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Original Article

Barriers to Participation in Physical Activity and Exercise among Primary Health-Care's Physicians Al-Ahsa, KSA

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Abstract

Objective: The aim of the study is to understand the barriers and their types that prevent primary health-care (PHC) physicians from practicing physical activity to help develop programs that promote physical activity among physicians and improve their health and quality of life.

Background: Physical activity is a major component in maintaining our health, and regular physical activity is linked with an improvement of the quality of life. Unfortunately, Saudi population have adopted an inactive lifestyle and few studies have been conducted to study physical activity barriers among physicians

Methodology: This was a cross-sectional study. Data have been collected over 2 months using a validated self-administered questionnaire about physical activity barriers among physicians. This study included 203 PHC physicians working in PHCs in Al-Ahsa Governorate.

Results: A total of 177 PHC physicians completed the questionnaire, and the response rate was 87.6%. 28% of the participants walk <60 min/week, 25% walk between 60 and 120 min/week, 22% walk for 150 min or more per week, and 25% do not perform any activity. Gender and body mass index were found to have a significant association with physical activity. The main five barriers reported in our study are inconvenient weather, "working hours were too long," "job was demanding and felt exhausted afterward," lack of facilities, and family commitment.

Conclusion: Our study concluded that only 25% of physicians perform the recommended weekly activity of the World Health Organization (WHO). Most of the physicians reported many barriers to physical activity. Understanding the barriers by physicians and policymakers could help to develop programs and new public policies that could effectively meet the WHO recommendation and improve the overall health.

Key words: Physical activity, PHC's physicians, Barriers

INTRODUCTION

The World Health Organization (WHO) defines physical activity as "any bodily movement produced by skeletal muscles that require energy expenditure,"[1] while the center of disease control and prevention defines it as "any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level."[2]

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Physical activity is a major component in maintaining our health, and regular physical activity is linked with an improvement of the quality of life.[4,5] Despite significant benefits, the level of practicing physical activity declines among Saudi population which make them at risk of health problems.[6] The WHO recommends regular moderate-intensity physical activity of at least 150 min/weak.[3]

Many studies have been conducted to study physical activity barriers in several countries. In the United Kingdom, a study done by David *et al.* among different age groups revealed that lack of time and lack of motivation were the main barriers.[8] Another study conducted in the UK in the suburban neighborhood showed that barriers preventing participants form practicing in activity classes were cost, child care, lack of time, and low awareness.[9]

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In Colombia, Elkin *et al.* found that lack of willpower (70%) and lack of time (46.2%) were the main reported barriers.[10] Faith *et al.* concluded that the main barriers to physical activity among older adults were fear of injury, dislike to exercise, and no motivation.[11]

In Pelatos, Brazil, a cross-sectional study used the international physical activity questionnaire showed that barrier most frequently reported was lack of money, then followed by feeling too tired.[12] While in Barranquilla, Colombia, Yaneth *et al.* study showed that the most common barrier was lack of motivation, followed by lack of time.[13]

A systematic review was done by Kathleen *et al.* about barriers and facilitators of physical activity among Arabic adults. In the United Arab Emirates of the study showed that limited time, housework, and excessive computer and internet use were significant barriers. Many participants reported that walking in public for females without male escort was not accepted in their culture.[14]

In a study conducted in Saudi Arabia through a quantitative cross-sectional self-administered survey, the findings revealed that lack of energy, willpower, skills, resources, and limited funding to join sports clubs acted as barriers to physical activity. Amin *et al.* reported that traditions are considered the second most common barrier among Saudi adults.[14] Another study done in Saudi Arabia by Alotaibi *et al.* where the sample has been collected from eight health centers in Al-Hasa revealed that the most common perceived internal barriers reported were lack of energy, lack of motivation, and lack of self-confidence.[15]

Working as a physician is stressful and may affect doing physical activity. Khan *et al.*[7] reported that barriers to physical activity among physicians were lack of time, willpower and interest, feeling exhausted after physical activity, and no one to exercise with.

Locally, a cross-sectional study was done in Saudi Arabia[20] among physicians revealed that lack of time, work duties, lack of interest, lack of suitable facilities, hot weather, and chronic illness were the main barriers to practice physical exercise.

A study was done in Aljouf (a city in the north of Saudi Arabia) by Bandary *et al.*[22] about the level of physical activity among primary care physicians showed that 25.3% are participating in mild exercises, 44% in moderate intensity, and 20% in vigorous activity. The physicians that completely inactive were 9%.

The aim of the study is to understand the barriers and their types that prevent primary health-care (PHC) physicians from doing physical activity and to assess physical activity among PHC physicians to help develop programs that promote physical activity among physicians and improve their health and quality of life.

Objectives

The objectives of this study were as follows:

1. To describe perceptions of PHC's physicians in Al-Ahsa about barriers prevent them from practicing physical exercise.
2. To assess physical activity among PHC's physicians in Al-Ahsa.

METHODOLOGY

Study Area and Design

A cross-sectional study was conducted in Al-Ahsa Governorate which is considered the biggest city in the Eastern Province of Saudi Arabia. There are three health sectors in Al-Ahsa Governorate, namely Al-Omran, Al-Hofuf, and Al-Mubarraz health sectors. These health sectors consist of 72 governmental PHC centers operated by the Ministry of Health. These centers were operated during morning and afternoon 5 days a week (Sunday through Thursday).

