرئيسية لنمط الحياة الصحي (التدخين، النظام الغذائي، النشاط البدني ومؤشر كتلة الجسم) بين العاملين في مجال الرعاية الصحية الأولية.

الطريقة: أجريت دراسة مستعرضة خلال الفترة من ديسمبر 2012م وحتى فبراير 2013م حيث وتم اختيار المشاركين باستخدام أسلوب المعاينة الطبقية العشوائية من 4مراكز للرعاية الصحية الأولية في مدينة الملك عبد العزيز الطبية للحرس الوطني الرياض، المملكة العربية السعودية. واستخدام استبيان لجمع البيانات من قبل فريق مدرب.

النتائج: شملت الدراسة على 322 مشاركاً من مختلف المهن الطبية العاملة في مراكز الرعاية الأولية. كان معدل التدخين بين العاملين 8% فقط. فالغالبية العظمى من العاملين (75.1%) سجلوا أكثر من 50% في نمط الغذاء الصحي. 38.8% من المشاركين كان لديهم معدل كتلة جسم طبيعي و21.1% منهم كان نشطاً في ممارسة النشاط البدني.

الخاتمة: العاملون في الرعاية الصحية الأولية لم يعكسوا المستوى المتوقع منهم في ممارسة النظام الحياة الصحي. ينصح باستهداف العاملين في مراكز الرعاية الأولية أو القطاعات الصحية الأخرى ببرامج تعزيز الصحة ليستفيدوا منها ويكونوا قدوة لمرضاهم.

Objectives: To assess 4 main determinants of healthy lifestyle (smoking, diet, physical activity, and body mass index) among primary health care professionals.

Methods: A cross-sectional study was carried out between December 2012 and February 2013 where participants were selected using a stratified-random sampling method from 4 primary care centers in King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia. A trained nurse used an approved questionnaire for data collection.

Results: The study included 322 participants from different health professions in 4 family medicine centers. The prevalence of smoking was 8.4%. Most of the participants (75.1%) scored more than 50% for healthy diet. Only 38.8% of the participants have normal body mass index, and 21.1% were physically active.

Conclusion: Our primary health care professionals are not up to the expected level of healthy lifestyle parameters. Health care professionals in the primary care setting and in other health facilities need to be targeted by health promotion programs for their own health benefits, and better role modeling for their patients.

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Ahealthy lifestyle is the mainstay of preventive medicine, and its relationship to health status has become increasingly clear over the years.[1-4] Despite minor variations, there is now a consensus that healthy lifestyle consists of healthy diet, being physically active, never smoking, and body mass index (BMI) less than 30 kg/m².[5] Healthcare workers own lifestyle habits and interests in lifestyle behavior have been shown to positively affect their attitudes and counseling practices.[6-9] Several studies have been carried out over the last few years worldwide to assess one or more of lifestyle parameters among physicians, nurses, or both, but there is a lack of studies assessing all 4 lifestyle items among healthcare professionals in Saudi Arabia. In Poland, Biernat et al,[7] found that the minority of medical personnel practices a high level of physical activity. Overweight and obesity was significantly common among the studied population. In Estonia, Suija et al[10] assessed the personal health and counseling

behavior of 198 family physicians, and found that 59% of the physicians reported doing moderate physical activity, and 34% reported doing high physical activity. Sixty-three percent of physicians were found to have normal BMI. Frank and Segura,[11] reported that 8% of Canadian physicians were obese, 3.3% were smokers, and exercised an average of 4.7 hours per week including mild exercise. In Jordan, Shishani et al[12] reported an overall smoking rate of 39% among health professionals from 10 hospitals. In Lebanon, Hage et al[13] assessed healthy habits and vaccination status among 109 Lebanese residents. Only 5.5% were practicing physical activity. Most physicians (69.7%) used to skip one or more meals, especially breakfast. Twenty-eight (25.6%) were smokers, with male predominance. In Abha, Southwestern Saudi Arabia, Mahfouz et al[14] studied 736 health care workers in governmental hospitals and primary health care centers and reported that 14.8% were current smokers and 11.5% were former smokers. In Riyadh, Al Alwan et al[15] conducted a study to assess the cardiovascular disease risk factors among physicians and non-physician health workers. They reported no difference in BMI, dietary habits, smoking, and physical activity between the 2 groups.[15] The objective of this study is to assess the 4 main determinants of healthy lifestyle (smoking, diet, physical activity, and BMI) among primary health care professionals, and to compare healthy lifestyle habits between different professions.

