

# The Prevalence of Well-Being and Healthy Lifestyle in Physicians in Eastern Province, Saudi Arabia

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**Abstract:** *Healthy lifestyle behaviors reduce overall mortality from non-communicable disease. Physicians' health also influences patients' attitudes and motivation to adopt lifestyle changes. Between February 25 and April 5, 2017, a cross-sectional study was conducted on 311 physicians in the Eastern Province of Saudi Arabia, using a validated, web-based questionnaire. The prevalence of comorbidities follows: dyslipidemia (10.9%), hypertension (9.3%), hereditary blood disorders (8.4%), diabetes (4.2%). Thirty-three percent had normal BMI, 37% were overweight, and 21.9% were obese. About one-third reported 30 minutes exercise at least once during a regular week, and many reported poor nutritional habits. Also, 83.6% never smoked cigarettes. The mean number of hours slept daily was 6.3. The mean perceived stress level was 6.6/10. About one-half reported not wearing seatbelts while in cars. Overall, Saudi physicians have good health but must improve their health-related behaviors, including exercise, diet, sleep, and traffic safety*

**Keywords:** physician health, comorbidity, smoking, obesity, exercise

## 1. Introduction

The World Health Organization defines *health* as “a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity” [1]. Moreover, “well-being can be defined in terms of an individual's physical, mental, social, and environmental status” [2].

Despite the progress of health services and increased awareness in Saudi Arabia, the public health of the community including physicians is not as desirable. Many studies have revealed that the health of medical practitioners may affect the health of the population, as there is an established association between physicians' healthy practices and their patient interactions [3]. Studies have also found that physicians who adopt healthier personal behaviors and habits are constantly and considerably more likely to report providing more frequent counseling to their patients about related practices [4]. Physician professionalism is also influenced by both environmental and personal factors, one of which is physician well-being [5]. Nonetheless, there is limited information on physician health and lifestyle habits in Saudi Arabia [3].

The lifestyle behavior of physicians is important because it affects the doctors' health and because these practices have been shown to influence patients' care. Physicians that adopt healthy behaviors play a role in primary prevention by assisting their patients' practice of healthy lifestyle habits [6]. For that reason, doctors' health is important in counseling patients on changing their health practices, which is one of the greatest predictors of health prevention and promotion counseling [6]. Physicians' health practices also appear to influence patients' attitudes and motivation to adopt lifestyle changes [7]. Patients and residents perceive doctors with healthy lifestyles as more credible and encouraging when under their supervision [8]. However, physicians in particular often overlook or neglect their

health, favoring their professional and personal responsibilities. The culture of medical practitioners encourages the thought that doctors are never ill; they often interpret the need for attention to their health as a sign of weakness [9].

Several recommendations are important to maintaining health: cessation of smoking or not starting smoking, as well as sustaining a healthy weight [10]. To that extent, healthy lifestyle behaviors including regular exercise and physical activity, having a balanced diet, and abstaining from smoking have been revealed to reduce overall mortality from non-communicable disease [3]. For example, regular exercise prevents many known chronic diseases [11]. Another recommendation is to maintain daily physical activity and minimize time spent watching television [10]. Also, healthy diets reduce the risk of cardiovascular diseases [10].

Most research about doctors' health investigates stress, burnout, depression, and substance use, and recently there has been demand for research into lifestyle behaviors of physicians including exercise, nutrition, and smoking [3]. A recent study in Bahrain revealed a clear pattern of harmful lifestyle habits and obesity among primary health care physicians [3]. However, Saudi physicians might differ because of our different culture, including eating habits and lifestyle. The limited information on Saudi doctors' health and lifestyle behaviors gives this study paramount importance.

## Research Questions

- What is the well-being of all physicians living in Eastern Province, Saudi Arabia?
- What are the lifestyle behaviors of physicians living in Eastern Province, Saudi Arabia?

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### **Aim**

To assess the well-being and lifestyle behaviors of physicians living in the Eastern Province of Saudi Arabia.

### **Objectives**

- 1) To explore the health perception of the physicians living in Eastern Province, Saudi Arabia.
- 2) To evaluate the well-being and health status of all physicians living in Eastern Province, Saudi Arabia.
- 3) To define the lifestyle behaviors being practiced by physicians living in Eastern Province, Saudi Arabia.