Population and Sample Size

Our study included all physicians who work in the governmental PHC centers of Al-Ahsa. PHC physicians include general practitioners, family physicians, pediatricians, dentists, obstetricians, gynecologists, general surgeons, and internists. All PHC physicians were included in the study except dentists (203 physicians).

Data Collection

The data were collected through a validated self-administered questionnaire. This questionnaire has been validated in a previous study about barriers for physical activity among Saudi residents conducted by Abdulhai *et al.*[36] and the acceptance to use the questionnaire in our study was taken from the main author.

The information sought in the questionnaire included sociodemographic data in the form of age, gender, marital status, education level, living place, and number of family members. Furthermore, the questionnaire included other questions about body mass index (BMI), chronic health problems, level of physical activity, and internal and external barriers to physical activity.

A pilot study of 15 physicians from 12 PHC centers was conducted to check the understandability and clarity of questions, and all valid comments were taken into consideration in the main survey. The questionnaires were distributed manually to the study participants and checked manually for completeness. The data have been collected over 2 months from January 15 to March 15, 2018.

Statistical Analysis

Data were entered and analyzed into the Statistical Package for the Social Sciences version 21. Frequencies and descriptive analysis were applied to all the demographic variables such as age, gender, level of education, socioeconomic status, and BMI. Chi-square test was applied to all the categorical variables such as the statements on internal and external barriers regarding physical activity. A measure of association was seen between each demographic variable and all dependent variables through analysis of variance. $P < 0.05$ was considered statistically significant.

Ethical Considerations

An official ethical approval permitting data collection from physicians has been obtained from the Ethical Committee of King Fahad Hofuf Hospital. The survey was anonymous, and all the collected data have been kept confidential. The study participants have been informed through the questionnaire about the purpose of the study and that their participation is voluntary.

RESULTS

Pilot Study Results

The pilot study was conducted before starting the data collection, and internal consistency of the questionnaire was checked by running Cronbach's alpha. The questionnaire was distributed among 15 consultants working at random PHC centers and data were then entered into the SPPS for analysis. The results showed that the Cronbach's alpha was found to be 0.839 for pre-distribution and 8.40 for post distribution which is considered as good.

Table 1: Sociodemographic data

Age (years)	*n* (%)
25–40	141 (80)
41–55	32 (18)
>55	4 (2)
Gender	
Male	114 (64)
Female	63 (36)
Nationality	
Saudi	124 (70)
Syrian	4 (2)
Egyptian	22 (12)
Pakistani	10 (6)
Indian	3 (2)
Nigerian	2 (1)
Sudani	11 (6)
Quba	1 (1)
Body mass index	
<20	11 (6)
20–24.9	55 (31)
25–29.9	63 (36)
30–34.9	34 (19)
>35	14 (8)
Level of education	
General practitioner	132 (75)
Specialist	41 (23)
Consultant	4 (2)
Marital status	
Married	155 (88)
Single	22 (12)

Pre-results			
Reliability statistics	**Cronbach's alpha**	**Mean±SD**	**Total items**
Reliability results	0.839	89.53± 11.01	24

Post-results			
Reliability statistics	**Cronbach's alpha**	**Mean±SD**	**Total items**
Reliability results	0.840	109.267± 10.453	24

The Study Results

The results suggest that 177 participants consented to the study and completed the questionnaire [Table 1]. The response rate was 87.6%. Of all the participants, 64%

Table 2: Physical activity level

Physical activity	*n* (%)
Walking of<60 min/week	49 (28)
Walking between 60 and 120 minutes per week	45 (25)
Walking of 150 min and more per week	39 (22)
No activity	44 (25)

Table 3: Association between physical activity and demographic factors

Variables	Physical activity		*P* value
	Not active	active	
Age groups (years)			
25–40	110	31	0.52
41–55	24	8	
>55	4	0	
Gender			
Male	83	31	0.01
Female	55	8	
Nationality			
Saudi	94	30	0.15
Non-Saudi	44	9	
Body mass index			
<20	11	0	0.04
20–24.9	38	17	
25–29.9	50	13	
30–34.9	25	9	
>35	14	0	
Ranking			
General practitioner	99	33	0.06
Specialist	36	5	
Consultant	3	1	
Marital status			
Single	20	2	0.09
Married	118	37	

Table 4: Percentage of respondents toward internal and external barriers

Statements	SA (%)	A (%)	N (%)	D (%)	SD (%)
Internal barriers					
Find it inconvenient to exercise	2	11	11	38	38
Lack of self-motivation	4	22	16	37	21
I fear being injured or have been injured recently	1	6	4	44	44
I find exercise boring	2	6	8	43	41
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	-	6	12	36	46
I lack confidence in my ability to be physically active	1	7	9	39	44
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	3	17	19	39	21
I lack encouragement, support, or companionship from family and friends	7	25	12	35	20
I simply do not know how to be physically active	1	6	8	38	46
It is not a cultural thing, so I do not do it	3	11	8	36	42
I am too lazy	7	15	16	33	28
I feel too old for doing exercise	-	2	3	41	55
I do not have the skills required for doing sports	1	10	10	38	40
I have a health condition that does not allow me to do physical activities	2	3	3	33	59
I do not do it for religious reasons	-	1	2	25	72
I do not think it is beneficial for health	1	1	1	20	77
External barriers					
I do not have the means to access a sporting facility (e.g., no car, too expensive considering my income)	2	14	10	39	34
There are no facilities near my residence (gyms, parks, or safe place for walking and jogging)	12	34	8	25	20
Mostly the weather is not convenient for walking or doing physical activity	26	40	17	11	5
My working hours are too long I cannot do extra activities during the day	25	38	14	18	5
I work night shift, and it is affecting to do physical activities	1	8	11	46	34
My work requires traveling a lot, and I cannot commit	1	2	15	47	35
Family obligation I do not find enough and time energy for myself to do physical activity	18	27	19	26	10
My job is so demanding physically I feel exhausted afterward	19	27	19	25	10

