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Assessing Physical activity and Perceived barriers among physicians in Primary Health Care in Makkah city.Cross sectional 2021

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Abstract*:*

Background

Regular physical activity can play an important role in both the prevention and treatment of cardiovascular disease, hypertension, noninsulin-dependent diabetes mellitus, stroke, some cancers, osteoporosis and depression, as well as improving the lipid profile.' A met analysis of the relation between physical activity and coronary heart disease reported that the relative risk of coronary heart disease death in the least active compared with the most active was 1 9-fold. The magnitude of this relative risk is similar to that of the other important cardiovascular disease risk factors, cigarette smoking, hypertension, and hyperlipidemia.' Despite this evidence, it is estimated that 70% of the English population takes inadequate physical activity compared to 31% who smoke, 30% with a raised serum cholesterol concentration, and 15% who are hypertensive. In the Centers for Disease Control and Prevention (USA) and the American College of Sports Medicine recognized the importance of physical activity and published a public health message recommending that "every adult should accumulate 30 minutes or more of moderate-intensity physical activity on most, preferably all days of the week".Aim of this study: To Assessing Physical activity and Perceived barriers among physicians in Primary Health Care in Makkah city. Cross sectional 2021Methodology: Cross sectional study is conducted at Primary healthcare

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centers in Makkah city, multi stages cluster random sample technique was be applied on the main sectors inside Makkah city in2021. **Results:**the perceived barriers to adherence to physical activity among physicians are 7. Started with lack of time, the majority of participants scored average (40.0%) while $X^2$5.920 while no significant relation was P-value=0.052. The second barrier was social influence, the majority of participants were counted as a weak barrier (65.0%) while X2 112.120 while a significant relation were P-value=0.001. **Conclusion:**Levels of physical activity can be increased and the increase can be maintained for at least two years. Interventions that encourage walking and do not require attendance at a facility are most likely to lead to sustainable increases in overall physical activity. Regular follow up, which need not be time consuming and expensive, improves the proportion of people able to maintain initial increases.

Keywords: Assessing, Physical Activity, Barriers, Primary Health Care, Makkah, Saudi Arabia

1. Introduction

Physical activityand sedentary behaviors are health behaviors often assessed in clinical research.[1,2]Activity level is associated with musculoskeletal coordination, sensorimotor integration, and neuromata skills in children and adult , each an essential factor for physical and cognitive development.[3] Further, children's social competencies and wellbeing are enhanced through participation in active sports and play.[4] The detrimental effects of a sedentary lifestyle on development, current and future health have gained increasing attention in the past decade with numerous interventions directed at promoting a healthy level of PA in combination

Physical activity defined as anybody movement produced by skeletal muscles that need energy spending inclusive of actions take on working, playing, running, home chores, traveling, and involving in recreational pursuits, the regular Physical activity has marked usefulness for health.[5]

Globally, the lack of Physical activity was on the 4th leading cause of death by 6% [6,7]. That make the World Health Organization (WHO) to recommend the adults aged 18–64 years "to do at least 150minutes of moderate-intensity aerobic physical activity weekly or at least 75 minutes of vigorous-intensity aerobic physical activity weekly or an equivalent combination of moderate and vigorous intensity activity" in order to improve health and decrease cardiorespiratory and muscular diseases and to reduce the risk of NCDs and depression[8]

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Commonly measurement of PA include direct measures of metabolism or energy expenditure(e.g. doubly labeled water technique),physiological measures (e.g. heart rate) or objective monitoring of motion (e.g. pedometers, step activity monitors, or accelerometers). Objective monitoring devices are commonly used to assess absolute motion performed by the individual during specified time periods by detecting bodily acceleration signals.[9] These tools provide reliable assessments of motion related to energy expenditure, but are limited by inconsistencies in methods used to score and analyze resultant data, a lack of standardized cut-points that reflect meaningful differences in motion among physicians, and by the cost, burden and compliance issues associated with their use.2,6 Further, such motion detection devices do not adequately measure physical activities performed with restricted motion such as during force production (e.g., weight lifting) or activities that promote flexibility [10]

Although Most of our population knew the benefits of regular Physical activity , a large number of them have barriers to practice daily exercise specially workers. These barriers can be internal barriers or personal causes such as (not liking Physical activity , not seeing its usefulness, feeling lazy, or thinking that they are not competent in this type of activities). Or external barriers such as (lack of time, lack of resources, lack social support, stressful work or loss of energy)[11]