## **2. Literature Review**

In 2013, a study concluded that Japanese primary care physicians' exercise habits are inadequate. Around one-third of the studied doctors exercised no more than once a month and were considerably correlated with age and workplace, but not with specialty [11]. In California, U.S.A., a researcher examined personal health behaviors and wellness, health-related lifestyles, and prevention screening practices among licensed physicians. Of physicians, 35% reported "no" or "occasional" exercise. Approximately 27% reported "never" or "occasionally" having breakfast. Also, 34% of doctors slept six hours or less daily. This study recommended further interventions intended to improve physicians' lifestyles and personal health behaviors and, moreover, to emphasize building healthy lifestyles, which will benefit doctors as much as the public population [12].

The majority (90%) of Canadian physicians perceived their health as good to excellent, only 3% were obese, and 3% were current cigarettes smokers. The research concluded that Canadian physicians are healthy compared to general population and that they have healthy practices including diet, exercise, and smoking [13]. On the other hand, women physicians in the United States physicians have mostly good health behavior compared to other women of the general population, even when matched with other socio-economically privileged women. Only 3.7% were current smokers, and they reported having up-to-date and recommended personal screening tests and other personal health practices [14]. Research on physician members of the Palo Alto Medical Clinic, in the United States, revealed that doctors smoke less (1.6%) and drink alcohol about the same (90%). Around half reported being overweight, while exercising (93%) and using their seatbelts (97%) more than the general population. They also can anticipate living longer [15].

A recent study in Bahrain showed a strong pattern of harmful lifestyle habits among primary health care physicians. Of the sample population, 33% were obese, 25.5% had dyslipidemia, 20.3% hypertension, and 11% diabetes. Only one-third reported exercising each week, and the mean of daily sleep was 5.9 hours [3].

## **3. Methodology**

### **3.1 Study Design**

This cross-sectional descriptive study was conducted in the Eastern Province's cities of Saudi Arabia (including

Dammam, Khobar, Jubail and Qatif), from February 25 to April 5, 2017. The study population included all physicians working in Saudi Arabia's Eastern Province's hospitals and primary care centers during the study period. Both genders, male and female physicians, were included, including general practitioners, residents, specialists, and consultants of various specialties. The total population of physicians in Eastern Province was 8200. The minimum sample size required to represent a population calculated by Robert Mason's equation is 368. We used a convenient sampling technique due to the short time of the study and reached 311.

### **3.2 Data Collection Method and Tools**

A previously developed validated self-administered questionnaire was distributed on a mobile messaging application through an electronic link [16]. Through discussion with three family medicine consultants, the questionnaire was modified and agreed upon:

- 1) Adding one more value, of "not applicable," to the following items: -What is the actual speed (km/h) at which you drive on the highway? -Do you usually talk on the phone while driving? -Do you usually text or use social media services while driving?
- 2) Adding variables to item -What type of sport, exercise or other physical activity do you usually practice: (1) Aerobic, (2) Resistance exercises, (3) Weight lifting exercises.
- 3) Removing two question items (about alcohol and illicit drug consumption).

The research tool was assessed for internal consistency (reliability) based on a Cronbach's alpha (0.76). Sample characteristic variables investigated demographic-personal questions (age, gender, marital status, occupation, specialty, number of years practicing, working place, administrative hours, working hours, and nationality); health state and well-being variables and lifestyle behaviors variables were also included. The data were checked before analysis and analyzed using the Statistical Package for Social Sciences software (SPSS) version 23 for Mac. Continuous data were presented as the mean, median, and standard deviation, and categorical data were presented as percentages.

### **3.3 Ethical considerations**

The Ethical Committee in the Ministry of Health, Eastern Province approved this study beforehand. Individuals' consent was a prerequisite for data collection. The purpose of the study was explained to the physicians, and they were reassured that all information would be kept confidential, will not be accessed except for scientific research, and would not affect them negatively. They were allowed to refuse to participate in the study. The questionnaire was obtained by contacting the authors of a similar study in Bahrain. This study was self-funded.