Methods. Prior to study conduction and for literature review, we searched the PubMed website for all published articles related to our topic using the keywords: 'health care professionals', 'healthy life style', 'primary health care', and 'Saudi Arabia'.

This cross-sectional study was carried out between December 2012 and February 2013. The inclusion criteria comprised subjects who are primary health care professionals with a clinical background (physicians, nurses, pharmacists, and pharmacy aids, laboratory workers, radiology workers, physiotherapists, health educators, and dietitians) working in 4 Family Medicine & Primary Heath Care centers at King Abdulaziz Medical City, Riyadh, the King Abdulaziz Housing Clinics, the Health Clinics for Specialized Care, the National Guard Clinics for Specialized Care, and King Saud Housing Clinics. The exclusion criteria comprised other workers who are not health care professionals or working in other Family Medicine Centers. After a biostatistician was consulted, the sample size was calculated assuming a prevalence of 50%. It was found to be 285, with ±5%

accuracy, and was adjusted up to 330 to account for an expected response rate of 70% or possible data loss during collection. Participants of the study were selected using the stratified-random sampling method. The percentage of each group (profession) was calculated out of the total sample size based on the percentage from the total number of working staff. Participants enrolled in the study were selected by simple random sampling using computerized software.

Data were collected by distribution of a questionnaire to all participants by a well-trained nurse. The data collection questionnaire covered the following variables: demographic characteristics, general health (chronic medical problems), smoking status, diet, physical activity, and BMI. The questionnaire was designed after reviewing the published literature and based on the required information. The questionnaire was reviewed and approved by King Abdullah International Medical Research Center (KAIMRC). Translation into Arabic was carried out to facilitate data collection from non-fluent English speakers. The translated form was reviewed by 2 experts.

The data collection questionnaire consists of 6 main parts: part one included the main demographic data (age, gender, profession, and duration of current job). Part 2 assesses presence of any lifestyle-related chronic medical problems; namely, diabetes mellitus, hypertension, dyslipidemia, osteoarthritis, or irritable bowel disease. Part 3 assesses smoking status of the participant smoker, non-smoker, or ex-smoker. Part 4 assesses the dietary habits of the participants. This part was adopted after permission from the "How healthy is your diet questionnaire," 2009, British Heart Foundation.[16] It consists of 6 main diet categories and 24 items. Each item has 2 possible answers either "Yes" or "No". In the first 3 categories, "Yes" means need to consider change, whereas in the remaining categories, "No" means no need to consider change. To facilitate the analysis process, the answers were standardized as "need to change" or "no need to change." Those who score more than 50% were considered as in need to change their diet to be healthier. Part 5 assesses the

level of physical activity for participants. For this part we adopted the "How physically active are you" questionnaire from the University of Washington Health Promotion Research Center, 2006.[17] This questionnaire categorizes the physical activity level into one of the following levels: sedentary, under-active, under-active regular (light), under-active regular (moderate), or active. Part 6 assesses the BMI of the participants. A well-trained nurse in each center was responsible for taking the accurate height and weight of each participant. Height was measured to the nearest "0.5 cm" without shoes. A Health O Meter Digital Scale, which could read to the nearest 100 g, was used to measure weights. This scale was calibrated daily, and zero was assured before weighing any participants. The BMI, which is the weight in kilograms divided by the height in meters squared (kg/m^2), was calculated for all study participants. The BMI was interpreted based on CDC classification, 2011.[18]

The Statistical Package for Social Sciences (SPSS Inc., Chicago, IL, USA) software version 18.0 was used for data entry and analysis. Both descriptive statistics and analytic statistics were examined. Chi-Square was used to test for the association and/or the difference between 2 categorical variables. For continuous variables (BMI and diet), comparison was carried out using t-test and F-statistics. P-values equal to or less than 0.05 were considered statistically significant. Regression analysis to obtain the correlations was also used.