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Table 5: Percentage of respondents toward internal and external barriers

Statements	SA+A (%)	N (%)	D+SD (%)
Internal barriers			
Find it inconvenient to exercise	13	11	76
Lack of self-motivation	26	16	58
I fear being injured or have been injured recently	7	4	88
I find exercise boring	8	8	84
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	6	12	82
I lack confidence in my ability to be physically active	8	9	83
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	20	19	60
I lack encouragement, support, or companionship from family and friends	32	12	55
I simply do not know how to be physically active	7	8	84
It is not a cultural thing, so I do not do it	14	8	78
I am too lazy	22	16	61
I feel too old for doing exercise	2	3	96
I do not have the skills required for doing sports	11	10	78
I have a health condition that does not allow me to do physical activities	5	3	92
I do not do it for religious reasons	1	2	97
I do not think it is beneficial for health	2	1	97
External barriers			
I do not have the means to access a sporting facility (e.g., no car, too expensive considering my income)	16	10	73
There are no facilities near my residence (gyms, parks, or safe place for walking and jogging)	46	8	45
Mostly the weather is not convenient for walking or doing physical activity	66	17	16
My working hours are too long I cannot do extra activities during the day	63	14	23
I work night shift, and it is affecting to do physical activities	9	11	80
My work requires traveling a lot, and I cannot commit	3	15	82
Family obligation I do not find enough and time energy for myself to do physical activity	45	19	36
My job is so demanding physically I feel exhausted afterward	46	19	35

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

were male and 36% were female, and 88% of them were married. The majority (80%) of the participants were between the age of 25 and 40 years followed by 18% who belonged to 41–55 years' age group. The BMI of most of

the participants (36%) was found to be overweight, whereas 31% were normal weight followed by 19% who belonged to obesity Class I. Almost 70% of the subjects were Saudi citizens followed by 12% Egyptian and 6% Pakistanis and Sudanese, respectively. Of all the participants, 75% were general practitioners, 23% were specialists, and 2% were consultants.

Regarding physical activity, 28% of participants walk <60 min/week, 25% walk between 60 and 120 min/per week, 22% walk for 150 min or more per week, and 25% perform no activity [Table 2].

Association between physical activity and demographics was analyzed [Table 3] and the results suggest that gender ($P = 0.01$) and BMI ($P = 0.04$) were found to have a significant association with physical activity. However, age groups ($P = 0.52$), nationality ($P = 0.15$), ranking ($P = 0.06$), and marital status ($P = 0.09$) have no significant association.

The percentage of the respondents toward internal barriers and external barriers on a Likert scale is shown in Tables 4 and 5. Overall, there were 16 items in internal barriers domain and eight in external barriers domain [Tables 5 and 6]. Majority of the responses were toward disagreement side on internal barrier scale. For instance, of the total, 77% strongly disagree that it is not beneficial for the health. Similarly, 72% strongly disagreed that religion could be a factor for not doing exercises. Furthermore, 59% also strongly disagreed that health condition does not allow them to do physical activities and 55% showed strong disagreement that they feel too old to do physical activities.

While responses for external barriers, they were unequally distributed for all statements. For example, 40% gave agreement that the weather is not convenient for walking or doing physical activity and 38% were pointing out that they were very busy in job, thus not have enough time. However, almost half of the respondents disagree that they cannot do physical activity because of night work shift or that their work requires traveling a lot. Other responses depicted mix responses and varied among different agreements.

The statistical test (Chi-square) was performed to compare different categories of age with internal barriers, and of all 16 items, 15 components were found be insignificant [Table 7]. Only one item, that is, lack of encouragement, support, or companionship from family or friends was found to be significant with $P = 0.02$.

In relation to the 16 items, the Chi-square results between gender and internal barriers were found to be significant

Table 6: Internal and external barriers

SN	Statements
	Internal Barriers
1	Find it inconvenient to exercise
2	Lack of self-motivation
3	I fear of being injured or have been injured recently
4	I find exercise boring
5	I am embarrassed and self-conscious about my body. I do not like to exercise around other people
6	I lack confidence in my ability to be physically active
7	I lack self- management skills, such as the ability to set personal goals, monitor progress or reward progress towards such goals
8	I lack encouragement, support or companionship from family and friends
9	I simply do not know how to be physically active
10	It is not a cultural thing so I do not do it
11	I am too lazy
12	I feel too old for doing exercise
13	I do not have the skills required for doing sports
14	I have health condition that does not allow me to do physical activities
15	I do not do it for religious reasons
16	I do not think it is beneficial for health
	External Barriers
1	I do not have the means to access a sporting facility (e.g. no car, too expensive considering my income)
2	There are no facilities near my residence (gyms, parks or safe place for walking and jogging)
3	Mostly the weather is not convenient for walking or doing physical activity
4	My working hours are too long I cannot do extra activities during the day
5	I work night shift and it is affecting to do physical activities
6	My work requires travelling a lot and I cannot commit
7	Family obligation I do not find enough and time energy for myself to do physical activity
8	My job is so demanding physically I feel exhausted afterwards