The strong association between physical activity and psychological and physiological benefits which lead to increase the quality of work among physicians . To improve the quality of life of physicians , to find the barriers and work to control them. [12]

Despite the important role of the physicians at primary health care in health promotion counseling for physical activity they report difficulties in recommending measures that can not apply to themselves due to Internal and external barriers.[12]

According to their long working hours sitting on the same place inactive, physicians in PHCs can be motivated to move and reduce the risk of inactivity issues. Due to lack of evidence about level of Physical activity among physicians working in PHCs in Makkah, this study will help to assess the level of Physical activity among them.[13]

Literature Review

In Saudi Arabia, there are significant moves toward healthy lifestyles; the MOH has launched several healthy activity initiatives that include a walking challenge and a program called "know your numbers" which aims to raise awareness about the importance of knowing and monitoring four vital signs that affect an individual’s health: blood glucose, blood pressure, waist

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circumference, and BMI [14,15]. There are initiatives to build more gyms and walking areas in many Saudi regions. Few gyms operate for 24 hours, which can be helpful for physicians to have time to exercise outside of their work schedules. Likewise, physicians should model healthy lifestyle choices, including a good diet, physical activity levels, and adequate sleep. [16]

WHO stresses that promotion of physical activity ought to be a vital public health objective[17] Overweight and obesity are measure currently a world epidemic, with over one in 5 individuals qualifying as overweight worldwide. [18] These conditions are measure in the middle of excessive rates of non-communicable diseases associated with overweight, like type 2 diabetes mellitus, hypertension, and cardiovascular diseases.[19]

The most of systematic review has shown that there is generally low Knowledge about the relation between not practical the physical activity and risk of Type 2 Diabetes among Adults with Visiting the Outpatient Clinics at Tertiary Hospital also about the risk factors and its complications among the Saudi population in particular [20]. Most diabetes mellitus patients had low to moderate knowledge scores in Riyadh, Jeddah, Al Hasa, Al-Khobar, and Mecca. Also unexpectedly, health professionals in Saudi Arabia also had low knowledge scores about diabetes mellitus especially type 2.(21,22) We found a significant association between prolonged sitting, lack of resources, and fear of injuries. High BMI was significantly correlated with a lack of resources, too. Age had no significant correlation with barriers to physical activity. However, in some global studies, age was an important variable in predicting physical activity patterns as younger medical students were much more physically active than older ones [23]. study in Riyadh showed a significant association between age, gender, and lack of time [24]. In Australia, a study published in 2020 showed a significant association between sitting hours and lack of time for exercise [25]. In a study conducted recently among physicians and nurses in Egypt, there was a significant correlation between specialty and lack of time [26].

Rationale

Although more intense and longer durations of physical activity correlate directly with improved outcomes, even small amounts of physical activity provide protective health benefits. the authors focus on “healthy physical activity” with the emphasis on the pathophysiological effects of physical inactivity and physical activity on the cardiovascular main barriers against patients' knowledge, attitude and practice of physical activity will enable primary care physicians to provide proper health education and counseling to their used physical activity , which will

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reflect into better diabetes control and prevention of diabetes-related complications, The researcher noticed that most diabetic patients wrongly think that physical activity is harmful to them and tend to avoid exercise for fear of hypoglycemia.

This study aim:Assessing Physical activity and Perceived barriers among physicians in Primary Health Care in Makkah city. Cross sectional 2021.

Methodology

Study Design

Cross sectional study .

The study population includes all physicians serving at PHCs affiliated to MOH in Makkah city. Physicians on vacation are excluded from the study.

Among the 43 primary health care centers in Makkah, we used the Multi stages cluster random sampling by divided all PHCs in Makkah to 7 sectors and randomly choose 19 primary health care center. All data was coded in accordance with the guidance set out in the IPAQ analysis tool. The total number of physicians in PHCs in Makkah city was around 2000. The overall response rate was 28%. We calculate the sample size by using Openepi online site. Our study subjects were 200 in confidence interval 95%.

Data collection has be through 2 questionnaires: one is The International Physical Activity Questionnaire (IPAQ) used to measure the level of PA, the other one is Barriers to Being Active Quiz (BBAQ) is from Center of diseases control and prevention (CDC) used to perceive barriers. beside the socioeconomic status.