## **4. Results**

### **4.1 Physicians' Characteristics**

Table 1 shows sample demographics' including age, gender, nationality, and marital status. One-third of participants' age

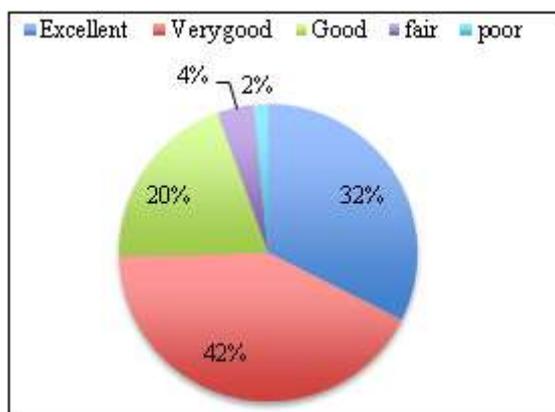
was between 31-40 years, and most of them were female. The majority of physicians were Saudis; most were married and worked as residents. Two-thirds were from specialties other than family medicine.

**Table 1:** Demographic characteristic of participant physicians (n=311)

Variable	Number	Percentage
<b>Age</b>		
<=30	160	51.4
31-40	97	31.2
41-50	33	10.6
51-60	20	6.4
>61	1	0.3
<b>Gender</b>		
Male	112	36
Female	199	64
<b>Nationality</b>		
Saudi	293	94.2
Non-Saudi	18	5.8
<b>Marital Status</b>		
Single	67	21.5
Married	223	71.7
Divorced	11	3.5
Engaged	9	2.9
Widowed	1	0.3
<b>Occupation</b>		
Consultant	55	17.7
Specialist	53	17.0
Resident	203	65.2
<b>Specialty</b>		
Family Medicine	121	38.9
Others	190	61.1

#### 4.2 Well-being

Figure 1 shows how physicians perceive their health; thirty-two percent of physicians considered their health “excellent,” 42% “very good,” 20% “good,” 4% “fair,” and 1.6% “poor.”



**Figure 1:** General perception of health

Table 2 shows the prevalence of known medical illness among physicians, as follows: dyslipidemia (10.9%), hypertension (9.3%), hereditary blood disorders (8.4%), diabetes (4.2%), asthma (9.6%), heart conditions (3.5%), and psychiatric conditions (5.1%). Four percent of individuals reported having a physical disability. Only 43.4% of physicians reported visiting a dentist, and 47.6% reported visiting a medical doctor in the past six months. The mean of physician BMI was 26.9 (SD = 6.2). Twenty-four physicians

(7.7%) were underweight, 33.4% had a normal BMI, 37% were overweight, and 21.9% were obese.

**Table 2:** Well-being and health of physicians (n=311)

Variable	Number	Percentage
<b>Physical disability</b>		
Yes	11	3.5
No	300	96.5
<b>Psychiatric conditions</b>		
Yes	16	5.1
No	295	94.9
<b>Visited a dentist in the last 6 months</b>		
Yes	135	43.4
No	176	56.6
<b>Visited another health professional in the last 6 months</b>		
Yes	148	47.6
No	163	52.4
<b>Admitted to the hospital in the last 6 months</b>		
Yes	20	93.6
No	291	6.4
<b>Diagnosed with asthma</b>		
Yes	30	9.6
No	281	90.4
<b>Diagnosed with heart disease</b>		
Yes	11	3.5
No	300	96.5
<b>Diagnosed with diabetes</b>		
Yes	13	4.2
No	298	95.8
<b>Diagnosed with dyslipidemia</b>		
Yes	34	10.9
No	277	89.1
<b>Diagnosed with hypertension</b>		
Yes	29	9.3
No	282	90.7
<b>Diagnosed with hereditary blood disease</b>		
Yes	26	8.4
No	285	91.6
<b>Body mass index</b>		
Underweight	24	7.7
Normal	104	33.4
Overweight	115	37
Obese	68	21.9

#### 4.3 Lifestyle Behaviors

##### 4.3.1 Exercise

Only 31.8% of physicians reported performing  $\geq 30$  min of continuous physical activity during an entire week. Of those who exercised weekly, the majority (35.4%) exercised three days per week. The most commonly reported exercises were aerobic exercises (70.7%). Few physicians (30.9%) reported always using the stairs in multi-story buildings; 20.3% reported always using the elevator, while 48.9% reported using both stairs and elevators.

##### 4.3.2 Smoking habits

Results show that 83.6% of physicians never smoked cigarettes, and 11.6% were current smokers. There was no significant relationship between smoking and stress level. The prevalence of sheesha (water pipe) smoking exceeded cigarette smoking (21.2%).