Table 7: Association between age and internal barriers

Internal Barriers Age	SA			A			N			D			SD			Pearson Coefficient
Age groups	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	
I lack encouragement, support, or companionship from family and friends	8	5	0	39	5	0	20	2	0	45	16	1	29	4	3	0.02
Find it inconvenient to exercise	3	1	0	13	5	1	18	1	0	53	14	0	54	11	3	0.43
Lack of self-motivation	7	0	0	33	6	0	21	7	0	49	15	2	31	4	2	0.39
I fear being injured or have been injured recently	2	0	0	9	2	0	5	2	0	60	17	2	65	11	2	0.93
I find exercise boring	4	0	0	5	4	1	13	2	0	62	13	1	57	13	2	0.38
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	0	0	0	8	3	0	20	2	0	51	12	0	62	15	4	0.33
I lack confidence in my ability to be physically active	1	0	0	9	3	0	15	1	0	57	11	1	59	17	3	0.76
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	5	0	0	28	3	0	27	7	0	52	16	1	29	6	3	0.18
I simply do not know how to be physically active	2	0	0	9	2	0	73	2	0	53	14	0	64	14	4	0.67
It is not a cultural thing, so I do not do it	6	0	0	16	3	0	13	2	0	50	12	1	56	15	3	0.83
I am too lazy	12	1	0	23	3	1	24	4	0	44	15	0	38	9	3	0.27
I feel too old for doing exercise	0	0	0	2	1	0	5	0	0	55	16	1	79	15	3	0.74
I do not have the skills required for doing sports	1	0	0	15	3	0	16	3	0	52	14	1	56	12	3	0.93
I have a health condition that does not allow me to do physical activities	3	0	0	4	1	0	4	2	0	45	14	0	85	15	4	0.60
I do not do it for religious reasons	0	0	0	1	0	0	2	2	0	37	8	0	101	22	4	0.59
I do not think it is beneficial for health	1	0	0	1	0	0	0	1	0	27	8	1	112	23	3	0.67

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Table 8: Association between gender and internal barriers

Internal Barriers gender	SA		A		N		D		SD		Pearson Coefficient
Gender	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
I do not have the skills required for doing sports	0	1	7	11	11	8	41	26	55	16	0.01
I have a health condition that does not allow me to do physical activities	3	0	0	5	2	4	40	19	69	35	0.008
Find it inconvenient to exercise	3	1	10	9	9	10	43	24	49	19	0.24
Lack of self-motivation	6	1	22	17	21	7	40	26	25	12	0.35
I fear being injured or have been injured recently	2	0	7	4	5	2	48	31	52	26	0.75
I find exercise boring	3	1	9	1	10	5	48	28	44	28	0.48
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	0	0	6	5	17	5	38	25	53	28	0.46
I lack confidence in my ability to be physically active	1	0	8	4	9	7	41	28	55	24	0.60
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	4	1	16	15	23	11	47	22	24	14	0.50
I lack encouragement, support or companionship from family and friends	8	5	24	20	15	7	43	19	24	12	0.59
I simply do not know how to be physically active	2	0	6	5	9	6	41	26	56	26	0.63
It is not a cultural thing, so I do not do it	6	0	15	4	7	8	38	25	48	26	0.10
I am too lazy	12	1	19	8	16	12	35	24	32	18	0.18
I feel too old for doing exercise	0	0	1	2	5	0	45	27	63	34	0.24
I do not do it for religious reasons	0	0	0	1	2	2	25	20	87	40	0.20
I do not think it is beneficial for health	1	0	0	1	0	1	24	12	89	49	0.37

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Table 9: Association between nationality and internal barriers

Internal barriers nationality	SA		A		N		D		SD		Pearson coefficient
Nationality	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	-	-	6	1	21	1	44	19	53	28	0.03
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	5	0	26	5	27	7	46	23	20	18	0.01
I lack encouragement, support, or companionship from family and friends	6	7	34	10	19	3	44	18	21	15	0.04
It is not a cultural thing, so I do not do it	6	0	17	2	14	1	44	19	43	31	0.05
I am too lazy	12	1	19	8	25	3	40	19	28	22	0.01
Find it inconvenient to exercise	2	2	10	9	18	1	47	20	47	21	0.36
Lack of self-motivation	7	0	29	10	22	6	41	25	25	12	0.88
I fear being injured or have been injured recently	2	0	9	2	6	1	50	29	57	21	0.90
I find exercise boring	3	1	5	5	14	1	56	20	46	26	0.38
I lack confidence in my ability to be physically active	0	0	6	5	21	1	44	19	53	28	0.51
I simply do not know how to be physically active	2	0	10	1	11	4	49	18	52	30	0.97
I feel too old for doing exercise	12	0	19	8	25	3	40	19	28	22	0.50
I do not have the skills required for doing sports	0	1	12	6	14	5	50	17	47	24	0.10
I have a health condition that does not allow me to do physical activities	3	0	3	2	5	1	40	19	73	31	1.00
I do not do it for religious reasons	0	0	1	0	2	2	33	12	88	39	0.95
I do not think it is beneficial for health	1	0	1	0	0	1	26	10	96	42	0.98

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

[Table 8] for two items which were I do not have the skills required for doing sports having ($P = 0.01$) and I have a health condition which does not allow me to perform physical activity ($P = 0.008$).