The IPAQ short form is an instrument designed primarily for population surveillance of physical activity among adults (age range 30–<50 years). This version provides detailed information for evaluation purposes. The reliability and validity of the questionnaire were first tested across 12 countries (14 sites) in 200. The findings suggest that it has acceptable properties for use in many settings and in different languages and is suitable for national population-based prevalence studies of participation in physical activity

The short form of IPAQ used in the present study has 7 items providing information on time spent walking, in vigorous and moderate- intensity physical activities and in sedentary activity during the previous 7 days. IPAQ defines moderate physical activities as those that produce a moderate increase in respiration rate, heart rate and sweating for at

least 10 min duration. This is equivalent to 3–6 metabolic equivalents (MET) based on the compendium of physical activity.

Vigorous physical activities are defined as those producing vigorous increases in respiration rate, heart rate and sweating for at least 10 min duration. The metabolic equivalent value is above 6 MET. Before participants had answered the questions, they were asked to think about all the vigorous and moderate activities that they had done in the previous 7 days during work, transport, household, yard/garden and leisure/sports.

The BBAQ is validated in terms of reproducibility and used internationally. It is a 21-item scale that provides a measure of 7 self-reported barriers to being physically active.

Every question of the total 21 has 4 choices (very likely, somewhat likely, somewhat unlikely, very unlikely) and each choice has score (3,2,1,0) respectively. The 7 main barriers are (lack of time, social influence, lack of energy, lack of willpower, fear of injury, lack of skill, lack of resources). after calculation of score, we can determine the main barrier of physical activity for every participant. Study variables

The level of PA among doctors: There were 4 levels of PA (vigorous, moderate, low, and no activity), Barriers against PA (lack of time, lack of energy, lack of resources, lack of willpower, lack of skill, lack of support or social influence, and fear of injury) are identified as dependent variables. While The socio-demographic “gender, age, height, weight, nationality, social status, specialty, work experience, income, history of chronic diseases, history of smoking or substance use and gym membership” are independent variables.

2.9 Data entry and analysis

Data entry has be done by using (SPSS) statistical program for social sciences with a version 25. Descriptive statistics has be calculated, in the form of frequencies and percentages for qualitative variables and mean and standard deviations for quantitative variables.

Chi square test has be applied to test significance difference of categorical variables, while Independent sample t-test and has applied to test significance difference scores between quantitative variables.

Statistical significance has be considered when p-value is less than 0.05.

2.10 Ethical consideration

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All necessary official approvals havebeen fulfilled before start of data collection. An informed consent was in the first page of the electronic questionnaire. Collected data will be dealt with confidentially.

2.11 Budget

This study is self-funded.

3. Results

Table (1): distribution of the demographic and job characteristics of the sample population (n=200) are shown

	N	%
Age		
<30	38	19
30-40	70	35
40-50	22	11
>50	70	35
Gender		
Male	96	48
Female	104	52
Nationality		
Saudi	166	83
Non-Saudi	34	17
Marital status		
Single	50	25
Married	132	66
Divorced	8	4
Widow	10	5
BMI		
Underweight	26	13
Normal weight	84	42
Overweight	46	23
Obese	44	22
Specialty		
General Physician	46	23
Family Medicine Specialist	58	29
Family Medicine Consultant	60	30
Others	36	18
Work experience		
1-4.	70	35
4-7.	44	22

7-10.	60	30
>10	26	13
Income		
<10000	14	7
10000-15000	38	19
15000-20000	80	40
>20000	68	34

Table 1 show characteristics of the sample population (n=200) shown in Table 1 The age of the participants the most of the participants from 30 to 40 were (35.0%) years and also >50 were 35.0% Regarding gender the majority of the study participants were females (52.0%) while the males were only (48.0%). Regarding the nationality Saudi physicians were (83.0%) and non-Saudi were (17.0%). Approximately 66.0% of the samples were married. Regarding the BMI the most of participant were Normal weight (42.0%) the overweight participants were 23.0% . Regarding the specialty the most of participent were Family medicine Consultant (30%.0) Family medicine resident were (29.0%) Most of the physicians in the study had an experience for 7-10 years .The majority had more than 15000 to 20000 Saudi riyals monthly (40.0%).