Ethical approval was obtained from KAIMRC in Riyadh. Permission from British Heart Foundation and University of Washington Health Promotion Research Center was also obtained. Written consent was attached to each questionnaire provided to all participants. All collected information was kept confidential. The study was carried out according to the principles of Helsinki Declaration.

Results. The study included 322 participants from different professions. **Table 1** shows their baseline characteristics, and **Table 2** demonstrates the lifestyle characteristics among the participants. The prevalence of smoking was only 8.4%. Most of the participants (75.1%) scored ≤12 in the dietary score. Those who scored >12 (namely, >50%) need to consider changing to a healthier diet. The overall mean dietary score was 9.03. Only 38.8% of the participants have normal body mass index, with 41.8% overweight, and 19.3% obese. In physical activity level, 9.9% were sedentary, and only 21.1% were physically active. **Tables 3, 4, 5, and 6** present the comparisons of the lifestyle parameters among different groups. Females were found to have a

significantly better dietary score (mean=8.5) than males. Smoking prevalence among females was 1.6% only, while in males it was significantly higher at 20.3%. Females had a significantly lower BMI than males. No statistical difference was noted in terms of physical activity. Board-certified physicians had significantly better dietary scores compared with non-board-certified. No difference was noted in BMI, smoking prevalence, and physical activity level between board-certified and non-board-certified physicians. Participants with lifestyle-

Table 1 - Characteristics of primary health care professionals according to a study conducted in King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia (N=322).

Characteristic	Frequency	(%)
Gender		
Male	127	(39.4)
Female	195	(60.6)
Type of profession		
Physician	98	(30.4)
Nurse	115	(35.7)
Pharmacist	50	(15.5)
Others	59	(18.3)
Medical problem		
Yes	257	(79.8)
No	65	(20.2)
Physician certification		
Board-certified	43	(43.9)
Non-board-certified	55	(56.1)
Age (mean +/- SD)	39.2	(8.91)
Number of working years (mean +/- SD)	10.3	(7.23)

Table 2 - Lifestyle characteristics of primary health care professionals according to a study conducted in King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia (N=322).

Characteristic	Frequency	(%)
Diet score		
≤12 (≤50%)	241	(74.8)
>12 (>50%)	81	(25.1)
Smoking		
Smoker	27	(8.4)
Ex-smoker	11	(3.4)
Non-smoker	284	(88.2)
Physical activity level		
Sedentary	32	(9.9)
Under-active	64	(19.9)
Under-active regular (light)	85	(26.4)
Under-active regular (moderate)	72	(22.4)
Active	68	(21.1)
Body mass index		
Normal (18.5-24.9)	125	(38.9)
Overweight (25-29.9)	135	(41.7)
Obese (≥30)	62	(19.3)

Table 3 - Comparison of dietary score among primary health care professionals according to a study conducted in King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia.

Variable	No.	Mean	St. deviation	t. test	*P*-value
Gender					
Male	127	9.83	4.73	2.57	0.010
Female	195	8.51	4.33		
Physician certification					
Board-certified	43	6.44	4.95	2.75	0.007
Non-board-certified	55	8.90	3.90		
Chronic medical problem					
Yes	65	8.24	4.50	1.57	0.117
No	256	9.23	4.53		
	No.	Mean	St. deviation	F. statistic	*P*-value
Profession					
Physician	98	7.82	4.54		
Nurse	115	8.55	4.43	7.94	<0.001
Pharmacist	50	11.04	4.69		
Others	59	10.27	3.77		

Table 4 - Comparison of body mass index among primary health care professionals according to a study conducted in King Abdulaziz Medical City, National Guard Health Affairs, Riyadh, Kingdom of Saudi Arabia.