The comparison between nationalities was found to have different results than age group and gender [Table 9]. Of the total 16 items, five items were found to be significant when compared with nationality. The item like, I am embarrassed and self-consciousness ($P = 0.03$), I lack self-management skills to set goals ($P = 0.01$), I lack encouragement, support from family and friends ($P = 0.04$), it's not cultural thing, so I do not do it ($P = 0.05$), and I am too lazy ($P = 0.01$) were significantly associated with nationality.

Regarding the level of education, only one item, that is, lack of motivation was significant ($P = 0.004$) in comparison to total 16 items for internal barriers [Table 10], and as shown in Table 11, BMI was significantly associated with three items of the internal barriers. Lack of motivation ($P = 0.008$), I find exercise boring ($P = 0.01$), and it is not cultural thing, so I do not do it ($P = 0.01$) are the items which have shown statistical significance with BMI. However, rest of the 13 factors were statistically insignificant.

There were four different categories for physical activity as shown in Table 12 and each was compared with 16 items. The overall result of comparison between 16 items and physical activity was statistically significant for four items of 16, that is, lack of self-motivation ($P = 0.008$), I lack encouragement, support, or companionship from family and friends ($P = 0.02$), I am too lazy ($P = 0.01$), and I do not have the skills required for doing sports ($P = 0.001$).

Table 13 shows the comparison between different variables with external barriers. There were total of eight components in external barriers domain, and unlike internal barriers, only three variables were significant with external barriers. On comparison between age group and external barriers, only one item, that is, my working hours are too

Table 10: Association between the level of education and internal barriers

Internal Barriers Level of education	SA			A			N			D			SD			Pearson coefficient
Level of education	GP	Specialist	Consultant	GP	Specialist	Consultant	GP	Specialist	Consultant	GP	Specialist	Consultant	GP	Specialist	Consultant	
Lack of self-motivation	6	0	0	30	8	1	19	9	0	48	17	1	29	7	1	0.004
Find it inconvenient to exercise	2	1	1	14	5	0	14	5	0	52	14	1	50	16	1	0.19
I fear being injured or have been injured recently	2	0	0	7	3	1	6	1	0	59	19	1	58	18	1	0.89
I find exercise boring	4	0	0	6	3	1	10	5	0	59	17	0	53	16	2	0.58
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	0	0	0	5	5	1	17	5	0	48	14	0	62	17	2	0.27
I lack confidence in my ability to be physically active	1	0	0	8	3	1	13	3	0	52	16	0	58	19	2	0.84
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	4	1	0	24	6	1	28	6	0	48	19	1	28	9	1	0.98
I lack encouragement, support, or companionship from family and friends	9	3	1	31	12	1	16	6	0	52	10	0	24	10	1	0.46
I simply do not know how to be physically active	2	0	0	9	1	1	13	2	0	48	19	0	60	19	2	0.62
It is not a cultural thing, so I do not do it	4	1	1	17	2	0	12	3	0	42	19	1	57	16	1	0.26
I am too lazy	11	1	1	24	3	0	23	5	0	39	20	2	35	12	2	0.15
I feel too old for doing exercise	0	0	0	1	2	0	5	0	0	53	19	0	73	20	3	0.47
I do not have the skills required for doing sports	1	0	0	11	7	0	14	5	0	51	16	0	54	13	3	0.66
I have a health condition that does not allow me to do physical activities	3	0	0	3	2	0	3	3	0	41	17	1	82	19	2	0.83
I do not do it for religious reasons	0	0	0	0	1	0	3	1	0	31	14	0	98	25	3	0.69
I do not think it is beneficial for health	1	0	0	1	0	0	0	1	0	24	12	0	106	28	3	0.81

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

long that I cannot do an extra activity ($P = 0.01$) was found to be statistically significant.

The gender was found to be significantly associated with I do not have the means to access sport ($P = 0.000$) and there are no facilities near my residence ($P = 0.00$). Rest of the six external barrier items were not found to be significant (Table 14).

Approximately less than half of the items (Table 15) like the weather is not convenient for walking ($P = 0.02$), my working hours are too long that I cannot do extra activity ($P = 0.00$), and my job is so demanding physically that I feel exhausted afterward ($P = 0.02$) were found to have significant association with nationality.

Table 16 shows the association between physical activity and demographic characteristics. The results suggest that the majority of Saudi, as compared to non-Saudi, do some physical activity ($n = 62$). This further shows significant association ($P = 0.001$) between nationality and physical activity. However, other demographics such as gender and age have no significant relationship with physical activity.

DISCUSSION

The physical activity in our study is defined as walking for at least 150 min/week according to the WHO definition.[1] Based on this definition, the prevalence of physical activity among physicians in our study is 22% [Table 2]. The barriers and facilitators for physical activity need to be recognized since that most of Saudi physicians are physically inactive,[25] major efforts must be taken to encourage physical activity which could reduce the prevalence of obesity and overweight among physicians.