##### 4.3.3 Diet and nutrition

Twelve percent of the participants ate all three main meals every day. Breakfast was the most frequently neglected meal

during a typical week, 7.1% reported never having breakfast, and 19.3% reported having breakfast one to two times a week. Table 3 shows the frequency of consumption of different food groups, the most consumed protein source was chicken, and the most neglected was fish, which 28.9% physicians did not eat fish at all.

Out of the participants, 44 physicians (14.1%) reported not eating fast food meals, while 33.4% ate fast food once per week, 31.8% twice per week, and 17.7% most days of the week. The mean daily water intake was 1.26 liters (SD=0.833). Of the physicians, 33% consumed at least one carbonated soft drink daily. A majority of the sample (82.3%) consumed at least one caffeinated beverage daily, excluding soft drinks. Additionally, 39% had been on a diet to reduce their weight in the preceding six months, with low carbohydrate diets being the most followed. Lastly, 2.6% had taken medication to help them lose weight and 97% reported never consuming energy drinks.

**Table 3:** Frequency of consumption of different food groups (n=311)

Food Item	Frequency of Consumption* (days/week)			
	Does not consume it weekly	1-2 days per week	3-5 days/week	6-7 days/week
Chicken	N=14 (4.5%)	N=93 (29.9%)	N=169 (54.3%)	N=35 (11.3%)
Red Meat	N= 39 (12.5.0%)	N= 179 (57.6%)	N=87 (28%)	N=6 (1.9%)
Fish	N=90 (28.9%)	N=179 (57.6%)	N= 38 (12.2%)	N= 4 (1.3%)
Fruits	N=33 (10.6%)	N=134 (43.1%)	N=110 (35.4%)	N=34 (10.9%)
Vegetables	N=21 (6.8%)	N=98 (31.5%)	N=141 (45.3%)	N=51 (16.4%)

\* Exact consumption amount was not specified in the question.

#### 4.3.4 Sleep and stress

The mean reported daily sleeping time was 6.3 hours (SD=1.19). The majority of physicians (85.5%) reported less than eight hours of sleep. The mean perceived stress was 6.6/10 (range=1-10, mean=6.6, SD =1.9). Of all physicians, 56% reported having moderate stress levels and 16.3% severe.

#### 4.3.5 Screen time

The reported screen use was 61.1% on computers for two hours or less, 33.1% for three to five hours, and 5.8% for six to ten hours daily. Television screen time showed that the majority of physicians (86.2%) viewed television for 1-2 hours or less daily.

#### 4.3.6 Driving habits

Of physicians, 49% reported not using a seatbelt when driving/riding in cars. Speeding was uncommon, with 23.6% reporting "usually driving beyond the speed limit on the highway (>120 km/h)." Physicians using the phone while driving comprised 44.8% of drivers. Texting and using social media applications while driving was reported by 41.6% of all drivers.

**Table 3:** Lifestyle behaviors of physicians (n=311)

Variable	Frequency	Percentage
<i>Exercise at least 30 minutes</i>		
Yes	99	31.8
No	212	68.2
<i>Exercise per week</i>		
1-3 days	62	19.3
4-5 days	32	10.2
6-7 days	5	0.2
<i>Type of exercise</i>		
Aerobic	70	22.5
Non-aerobic	7	2.3
Both	22	7.1
<i>Use elevator or stairs in place of work</i>		
Elevator	63	20.3
Stairs	96	30.9
Both	152	48.9
<i>Eating breakfast per week</i>		
0 days/week	22	7.1
1-2 days/week	60	19.3
3-5 days/week	101	32.5
6-7 days/week	128	41.2
<i>Eating lunch per week</i>		
0 days/week	11	3.5
1-2 days/week	35	11.3
3-5 days/week	121	38.9
6-7 days/week	144	46.3
<i>Eating dinner per week</i>		
0 days/week	18	5.8
1-2 days/week	56	18
3-5 days/ week	129	41.5
6-7 days/week	108	34.7
<i>Been on a diet to reduce weight in last 6 months</i>		
Yes	122	39.2
No	189	60.8
<i>Consumed weight lowering medications in the last 6 months</i>		
Yes	8	2.6
No	303	97.4
<i>Consumed alerting medications in the past 6 months</i>		
Yes	9	2.9
No	302	97.1
<i>Fast food consumption frequency per week</i>		
Never	44	14.1
Once/week	104	33.4
Twice/week	99	31.8
Most of the week	55	17.7
Everyday	8	2.6
More than once a day	1	0.3
<i>Cigarette Smoking pattern</i>		
Never smoked cigarettes	260	83.6
Quit	15	4.8
On and off	14	4.5
Smoke every day	22	7.1
<i>Sheesha (water pipe) smoking frequency</i>		
Never		
Less than one day/week	281	90.3
1-3 days/week	14	4.5
4-6 days/week	5	1.6
Daily	4	1.2
	7	2.3
<i>Caffeinated beverages consumed each day (-300ml)</i>		
0 beverage/day	55	17.7
1 beverage/day	62	19.9
2 beverage/day	105	33.8