Table (2)distribution of the demographic and job characteristics of the sample population are shown

	N	**%**
Other business		
Yes	24	12
No	176	88
Chronic disease		
Yes	38	19
No	162	81
Smoking		
Regularly	22	11
Occasionally	40	20
Ex-smoker	16	8
Never smoked	122	61
Gym membership		
Yes	50	25
No	150	75
Vigorous physical activity		
Yes	78	39
No	122	61
Moderate physical activity		
Yes	78	39
No	122	61

Walking		
Yes	144	72
No	56	28

Regarding Other business the most of participant No were (88.0%), regarding the Chronic disease No were(81.0%) but regarding smoking the majority of participant Never smoked were (61.0%), More than half of the sample (75.0%) were not gym members while the gym members were only (19.0%). Regarding Vigorous physical activity the majority of participant No were (61.0%) alsothe Moderate physical activity the majority of participant No were (61.0%) while walking the majority of participant Yes were (72.0%)

Table (3) distribution of the Characteristics of the study participants in relation to barriers toward practice of physical activity among physicians in Primary Health Care

		Data			Chi-square	
		Weak	**Average**	**High**	**X^2**	**P-value**
Lack of time	**N**	68	80	52	5.920	0.052
	%	34.00%	40.00%	26.00%		
Social influence	**N**	130	62	8	112.120	<0.001*
	%	65.00%	31.00%	4.00%		
Lack of energy	**N**	86	54	60	8.680	0.013*
	%	43.00%	27.00%	30.00%		
Lack of willpower	**N**	72	76	52	4.960	0.084
	%	36.00%	38.00%	26.00%		
Fear of injury	**N**	162	24	14	205.240	<0.001*
	%	81.00%	12.00%	7.00%		
Lack of skills	**N**	158	20	22	187.720	<0.001*
	%	79.00%	10.00%	11.00%		
Lack of resources	**N**	48	74	78	7.960	0.019*
	%	24.00%	37.00%	39.00%		
Total	**N**	92	46	62	16.360	<0.001*
	%	46.00%	23.00%	31.00%		

Table 3show the perceived barriers to adherence to physical activity among physicians are 7. Started with lack of time, the majority of participants scored average (40.0%) while $X^2$5.920 while no significant relation were P-value=0.052. The second barrier was social influence, the majority of participants were counted as a weak barrier (65.0%) while X2 112.120 while a significant relation were P-value=0.001. Regarding the lack of energy among participants, the

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majority were weak scores (34.0%) while X2 8.680 while a significant relation were P-value=0.001. Regarding the lack of willpowermost of the participants had average score were(38.0%) while $X^2$4.960 while no significant relation were P-value=0.084, About the fear of injury there were (81.3%) of the participants weak scores $X^2$205.240 while a significant relation were P-value=0.001. More of the half of the sample (79.0%) considered the lack of skills as a weak barrier although.$X^2$7.960 while a significant relation were P-value=0.019. The last barrier was lack of resources, about (31.0%) of the participants assuming it as a high barrier and. $X^2$16.360 while a significant relation were P-value=0.002.

Figure (1) Distribution of the Characteristics of the study participants in relation to barriers toward practice of physical activity among physicians in Primary Health Care