Table 11: Association between body mass index and internal barriers

Internal barriers BMI	SA					A					N					D					SD					Pearson coefficient
BMI	N	I	II	III	IV	N	I	II	III	IV	N	I	II	III	IV	N	I	II	III	IV	N	I	II	III	IV	
Lack of self-motivation	2	1	0	2	2	4	9	12	10	4	4	7	11	6	0	1	21	28	9	7	0	17	12	7	1	0.008
I find exercise boring	1	0	1	0	2	0	0	6	3	1	2	2	6	4	1	7	25	24	16	4	1	28	26	11	6	0.01
It is not a cultural thing, so I do not do it	0	0	2	1	3	0	6	7	5	1	0	3	6	4	2	9	21	20	11	2	2	25	28	13	6	0.01
Find it inconvenient to exercise	1	0	1	0	2	0	3	7	6	3	2	7	6	2	2	5	24	25	10	3	3	21	24	16	4	0.80
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	0	0	0	0	0	1	2	2	4	3	6	10	2	1	3	16	24	14	5	1	2	2	4	3	6	0.39
I lack confidence in my ability to be physically active	0	1	0	0	0	1	2	4	4	1	3	4	7	1	1	5	17	30	12	5	2	31	22	17	7	0.33
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	1	0	2	1	1	6	6	10	6	3	2	12	10	8	2	2	23	27	12	5	0	14	14	7	3	0.22
I lack encouragement, support, or companionship from family and friends	1	2	6	3	1	5	16	11	7	5	2	4	8	7	1	1	20	24	11	6	2	13	14	6	1	0.58
I simply do not know how to be physically active	0	1	0	1	0	1	1	5	3	1	3	6	3	3	0	4	22	27	9	5	3	25	28	18	8	0.50
I am too lazy	2	3	1	4	3	2	5	12	6	2	2	9	11	3	3	3	23	19	11	3	2	15	20	10	3	0.43
I feel too old for doing exercise	0	0	0	0	0	0	0	2	1	0	0	2	2	0	1	5	21	26	14	6	6	32	33	19	7	0.94
I do not have the skills required for doing sports	0	0	1	0	0	5	4	6	2	1	1	8	6	4	0	3	20	22	14	8	2	22	28	14	5	0.12
I have a health condition that does not allow me to do physical activities	0	2	1	0	0	1	0	2	1	1	1	1	1	1	2	2	21	22	11	3	7	31	37	21	8	0.51
I do not do it for religious reasons	1	0	0	0	0	0	2	1	1	0	3	15	15	9	3	7	38	47	24	11	7	38	47	24	11	0.15
I do not think it is beneficial for health	0	1	0	0	0	0	0	1	0	0	0	0	0	1	0	3	15	10	7	1	8	39	52	26	13	0.70
I am too lazy	2	3	1	4	3	2	5	12	6	2	2	9	11	3	3	3	23	19	11	3	2	15	20	10	3	0.43

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree, N: BMI<20, I: BMI 20–24.9, II: 25–29.9, III: 30–34.9, IV: >35

Table 12: Association between physical activity and internal barriers

Internal barriers physical activity	SA				A				N				D				SD				Pearson coefficient
Physical activity level	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	
Lack of self-motivation	1	0	0	5	12	11	1	15	9	6	6	7	16	20	17	10	6	8	14	7	0.008
I lack encouragement, support, or companionship from family and friends	2	3	2	6	15	10	5	14	7	4	4	6	13	18	16	15	7	10	12	3	0.02
I am too lazy	1	3	1	8	8	9	3	7	8	6	5	9	18	15	11	14	9	12	19	6	0.01
I do not have the skills required for doing sports	1	0	0	0	3	6	0	8	2	4	2	11	25	17	14	11	13	18	23	13	0.001
Find it inconvenient to exercise	1	0	1	0	0	3	7	6	2	7	6	2	5	24	25	10	3	21	24	16	0.08
I fear being injured or have been injured recently I find exercise boring.																					
I am embarrassed and self-conscious about my body. I do not like to exercise around other people	0	0	0	0	1	2	2	6	3	6	10	3	3	16	24	20	4	31	27	19	0.39
I lack confidence in my ability to be physically active	0	1	0	0	1	2	4	5	3	4	7	2	5	17	30	17	2	31	22	24	0.33
I lack self-management skills such as the ability to set personal goals, monitor progress, or reward progress toward such goals	1	0	2	2	6	6	10	9	2	12	10	10	2	23	27	17	0	14	14	10	0.22
I simply do not know how to be physically active	0	1	0	1	1	1	5	4	3	6	3	3	4	22	27	14	3	25	28	26	0.50
It is not a cultural thing, so I do not do it	0	0	2	4	0	6	7	6	0	3	6	6	9	21	10	13	2	25	28	19	0.14
I am too lazy	2	3	1	7	2	5	12	8	2	9	11	6	3	23	19	14	2	15	20	13	0.43
I feel too old for doing exercise	0	0	0	0	0	0	2	1	0	2	2	1	5	21	26	20	6	32	33	26	0.94
I do not do it for religious reasons	0	0	0	0	1	0	0	0	0	2	1	1	3	15	15	11	7	38	47	35	0.15
I do not think it is beneficial for health	0	1	0	0	0	0	1	0	0	0	0	1	3	15	10	8	8	39	52	39	0.70