3 beverage/day	43	13.8
4 beverage/day	46	14.8
<i>Cans of soft drinks consumed per day (300ml)</i>		
0 can/day	209	67.2
1 can/day	79	25.4
2 cans/day	12	3.9
3 cans/day	6	1.9
4 cans/day	5	1.6
<i>Energy drinks consumed each day</i>		
Zero	302	97.1
One	9	2.9
<i>Hours slept per day</i>		
3-4 hours/day	20	6.4
5-6 hours/day	152	48.9
7-8 hours/day	132	42.4
9-10 hours/day	7	2.2
<i>Stress rating</i>		
Low (1-5)	84	27
Moderate (6-8)	114	36.7
Severe (9-10)	176	56.6
<i>Average time spent daily using TV/DVD</i>		
1-2 hours/day or less	268	86.2
3-5 hours/day	43	13.8
<i>Average time spent daily using computer/laptop</i>		
1-2 hours/day	190	61.1
3-5 hours/day	103	33.1
6-10 hours/day	18	5.8
<i>Use seat-belt while drive/ride the car</i>		
Yes	157	50.5
No	154	49.5
<i>Actual speed while driving the on the highway (km/h)</i>		
80 or less	6	1.9
81-100	50	16.1
101-120	76	24.4
121-140	39	12.5
>140	2	0.6
Not applicable	138	44.4
<i>Talk on the phone while driving the car</i>		
Yes	61	19.6
No	75	24.1
Not applicable	175	56.3
<i>Use social media services while driving the car</i>		
Yes	57	18.3
No	80	25.7
Bot applicable	174	55.9

## 5. Discussion

This cross sectional study assessed Saudi physicians' well-being and lifestyle behaviors by studying the prevalence of non-communicable disease and different aspects of health-related lifestyle behaviors. Most participants of this study were female (64%), and half of them were from a young age group (51.4% aged 30 years and younger).

Among Saudi doctors, 62% perceived their health as excellent or very good, which is less than Bahraini primary care physicians of whom 66% perceived their health as excellent [3]. Also, 66% of Canadian doctors reported their health as very good to excellent, while only 9% reported poor health [13]. This shows that Saudi physicians have a negative perception of their health status compared to other populations; this might be attributed to the heavier workload.

Of Saudi doctors, 74% had received their last routine medical check-up within 6 months, whereas 36.9% of Bahraini physicians reported visiting a healthcare professional in that time frame [3]. Comparing Saudi to Bahraini doctors, Saudis' prevalence of chronic disease was lower, as follows: hypertension (9.3% vs. 20.3%), diabetes (4.2% vs. 11%), dyslipidemia (10.9% vs. 85.5%) [11]. The lower prevalence might be attributed to the younger Saudi physicians, with an exception for psychiatric conditions, which were more prevalent in Saudi physicians (5.1% vs. 1.3%) [3]. This could be related to the higher stress levels found in our study sample.

The BMIs reported by Saudi doctors were overweight (37%), followed by normal weight (33.4%), then obese (21.9%), compared to Canadian physicians, where only 8% were obese and 54% were normal weight [13]. This may be due to the more active lifestyle in the Canadian population, as the weather in Saudi Arabia restricts transportation methods to cars rather than walking.