Variable	No.	Mean	St. deviation	t. test	*P*-value
Gender					
Male	127	27.32	4.31	2.10	0.036
Female	195	26.23	4.88		
Physician certification					
Board-certified	43	27.04	4.64	1.63	0.105
Non-board-certified	55	28.79	5.64		
Chronic medical problem					
Yes	65	27.27	5.29	-1.19	0.231
No	256	26.50	4.34		
	No.	Mean	St. deviation	F. statistic	*P*-value
Profession					
Physician	98	28.02	5.27		
Nurse	115	25.36	3.39	8.63	<0.001
Pharmacist	50	25.63	4.05		
Others	59	27.81	44.80		

related medical problems scored better in dietary score, but this was not statistically significant. Higher smoking prevalence (14.8%) was found among participants with lifestyle-related medical problems as compared with those without medical problems (7.2%), but this was not statistically significant. No statistically significant difference was noted in BMI and physical activity level. There was a statistical difference noted among different professions in the dietary score and BMI. Physicians were noted to have better dietary score than pharmacy workers, but they were not different from nurses. Also, nurses were noted to have better dietary score than pharmacy workers, as well as lower body mass index than others groups. Nurses and pharmacy workers had a significantly lower BMI compared with physicians. No difference was noted between nurses and pharmacy workers, or between physicians and the others group, or between pharmacy workers and the others groups in regard to BMI. No significant difference was noted in the prevalence of smoking among different professions. There was a statistical difference noted among different professions in the level of physical activity. The nurses were noted to be more active than pharmacy workers and the others group. No difference was noted between physicians and other professions. There were significant correlation noted between dietary score and years of work as well as age. As the age and work experience increase, the dietary score became better. No significant correlation was found between dietary score and BMI. There was a mild negative correlation noted between the level of physical activity and dietary score and BMI. As the physical activity increases, the BMI decreases

Table 5 - Comparison of smoking habits among primary health care professionals.

Variable	No.	(%)	Chi-square	P-value
Gender				
Male	24	(20.3)	32.5	<0.001
Female	3	(1.6)		
Physician certification				
Board-certified	5	(11.6)	0.98	0.23
Non-board-certified	3	(5.9)		
Chronic medical problem				
Yes	9	(14.8)	3.52	0.06
No	18	(7.2)		
Profession				
Physician	8	(8.2)		
Nurse	6	(5.2)	6.54	0.365
Pharmacist	4	(8.0)		
Others	9	(15.3)		

and the dietary score becomes better. No significant correlation between age and physical activity level was noted.

Discussion. Numerous studies have been carried out among healthcare professionals, and most of these studies evaluated 1-2 lifestyle factors. In this study, we assessed the 4 main lifestyle habits among different professions in the primary care setting. Although alcohol use is considered in some studies as one of the parameters of lifestyle, it was not included in this study since its use is limited and prohibited in the study area. In our study, most of the evaluated lifestyle parameters were almost comparable to reported previous studies

except for smoking rate. The overall prevalence of smoking (8.4%) was lower than reported rates in the literature. As reported in similar previous studies, the prevalence of smoking was higher among physicians, compared with nurses. The smoking prohibiting and awareness policy in our centers might have contributed to this achievement.

In our study, low levels of physical activity were reported, in contrast to Suija et al[10] who reported higher levels from Estonia. Lower levels of physical activity were also reported by Hage and his colleagues,[13] and Al Alwan et al.[15] The studies that reported lower levels of physical activity were carried out among hospital physicians. This may indicate that primary care physicians are practicing better physical activity than hospital physicians, but still not up to the recommended standards.

Regarding weight, around one third of our subjects had normal BMI. This is different to results reported in Poland by Biernat et al,[7] where 60.2% of male physicians were overweight and obese. Higher rates of normal BMI among physicians were reported in Estonia by Suija et al (63%).[10] Because it is considerably difficult to accurately estimate a healthy from a non-healthy diet, no previous studies were found for comparison of dietary habits. The overall results can be considered acceptable since the majority scored toward a healthy diet. When comparing males to females, we noted that the females have better lifestyle parameters in diet, smoking prevalence, and BMI. This can be interpreted as females usually having more concern about their health status and their body shape than males. Also, the possibility of having more free times than male may play a role.

Table 6 - Comparison of physical activity level among primary health care professionals.