I: Walking of<60 min/week, II: Walking between 60 and 120 min/week, III: Walking of 150 min and more per week, IV: No activity, SA: strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Table 13: Association between age and external barriers

External barriers age	SA			A			N			D			SD			Pearson Coefficient
Age groups	Age in years			Age in years			Age in years			Age in years			Age in years			
	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	25–40	41–55	>55	
My working hours are too long I cannot do extra activities during the day	33	11	0	56	7	4	24	1	0	21	11	0	7	2	0	0.01
I do not have the means to access a sporting facility (e.g., no car, too expensive considering my income)	4	0	0	21	4	0	16	1	0	50	18	2	50	9	2	0.47
There are no facilities near my residence (gyms, parks, or safe place for walking and jogging)	20	2	0	46	14	0	11	4	0	34	7	3	30	5	1	0.27
Mostly the weather is not convenient for walking or doing physical activity	37	9	0	59	10	2	25	6	0	12	7	1	8	0	1	0.13
I work night shift, and it is affecting to do physical activities	2	0	0	11	2	1	18	2	0	61	19	1	49	9	2	0.64
My work requires travelling a lot, and I cannot commit	1	0	0	4	1	0	22	3	1	60	21	2	54	7	1	0.59
Family obligation I do not find enough and time energy for myself to do physical activity	29	4	0	40	7	1	28	5	0	32	12	2	12	4	1	0.46
My job is so demanding physically I feel exhausted afterward	26	8	0	41	6	1	28	5	1	30	13	1	16	0	1	0.19

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Previous studies showed that physical inactivity among the general population in Saudi Arabia came with vary from 43.5% to 99%.[26-31] Several studies conducted in Saudi Arabia about the level of physical activity among adults revealed similar results.[15,23,21]

In the kingdom, unsuitable weather, lack of facilities, cultural barriers, traffic, crowding, and increased urbanization, all these barriers make participating in physical activity difficult for Saudis.[24]

Knowing that, most of the Saudis are physically inactive.[25] Our study showed that only 22% of physicians were active [Table 2], 17.5% were male while 4.5% were female ($P = 0.01$) [Table 3]. Aloha *et al.* study[25] among Saudis showed that males were more

Table 14: Association between gender and external barriers

External Barriers gender	SA		A		N		D		SD		Pearson coefficient
Gender	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
I do not have the means to access a sports facility (e.g., no car, too expensive considering my income)	0	4	6	19	11	6	48	22	49	12	0.000
There are no facilities near my residence (gyms, parks, or safe place for walking and jogging)	14	8	29	31	12	3	29	15	30	6	0.00
Mostly the weather is not convenient for walking or doing physical activity	28	18	45	26	22	9	11	9	8	1	0.40
My working hours are too long I cannot do extra activities during the day	28	16	43	24	17	8	18	14	8	1	0.48
I work night shift, and it is affecting to do physical activities	1	1	11	3	10	10	48	33	44	16	0.18
My work requires travelling a lot, and I cannot commit	1	0	4	1	14	12	51	32	44	18	0.43
Family obligation I do not find enough and time energy for myself to do physical activity	14	19	33	15	22	11	33	13	12	5	0.67
My job is so demanding physically I feel exhausted afterward	23	11	32	16	19	15	29	15	11	6	0.84

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

Table 15: Association between nationality and external barriers

External barriers nationality	SA		A		N		D		SD		Pearson coefficient
Nationality	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	Saudi	Non-Saudi	
Mostly the weather is not convenient for walking or doing physical activity	32	14	53	18	25	6	8	12	6	3	0.02
My working hours are too long I cannot do extra activities during the day	31	13	49	18	23	2	15	17	6	3	0.00
My job is so demanding physically I feel exhausted afterward	25	9	38	10	26	8	22	22	13	4	0.02
I work night shift, and it is affecting to do physical activities	2	0	11	3	17	3	55	26	39	21	0.99
My work requires travelling a lot, and I cannot commit	1	0	2	3	23	3	54	29	44	18	0.76
Family obligation I do not find enough and time energy for myself to do physical activity	24	9	37	11	25	8	28	18	10	7	0.61
I do not have the means to access a sporting facility (e.g., no car, too expensive considering my income)	2	2	17	8	14	3	50	20	41	20	0.11
There are no facilities near my residence (gyms, parks, or safe place for walking and jogging)	16	6	41	19	10	5	32	12	25	9	0.70

SA: Strongly agree, A: Agree, D: Disagree, SD: Strongly disagree

active than females and many other studies supported our results.[26-31]

Majority of physicians reported that inconvenient weather, working hours were too long, the job was demanding physically and felt exhausted afterward, family commitment, and lack of facilities as their main barriers [Tables 4 and 5].

The study revealed that 66% of the physicians considered inconvenient weather as a barrier to do physical activity [Table 5]. Alrashidi *et al.* study[21] which was conducted in Riyadh revealed that 66.5% considered the unsuitable weather as a significant barrier to exercise while Oren *et al.* study[18] that has been conducted in Canada showed that 32% of participants considered weather conditions as a barrier to do physical activity. The weather in the Gulf area during the summer could reach very high temperature degree which reaches beyond 5°C, and this could be the reason why our results showed that inconvenient weather is the most significant barrier.