Out of the physician respondents, 32% exercised at least once per week for 30 minutes and produced perspiration, with the majority exercising three times per week. The most reported exercises were aerobics including walking, running, swimming, and cycling. This result supports the conclusion that Saudi physicians are inactive. Physical activity is associated with numerous health benefits and plays a significant role in modifying many other chronic heart disease risk factors. Some studies on the prevalence of physical inactivity in Saudi Arabia confirm that a sedentary life style is on the rise [17]. Similarly, 29.6% of primary health care doctors in Bahrain exercised 30 minutes or more during a week [3]. On the other hand, more than half of physicians in Japan exercised at least once weekly [11]. The lack of gyms and outdoor activities in Saudi Arabia can have a significant impact on the level of physical activity.

Regarding smoking, 83.6% of Saudi physicians had never smoked cigarettes, and 11.6% were current smokers, of which 9.6% were male and 2% were female. Furthermore, 7% of all doctors smoked daily and 4.5% smoked on and off. Our findings revealed low rates of smoking among female physicians; this is good news that should be maintained. The prevalence of sheesha (water pipe) smokers (9.6%), of which 7.4% were male and 2.3% were female, was less than cigarettes. Men tend to smoke much more than women in most countries in the region, particularly when compared to Canadian doctors, of whom 8% of female doctors reported smoking daily and 6% smoking occasionally [13]. These results nonetheless show that smoking is less prevalent among physicians.

Results showed poor dietary practices among physicians. Their dietary behaviors met recommendations in only a small percentage of them, with especially low consumption of fish meat, and low consumption of fruits and vegetables [18]. Saudi guidelines recommend consuming at least two servings of fresh fruit and three servings of vegetables per day [18]. As the prevalence of obesity is growing worldwide, the need for improving healthy eating habits becomes more prominent. It appears that doctors, like the rest of the population, need diets and nutritional improvements [9]. It is

recommended that adults drink at least 1.5 liters of water daily, but only 39.4% do so [18]. Most physicians refrain from consuming any energy drinks.

Sleep deprivation has been shown to influence physicians' clinical performance and cognitive scores [19]. Our results revealed that more than half of Saudi doctors sleep six hours or less daily. Similar to the lack of exercise, lack of sleep has been directly linked to obesity. According to a new study, a good night's sleep affects a person's weight [20]. The mean reported daily sleeping time among Bahraini physicians was 5.9 hours (SD=1.2). The majority of them (86.3%) reported less than eight hours of sleep, and (30.8%) reported less than six hours of sleep. The less than optimal sleeping hours could be due to long hours and on calls. More than two-thirds of physicians rated their stress as moderate to severe.

For traffic safety, the local legislation mandates seat belt use for drivers and front seat passengers, but it is not enforced. We found that most physicians do not practice safe traffic habits; around half of them used mobile phones while driving and did not wear seatbelts.

This is the first nationally representative study, to our knowledge, to report on the health of physicians in Saudi Arabia. We have shown that Saudi doctors are in need of adopting healthier lifestyle habits, as their health also influences patients' health practices. While women are doing better than men in some aspects, such as smoking, they all must improve their lifestyle practices to lower the burden of non-communicable diseases and complications.

## 5.2 Limitations

Limitations include our reliance on self-reporting physicians, who might have reported inaccurate data because of poor recall or social acceptability bias. Another is the questionnaire distribution method, which raises the concern of self-selection bias, and may have added to the lower-than-anticipated response rate. Also, there are some areas of health that we have not tested, e.g., preventive medicine and screening measures.

## 5.3 Recommendation

We recommend developing programs in our healthcare systems that encourage practicing physicians to maintain their health and healthy practices, as well as programs for mental health that help doctors adapt to and recover from the stress of training or the clinical environment. Also, we recommend that our hospitals and clinics be more job friendly, provide facilities that allow physical activity during work hours, and include healthily balanced cafeterias to encourage proper nutrition.

## 5.4 Conclusion

We have demonstrated that Saudi physicians have good health and practice some healthy behaviors. They have less chronic diseases and smoke less. However, there is room for improvement, as the study revealed some unfavorable lifestyle habits among physicians: elevated rates of obesity

and overweightness, low physical activity, poor diet, less than optimal hours of sleep per night, and high-stress levels.

Poor physician well-being in Saudi Arabia could have an adverse impact on physician-patient interaction. We encourage institutions to be more proactive in improving the health of doctors and healthcare professionals, as we recognize the importance of preventive medicine among the general population. Physician health must be no exception.

## 6. Acknowledgment

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