

Lifestyle choices and prevalence of chronic noncommunicable diseases among primary healthcare physicians in the Jazan Region, Saudi Arabia

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ABSTRACT

Background: One of the factors that may influence patient adherence to a healthy lifestyle is the adherence of their treating physicians to a healthy lifestyle. This study aimed to measure the lifestyles of primary healthcare center (PHCs) physicians in the Jazan region and to identify the prevalence of diabetes, hypertension, hypercholesterolemia, and obesity among this sample of physicians. **Methods:** This cross-sectional study was conducted in the Jazan region which lies in the southwest of Saudi Arabia. Data were collected via a questionnaire completed during personal interviews. The questionnaire included several components related to physicians' demographics, lifestyles, and history of chronic non-communicable diseases. Descriptive statistics were performed to summarize the overall lifestyle of the physicians and disease prevalence. **Results:** A total of 234 physicians agreed to participate in this investigation. The age of the participants varied between 25 and 65 years, with a median age of 38. Almost 70% of the physicians reported BMI levels higher than 25, indicating a high prevalence of overweight and obesity. Twenty-seven physicians reported no engagement in any type of exercise while the majority reported engagement with low-intensity exercise. While 56% reported daily consumption of vegetables, only 41.8% of them reported daily consumption of fruits. The prevalence of hypertension, diabetes, and dyslipidemia was 10.3%, 8.5%, and 3.4%, respectively. **Conclusion:** Poor lifestyle choices of the physicians may indicate limited engagement of the physicians in providing effective lifestyle counseling to patients visiting their clinics in PHC settings of the studied community.

Keywords: Jazan, lifestyle, physicians, primary healthcare, Saudi Arabia

Introduction

Chronic noncommunicable diseases, such as diabetes, hypertension, and dyslipidemia, are a leading cause of mortality. According to the World Health Organisation (WHO), chronic

noncommunicable diseases are responsible for the deaths of 41 million individuals worldwide. The mortality of individuals affected with chronic noncommunicable diseases is higher among younger individuals in middle- and low-income countries in comparison to those in high-income countries.^[1]

The risk of developing chronic noncommunicable diseases is modifiable. Avoiding alcohol and tobacco consumption, healthy eating behaviors, and having an active lifestyle can reduce the risk

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of developing chronic noncommunicable diseases.^[2] In addition, adherence to a healthy lifestyle has been shown to enhance the overall control of chronic noncommunicable diseases.^[3-6] Furthermore, the establishment of structured lifestyle programs in primary care settings has been reported to reduce the risk of development of cardiovascular complications.^[7,8]

Despite accumulating evidence demonstrating the influence of a healthy lifestyle on reducing the risk of chronic noncommunicable diseases, the adherence of individuals to healthy lifestyles has been reported to be suboptimal.^[9,10] Lack of motivation regarding a healthy lifestyle can be related to personal, social, and economic factors. Furthermore, healthcare providers, including physicians, may experience variability in their ability to provide lifestyle counseling and induce lifestyle modifications among visitors of their clinics. Effective motivation of individuals to maintain a healthy lifestyle can be challenging.^[11]

One of the factors that may influence patient adherence to a healthy lifestyle is the adherence of their treating physicians to a healthy lifestyle. General practitioners can act as role models when providing healthy lifestyle counseling to their patients.^[12] Physicians may face difficulties in providing counseling concerning behaviors to their patients if the physicians themselves are experiencing difficulties in modifying the same unhealthy behavior.^[13] Additionally, the physicians' ability to demonstrate their healthy lifestyle has been suggested to enhance the trust of their patients and motivate the patients to adopt a healthy lifestyle.^[14]

Saudi Arabia is a developing country affected by a high prevalence of chronic noncommunicable diseases. According to the WHO, 73% of deaths among Saudi nationals can be attributed to chronic noncommunicable diseases.^[15] There are several programs and initiatives that have been established in Saudi Arabia for the prevention and control of chronic noncommunicable diseases, including the production of clinical guidelines for the control and management of diabetes,^[16] hypertension,^[17] and obesity.^[18] In addition, there are multiple studies assessing the knowledge and adherence of physicians in Saudi Arabia to guidelines for the management of chronic non-communicable diseases.^[19-22] Furthermore, there are multiple studies measuring the lifestyle^[23] and physical activity^[24,25] of physicians working in Saudi Arabia. However, studies measuring the lifestyle of physicians in the south of Saudi Arabia are currently limited to a single study measuring tobacco consumption among healthcare workers.^[26]

Primary care clinics are a leading provider for management services of chronic noncommunicable diseases where these clinics should be equipped to provide healthy lifestyle counselling to the patients.^[27] This signifies the importance of adherence of PHC physicians to a healthy lifestyle in order to ensure the effective motivation of their patients to adhere to a healthier lifestyle. This study aimed to measure the lifestyles of PHC physicians in the Jazan region, southwest of Saudi Arabia, and identify the

prevalence of diabetes, hypertension, hypercholesterolemia, and obesity among this sample of physicians.