The second most significant barrier in our study is too long working hours. 63% of physicians were not able to do extra

Table 16: Physical activity with demographics

Physical activity demographic factors	Nationality (*n*)		*P* value	Age in years (*n*)		*P* value	Gender (*n*)		*P* value
Walking of<60 min/week	Saudi	28	0.001	25–40	36	0.28	Male	24	0.14
	Non-Saudi	16		41–55	8		Female	20	
				>55	1				
Walking between 60 and 120 min/week	Saudi	32		25–40	31		Male	29	
	Non-Saudi	13		41–55	8		Female	16	
				>55	0				
Walking of 150 min and more per week	Saudi	30		25–40	31		Male	31	
	Non-Saudi	9		41–55	8		Female	8	
				>55	0				
No activity	Saudi	31		25–40	33		Male	26	
	Non-Saudi	13		41–55	11		Female	18	
				>55	0				
Going gym	Saudi	3		25–40	5		Male	4	
	Non-Saudi	2		41–55	0		Female	1	
				>55	0				

activities like engaging in any physical activity due to long working hours [Table 5]. Adam *et al.* study[17] showed that 88% of residents and 48.1% of staff physicians considered workload as the most significant barrier. Another study done by Gilani *et al.*[19] showed the same results.

Many physicians in our study (46%) felt that work was demanding and felt exhausted to do physical activity [Table 5]. This result is congruent with Khan *et al.* study[7] which showed that 64% of physicians cited "feeling work exhausting" as a barrier to do physical activity. This result also supported by a study conducted in Hamilton teaching hospital.[18] This could be explained by the nature of physicians work which is highly demanding physically and emotionally.

Alreshidi *et al.* study, in 2014, showed that 64% of physicians reported that lack of facility nearby was one of their main barrier,[21] while our study 46% reported the lack of facility as a barrier [Table 5]. This marked decrease of the percentage could be due to the efforts of our kingdom to provide many facilities in the past few years to increase the general activity of the population and to decrease the prevalence of obesity.

In our study, 45% of the participants cited family obligations as one of the main barriers to do physical activity. This result is supported by another study conducted in Riyadh city by Alreshidi *et al.*[21] Other studies conducted outside Saudi Arabia cited that only 22% (Vancouver) of physicians consider family commitment as a barrier to do physical activity.[16]

The results of our study showed a positive relationship between physical activity and family or friends support [Table 12], especially among young Saudi physicians [Tables 7 and 10]; these results supported by other studies such as Sallis *et al.* and Frank *et al.* studies.[32,33]

Many of female physicians cited the barrier "I lack encouragement, support, or companionship from family and friends" [Table 8], and this could be explained that walking in public places for females if not accompanied by a male family member is not traditionally accepted.

The results also show that most of the participants, especially females, cited the barriers "I don't have the means to access a sport facility" as one of their main barriers ($P = 0.00$) [Table 14]. This explained that lack of access to facilities, lack of companionship, lack of family and friends support, and low number of female gym and family commitment play a significant role for the participants of being physically inactive.

Recognition of these barriers by the policymakers could help to facilitate opening more facilities and provide more access to both genders. One of the 2030 Vision of Saudi Arabia is to provide more facilities, especially for female gender under the umbrella of Islamic rules.

Our study represents a strong relationship between age and working hours ($P = 0.01$) [Table 13]. Younger age group (63%) felt that the working hours are too long and they cannot do extra activity during the day, while other age groups were more satisfied with their working hours. These results are supported by Meglino *et al.* study,[34] it revealed that employees who work for longer years were competent in their job and not complaining about working hours like the younger age group. Another study done in 2013 by Mowday Rt *et al.*[35] showed that older age staffs were more satisfied with their working hours.

The barrier "being too lazy" came with a higher percentage among Saudis. Furthermore, Saudi physicians agreed that "lack of self-management skills such as the ability

to set personal goals, monitor progress, or reward progress toward such goal" is one of the main barriers ($P = 0.01$) [Table 9]. More recognition of this barrier by the physician could help them to look and study more about management skills and to create their own goals about physical activity. Furthermore, recognition of this barrier by the policymakers may help to develop programs or to do lectures about this issue and to overcome this important barrier.

Strength of the Study

The researcher himself distributed, received, checked the completeness of questionnaire, and clarified any question if needed while other studies collected data using phone or email. This adds strength to the study and helps to increase the response rate (87%) and reliability of data collected.

Limitation of the Study

The only limitation of our study that it does not include dentist and physicians working in peripheral areas (Hijras) as dentists cover more than one PHC and peripheral centers are far away from the city.

CONCLUSION

Although our study results showed that physicians have a strong belief that exercise is beneficial for health, 78% of them were inactive. 22% were active and only 4.5% are active females. The majority reported significant barriers preventing them from practicing physical activity. The main five barriers reported in our study are inconvenient weather, working hours were too long, the job was demanding and felt exhausted afterward, lack of facilities, and family commitment.

Recommendations

Lifestyle disease has a huge burden on Saudi population health. Increasing physical activity among population including physicians is essential. The weather in Saudi Arabia is extreme and came as the significant main barrier in this study so opening multiple closed gyms near to population living places could help them to avoid the unsuitable weather. The work for physicians is physically and emotionally demanding, learning more about relaxation techniques, yoga and meditation could help the physicians. Understanding the barriers by physicians and policymakers could help to develop programs and new public policies that could effectively meet the WHO recommendation and improve the overall health.

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