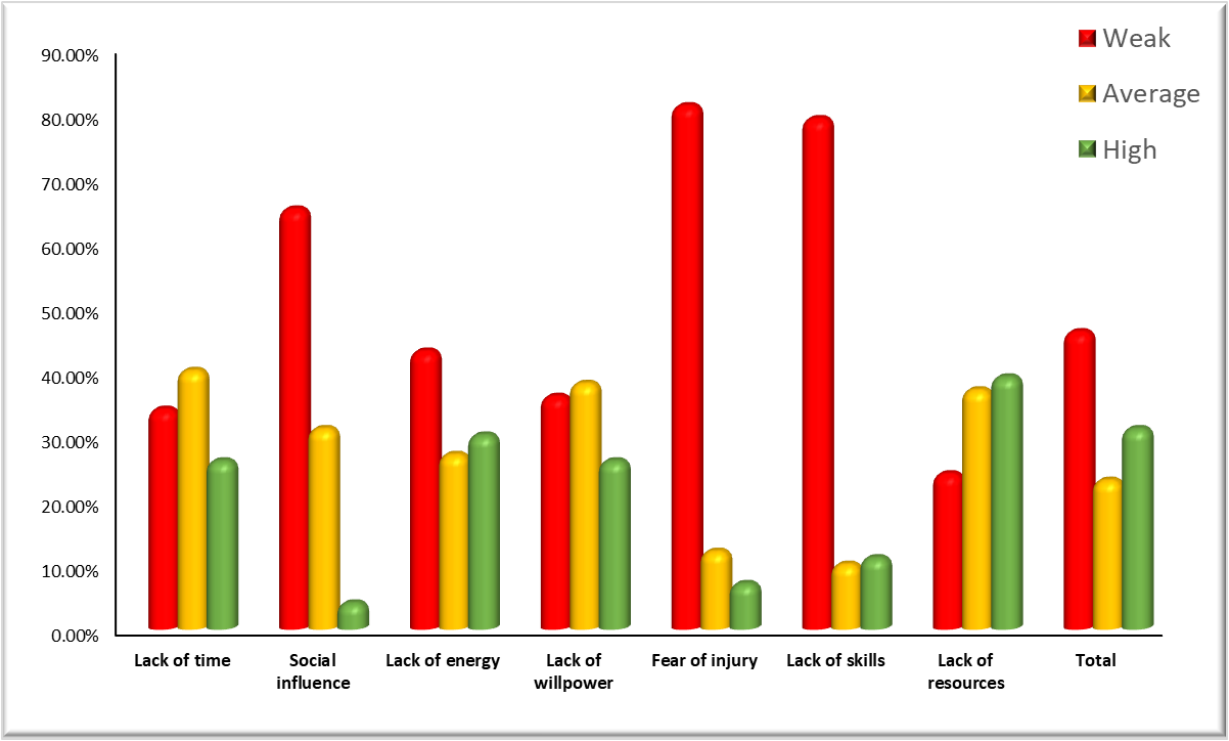

Table (4) distribution of the Characteristics of the (socio-demographic data) of the study participants and relation toward practice of physical activity among physicians in Primary Health Care

		Total		Total						Chi-square	
				Weak		Average		High			
		N	%	N	%	N	%	N	%	X^2	P-value
Age	<30	38	19	41	44.57	10	21.74	10	16.13	72.673	<0.001*
	30-40	70	35	30	32.61	20	43.48	6	9.68		
	40-50	22	11	14	15.22	10	21.74	7	11.29		

	>50	70	35	7	7.61	6	13.04	39	62.90		
Gender	**Male**	96	48	51	55.43	21	45.65	22	35.48	5.962	0.051
	Female	104	52	41	44.57	25	54.35	40	64.52		
Nationality	**Saudi**	166	83	39	42.39	15	32.61	7	11.29	17.027	<0.001*
	Non-Saudi	34	17	53	57.61	31	67.39	55	88.71		
Marital status	**Single**	50	25	41	44.57	15	32.61	7	11.29	36.848	<0.001*
	Married	132	66	12	13.04	5	10.87	19	30.65		
	Divorced	8	4	13	14.13	10	21.74	26	41.94		
	Widow	10	5	26	28.26	16	34.78	10	16.13		
BMI	**Underweight**	26	13	48	52.17	21	45.65	6	9.68	38.039	<0.001*
	Normal weight	84	42	11	11.96	8	17.39	8	12.90		
	Overweight	46	23	20	21.74	7	15.22	19	30.65		
	Obese	44	22	13	14.13	10	21.74	29	46.77		
Specialty	**General Physician**	46	23	12	13.04	16	34.78	40	64.52	97.696	<0.001*
	Family Medicine Specialist	58	29	20	21.74	1	2.17	19	30.65		
	Family Medicine Consultant	60	30	41	44.57	6	13.04	1	1.61		
	Others	36	18	19	20.65	23	50.00	2	3.23		

Table (4) regarding assessing the relationship between physicians socio demographic characteristics and physical activity characteristics there is a significant relation between age and physical activity while p-value=0.001, X^2 72.673 (increase in the age<30 in weak were (44.57%) and It is high in the age >50 years were(62.90), regarding gender no a significant relation between age and physical activity while p-value=0.051, X^2 5.962, regarding the Nationality there is a significant relation between nationality and physical activity while p-value=0.001, X^2 17.027 (increase in the Saudi in weak were (83.0%) and It is high in non-Saudi were 967.390, among BNI there is a significant relation between BMI and physical activity while p-value=0.001, X^2 38.039 (increase in the Underweight in high were (45.65%), regarding Specialty, a significant relation between Specialty physical activity while p-value=0.001, X^2 97.696 (increase in the Family Medicine Consultant in average were (44.57%),

Discussion

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The current study aim to determine the level and barriers against of physical activity among physicians working in primary health care of Makkah city also the study confirmed the presence of weak physical activity prevalence among physicians working in primary health care.