Materials and Methods

Study context

This cross-sectional study was conducted in the Jazan region that lies in the southwest of Saudi Arabia and northern borders of Yemen. This study was conducted as part of a project to evaluate factors that may influence the utilization of preventive health services provided by the Saudi Ministry of Health PHCs for the control of chronic noncommunicable diseases in the Jazan region. The rationale of this study stemmed from the possible influence of the lifestyle of physicians on their engagement in the provision of lifestyle counseling for patients visiting their clinics.

Ethical approval to conduct the study was provided by the Standing Committee for Scientific Research Ethics at Jazan University, with approval number REC 40/3-090 date of approval is 16/May/2019. Administrative approval to conduct the study was obtained from the Directory of Health in the Jazan region. Informed consent to participate in the study was acquired from the physicians before the start of data collection and after explaining the study's objectives and the processes for data collection.

Data collection

Data were collected via a questionnaire that was developed after consulting the relevant literature concerning adherence to a healthy lifestyle. The questionnaire included several components related to physicians' demographics, lifestyles, smoking and Khat chewing, history of chronic noncommunicable diseases and routine check-ups for body mass index (BMI), blood glucose levels, blood pressure, and lipid profiles. The physicians were asked about the frequency of the consumption of fruits, vegetables, and wholegrain products on a weekly basis. In addition, they were asked about the types of exercise, weekly frequency, and duration of each session in minutes. Questions measuring physicians' demographics were both closed-ended and open-ended, while questions used to measure lifestyle, history of chronic noncommunicable diseases, and frequency of routine check-ups for BMI, blood glucose levels, blood pressure, and lipid profiles were open-ended.

The constructed questionnaire was reviewed by a panel of specialists in epidemiology, family medicine, and preventive medicine and the questionnaire was piloted on a sample of 10 physicians to test the clarity of the questions. The questionnaires were completed during interviews conducted via trained medical students. All of the variables measured in this study were reported by the participating physicians.

Data analysis

Data analysis was performed using the statistical package for the social sciences (SPSS) (version 25). Binary and categorical data were summarized via frequency and proportions. Normally

distributed continuous data were summarized by means and standard deviations (SD) while skewed data were summarized by median, and minimum and maximum values.

Physicians' BMI was classified as underweight, normal, overweight, or obese according to the WHO classification of BMI in adults.^[28] The exercise levels were classified in accordance with the Global Strategy on Diet, Physical Activity and Health^[28] as follows: no exercise for physicians not reporting any type of exercise engagement, low intensity for physicians reporting activities that cannot be considered moderate or vigorous such as walking, moderate intensity for physicians reporting exercises such as cycling and dancing, and vigorous intensity for physicians reporting football, swimming, running, and heavy weight lifting. The frequency of the consumption of fruits, vegetables, and wholegrain products was classified into less than three times per week, between three and six times per week, and daily consumption; this was performed after screening the open-ended responses of the physicians. Similarly, the frequencies of routine check-ups for BMI, blood glucose levels, blood pressure, and lipid profiles were classified after screening the open-ended questions as follows: never checked, checked on a monthly basis, checked every two to six months, checked on a yearly basis, and checked every two to three years.

Results

A total of 234 physicians agreed to participate in this investigation. The demographic information of the participants is shown in Table 1. The age of the participants varied between 25 and 65 years, with a median age of 38. The participating proportion of female physicians was slightly higher than males (51.7%). The majority of the participating physicians were Sudanese (55.1%), general practitioners (71.8%), and holders of a Bachelor's Degree in Medicine and Surgery (MBBS) (67.9%).

Table 2 displays the BMI, physical activity levels, and eating behaviors of the participating physicians. Almost 70% of the physicians reported BMI levels higher than 25, indicating a high prevalence of overweight and obesity among the sample. Twenty-seven physicians reported no engagement in any type of exercise while the majority reported engagement with low-intensity exercise. The mean frequency of weekly exercise was 3.27 times and the average duration of each exercise session was 37 minutes.