Variable	Sedentary	Under-active	Light activity	Moderate activity	Active	Chi-square	P-value
			n (%)				
Gender							
Male	18 (14.2)	26 (20.5)	24 (18.9)	32 (25.2)	27 (21.3)	8.415	0.78
Female	15 (7.7)	38 (19.5)	61 (31.3)	40 (20.5)	41 (21.0)		
Physician certification							
Board-certified	4 (9.3)	9 (20.9)	9 (20.9)	12 (27.9)	9 (20.9)	0.557	0.968
Non-board-certified	5 (9.1)	15 (27.3)	11 (20.0)	14 (25.5)	10 (18.2)		
Chronic medical problem							
Yes	6 (9.2)	9 (13.8)	18 (27.7)	15 (23.1)	17 (26.2)	2.620	0.623
No	27 (10.5)	55 (21.4)	67 (26.1)	57 (22.2)	51 (19.8)		
Profession							
Physician	9 (9.2)	24 (24.5)	20 (20.4)	26 (26.5)	19 (19.4)		
Nurse	7 (6.1)	13 (11.3)	38 (33.0)	24 (20.9)	33 (28.7)	30.5	0.002
Pharmacist	10 (20.0)	10 (20.0)	11 (22.0)	15 (30.0)	4 (8.0)		
Others	7 (11.9)	17 (28.8)	16 (27.1)	7 (11.9)	12 (20.3)		

We noted no difference between board-certified and non-board-certified physicians except for dietary habits. This is expected since it is known that having better knowledge does not mean a better lifestyle. Most of our physicians share almost the same cultural backgrounds as almost all are from Arab countries. This can be considered as a strong contributing factor to their lifestyle, more than their knowledge. Interestingly, having a lifestyle-related medical problem was not associated with better lifestyle parameters. This was an unexpected outcome, and may reflect that non-adherence is an issue even among healthcare workers. Both physicians and nurses had similar dietary scores, with no significant difference. Both had better dietary habits than other professionals. This may be explained by gaining better knowledge from their exposure and interaction with patients. Physicians were not more active than other professions, and were noted to have a higher BMI than nurses and pharmacists. These findings cannot be explained by lack of knowledge or exposure because they have more exposure and knowledge than other professions. However, other contributing factors might be considered such as lack of time, or work-related stress. This indirectly may affect their role in counseling and advising their patients toward a better lifestyle.

Nurses were noted to be more physically active than pharmacists and other workers except for physicians and had a lower smoking prevalence. Almost one third of our population was nurses, and most nurses were female. As stated earlier, females had better lifestyle parameters. Most of the nurses were of an east Asian origin, which reflects the importance and influence of culture on our lifestyle.

Although awareness of the effect of lifestyle on our health is higher among healthcare professionals, the findings of this study indicate that awareness and knowledge are not enough to maintain a healthy lifestyle. In our studied population, multiple contributing factors can be postured. The lack of a healthy lifestyle-promoting environment (such as healthy food catering) is a major contributor. The increasing workload and long working hours into the early evening are also important factors.

It has been noted that as the age and number of working years increase, the dietary habits become better, but BMI increases. No influence of age has been noted on the level of physical activity. So, improving dietary habits alone does not show effects on improving other lifestyle parameters, especially weight. However, there was an influence of physical activity level on other lifestyle parameters. As physical activity increases, the BMI and dietary habits improve. This makes physical activity the key for better lifestyle habits.

This study was carried out in a limited area and its findings cannot be generalized to all primary care professionals. Diet and physical activity assessment used simple and short questionnaires, which are more convenient but may not reflect a précised comprehensive assessment. Our estimates are based on a self-administered questionnaire; therefore, the potential of recall bias cannot be excluded.

In conclusion, our study showed that primary health care professionals are not practicing healthy lifestyle habits, apart from the low smoking prevalence. This indicates that working within preventive services as practiced in primary care, and being knowledgeable of a healthy lifestyle does not ensure practicing it. Health care professionals in the primary care setting, and in other health facilities need to be targeted by health promotion programs for their own health benefits, and for better role modeling for their patients. Barriers for practicing a healthy lifestyle need to be explored and evaluated properly, especially for physicians. Modifications to the working environment to support practicing a healthy lifestyle are recommended. Future studies with a larger sample and more primary care centers throughout the city, or the country should be considered.

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