Throughout the years, physical activity has been proven to be beneficial physiologically and psychologically.[27] Researches have demonstrated the advantages of regular physical activity in preventing non-communicable diseases and promoting healthy lifestyle.[28] Some of the benefits of physical activity include the prevention of high blood pressure, stroke, cardiovascular diseases, diabetes mellitus, hypercholesterolemia, and obesity.[25] Moreover, few studies have shown that physical activity helps enhance psychological and cognitive function in adults.[29]

Based on our results, the prevalence of physicians who were physically active was approximately 74.6%. These physicians were found to do low to vigorous physical activities regularly. In other countries, lower findings were exhibited. [19] In a survey was carried out in Canada which reported that 30% of the participating physicians were physically active.[19]

This study showed that physical activity and Perceived barriers among physicians in primary health care were less physically active , as estimated by both time spent in physical activity and minutes above flex heart rate. The results from this study also allowed an insight into patterns of exercise and perceived barriers to exercise.[30] The differences in the way time was spent in physical activity were mostly due to time spent in physical activity at work and in recreation. A further increase in activity at home and in leisure would be expected if other factors were equal, but this did not happen. In the USA it has been noted that a larger proportion of those with disabilities do not engage in leisure time physical activity compared with those without disabilities.[31]

Similar a much lower percentage of 16% physically active doctors among 616 employed in the Faculty of Medicine at An Shams University, Cairo, Egypt were reported.19 In Bahrain, a study presented that only 29% of the physicians included in the survey were physically active.[22]

In fact, some studies have stated that the general population was found to be more physically active than physicians.21Comparable to our findings, a recent study in Saudi Arabia found that 65.2% of physicians do moderate to vigorous physical activity, with only 34.8% of the physicians whom were inactive.[30] A study conducted in Australia also found that 70% of doctors and medical students were physically active, which was considered higher than 30% activity of the general public.[20]In our study the perceived barriers to adherence to physical

activity among healthcare professionals. Started with lack of time, the majority of participants scored average (40.0%) while $X^2$5.920 while no significant relation were P-value=0.052. The second barrier was social influence, the majority of participants were counted as a weak barrier (65.0%) while X2 112.120 while a significant relation were P-value=0.001. Regarding the lack of energy among participants, the majority were weak scores (34.0%) while X2 8.680 while a significant relation were P-value=0.001. Regarding the lack of willpowermost of the participants had average score were(38.0%) while $X^2$4.960 while no significant relation were P-value=0.084, About the fear of injury there were (81.3%) of the participants weak scores $X^2$205.240 while a significant relation were P-value=0.001. More of the half of the sample (79.0%) considered the lack of skills as a weak barrier although.$X^2$7.960 while a significant relation were P-value=0.019. The last barrier was lack of resources, about (31.0%) of the participants assuming it as a high barrier and. $X^2$16.360 while a significant relation were P-value=0.002.

(see table 3), similar the another study found main perceived barriers to being active were lack of energy, the lack of willpower, the lack of time, and lack of resources. The lack of energy was reported as the first barrier, which was significantly higher among female's healthcare professionals compared to males, our study finding consistent with studies conducted in Saudi Arabia and Greece revealed females physically inactive compared to males. [31]

Another study conducted in Saudi Arabia demonstrated that females more active than males.36 there was limited evidence that explains the difference in physical activity behaviour among males and females. There were previous studies reported that lack of energy, lack of willpower, lack of time, and lack of resources as the main perceived barriers to being active.[29]

Conclusion

This study aimed to Assessing Physical activity and Perceived barriers among physicians in Primary Health Care in Makkah city. Cross sectional in 2021 . Even though Saudi Arabia is trying to increase awareness of healthy lifestyle choices among all residents, most physicians were not physically active, according to our study. The main barriers to physical activity were lack of time and resources. Gender, nationality, specialty, and income had a significant association with barriers to physical activity. Long periods of sitting significantly correlated with fear of injuries and lack of resources for physical activity. Physicians are health role models for the population and the representative face of the healthcare system. Physicians should be

encouraged and motivated to be physically active to model healthy choices for patients and the general population.

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