Among this sample of physicians, 56% reported daily consumption of vegetables and only 41.8% of them reported daily consumption of fruits. The frequency of consuming whole grain products was lower in comparison to the consumption of vegetables and fruits, where only 27.8% reported consuming whole grain products on a daily basis. The number of physicians who reported smoking or Khat chewing consumption was low, with only 18 physicians reporting smoking and only three physicians reporting Khat consumption.

Table 3 summarizes the prevalence of diabetes, hypertension, and dyslipidemia among the recruited physicians. The prevalence

Table 1: Demographic data of 234 primary healthcare physicians in Jazan, Saudi Arabia

Variables	
Age: median [minimum-maximum]	38 years [25-65]
Gender: n [%]	
Male	113 [48.3%]
Females	121 [51.7%]
Nationality: n [%]	
Sudanese	129 [55.1%]
Saudis	28 [12%]
Egyptian	26 [11.1%]
Pakistani	20 [8.5%]
Indian	9 [3.8%]
Syrian	8 [3.4%]
Cuban	8 [3.4%]
Nigerian	5 [2.1]
Palestinian	1 [0.4%]
Specialty: n [%]	
General Practitioners	168 [71.8%]
Family Medicine	66 [28.2%]
Highest Academic degree: n [%]	
MBBS	159 [67.9%]
High Diploma	34 [14.5%]
Masters	27 [11.5%]
Board	10 [4.3%]
Fellowship	4 [1.7%]

of hypertension, diabetes, and dyslipidemia was 10.3%, 8.5%, and 3.4%, respectively. In addition, Table 4 shows the reported routine check-ups for blood glucose levels, blood pressure, BMI, and lipid profiles among the physicians. In total, 42 physicians (20.3%) reported never checking their lipid profile. BMI was frequently checked by the participating physicians, with 77% of them reporting measuring their body weight on a monthly basis. In addition, 45% of the participating physicians reported checking their blood pressure on a monthly basis, while 36.5% of the physicians reported checking their blood glucose level every 2–6 months.

Discussion

In this cross-sectional study, we assessed the lifestyle of PHC physicians in the Jazan region, the prevalence of chronic noncommunicable diseases, and the frequency of routine check-ups for BMI, blood glucose levels, blood pressure, and lipid profiles. The prevalence of overweight and obesity among this sample of physicians is alarming. Approximately, only 15% of the participating physicians reported adherence to the recommended level of physical activity of 150 minutes of moderate-intensity physical activity per week.^[29] In addition, more than half of the participants do not adhere to the recommended level of fruit and vegetable consumption according to the eat-well plate guidelines.^[18] Finally, the minority of participants suffer from diabetes, hypertension, and dyslipidemia, while a majority of the physicians reported attending routine check-ups for their BMI, blood glucose levels, blood pressure, and lipid profiles.

Table 2: BMI, physical activity, and healthy eating behaviors of 234 primary healthcare physicians in Jazan, Saudi Arabia

Variables*	Frequency or Mean	Proportion or SD
BMI: frequency [proportion]		
Under weight	4	[1.7%]
Normal	64	[27.5%]
Overweight	104	[43.7%]
Obese	61	[25.6%]
Type of exercise: frequency [proportion]		
No exercise	27	[11.5%]
Low intensity	171	[71.1%]
Moderate intensity	7	[3%]
High intensity	29	[12.4%]
Frequency of weekly exercise: mean [SD]	3.27 times	2.02
Average number of minutes spent exercising in each session: mean [SD]	37 min	28.1
Frequency of fruits consumption per week: frequency [proportion]		
<3 times per week	39	[16.8%]
Between 3 and 6 times per week	96	[41.4%]
Daily consumption	97	[41.8%]
Frequency of vegetables consumption per week: frequency [proportion]		
Less than 3 times per week	16	[6.9%]
Between 3 and 6 times per week	86	[36.9%]
Daily consumption	131	[56.2%]
Frequency of wholegrain products consumption per week: frequency [proportion]		
Less than 3 times per week	105	[44.9%]
Between 3 and 6 times per week	64	[27.4%]
Daily consumption	65	[27.8%]
Smokers	18	[7.7%]
Khat chewers	3	[1.3%]

*Excluding, 6 missing cases for fruit consumption, 5 missing cases for vegetable consumption, 4 missing cases for wholegrain product consumption.

Table 3: Prevalence of chronic diseases among 234 primary healthcare physicians in Jazan, Saudi Arabia

Variable	Frequency	Proportions
History of chronic diseases		
Diabetes	20	[8.5%]
Hypertension	24	[10.3%]
Dyslipidemia	8	[3.4%]

Table 4: Routine check-ups of blood glucose levels, blood pressure, BMI, and lipid profiles among 234 primary healthcare physicians in Jazan, Saudi Arabia

Frequency [Proportions]*	Blood glucose	Blood pressure	BMI	Lipid profile
Never checked	16 [8%]	11 [5.5%]	13 [6.1%]	42 [20.3%]
Monthly	52 [25.3%]	90 [45.4%]	162 [77.1%]	4 [2%]
Every 2-6 months	75 [36.5%]	57 [29%]	28 [13.3%]	46 [22.2%]
Yearly	56 [27%]	32 [16.1%]	6 [3%]	83 [40%]
Every 2-3 years	6 [3%]	8 [4%]	1 [0.5%]	32 [15.4%]

*Excluding physicians who are affected with diabetes, hypertension, or dyslipidemia

The findings of our investigation can be compared to other similar local and international investigations involving physicians working in PHCs and other clinical settings. In a study measuring the lifestyle of PHC physicians in the west of Saudi Arabia, it was reported that more than half of the physicians were either overweight or obese.^[23] Furthermore, in a study involving 106 PHC physicians in the Al-Jour region, in the north of

Saudi Arabia, 35% of physicians were classified as physically inactive.^[24] These findings are similar to those of the current study, suggesting a high prevalence of overweight and obesity or a tendency toward gaining weight due to limited physical activity levels among PHC physicians.

A study conducted in Riyadh, Saudi Arabia, recruited 100 physicians in addition to 100 nonphysician healthcare workers and measured the prevalence of cardiovascular risk factors in both groups.^[30] It was reported that 47% of physicians were overweight in comparison to 39% of the nonphysician healthcare workers. Additionally, 51% of the physicians reported rare consumption of vegetables and 68% reported rare consumption of fruits, which is similar to the findings of the current study. The prevalence of hypertension, diabetes, and dyslipidemia among the 100 physicians recruited in their study was 9%, 4%, and 13%, respectively, which is similar to the findings of the current study, and suggest a moderate prevalence of these conditions among the physicians recruited.

Comparing the findings of our investigation to a similar international study indicated similar findings. In a study involving 169 Nigerian physicians, it was reported that more than half of the physicians were either overweight or obese. Additionally, 7.7% of the physicians were hypertensive. Only a quarter of the physicians reported daily consumption of fruits and engagement in exercise between 3 and 5 times a week. In addition, poor

lifestyle choices were reported among their sample of physicians, with 81% of the physicians reporting low water intake and 51% reporting a weekly consumption of junk food and soft drinks.^[31] These international findings are comparable to the findings of the current investigation and others conducted in Saudi Arabia, indicating the inadequate lifestyles of physicians.

Poor lifestyle choices by physicians may influence the ability of PHC physicians to undertake healthy lifestyle counseling for their patients. The high prevalence of overweight and obesity detected in our sample population may limit the efficacy of physical activity and eating behavior advice provided by PHC physicians to their patients. The fact that the minority of physicians adhere to physical activity guidelines to reduce the risk of chronic non-communicable diseases can be explained by potential factors such as a lack of awareness about the recommended levels of physical activity, a lack of motivation, or a lack of time dedicated to physical activity.

Our study has several strengths and limitations. The current study was able to measure the lifestyle of the participating PHC physicians in the Jazan region, thus providing evidence to health decision makers in the region with regards to the limited engagement of PHC physicians in the Jazan region to a healthy lifestyle and the potential influence of limited engagement on the overall control of chronic noncommunicable diseases in the region, especially in PHC settings. Additionally, the study was based on personal interviews utilizing open-ended questions, thus enabling the better measurement of lifestyle. The limitation of this study is related to measuring reported variables rather than actual measurements of physician lifestyles and observing medical records to identify diagnoses of chronic non-communicable diseases and the frequency of routine check-ups.

Conclusion

The findings of our investigation can be summarized in the following key points. The lifestyles of our sample of PHC physicians suggest their limited adherence to clinical guidelines related to physical activity and eating behavior. The limited physical activity and high prevalence of overweight and obesity suggest that these physicians are prone to the development of chronic noncommunicable diseases. The poor lifestyle choices of the physicians may indicate their limited engagement in providing effective lifestyle counseling to patients visiting their clinics in order to prevent and control the development of chronic noncommunicable diseases in the Jazani community.

Recommendations

The findings of this study suggest a need to perform further assessments to identify barriers influencing the adherence of PHC physicians to a healthy lifestyle. Subsequently, this can be followed by the development of interventional programs to motivate PHC physicians in the Jazan region to adopt a healthier lifestyle.

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Conflicts of interest

There are no conflicts of interest.

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