

# Factors Associated with Sedentary Behavior and Physical Activity Among People Living in Saudi Arabia – A Cross-Sectional Study

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**Background:** A poor physical activity and sedentary behavior is common among individuals which can be detrimental to one's health. Furthermore, sedentary behavior is associated with metabolic disorders. Therefore, this study explored factors associated with sedentary behavior and physical activity among individuals in capital region of Saudi Arabia.

**Methods:** A cross-sectional web-based study was conducted over a period of 3 months in 2023 using prevalidated questionnaires, which address the sedentary behavior and physical activity and its factors. This study included among individuals aged from 19 to 50 years, living in Riyadh. Factors associated with outcome variables were identified using multiple linear regression analysis in SPSS.

**Results:** Of the 833 study participants, 569 (68.3%) and most were males aged between years 31–35 years old. Only 20.6% (n=172) of the activities that induced high levels of breathing or heart rate were vigorous-intensity activities among the respondents. The average number of sitting hours per day was 6.74 (SD=1.577). The regression model's findings showed a significant correlation between mean sitting time and education level ( $p=0.008$ ), occupation ( $p=0.001$ ), monthly income ( $p=0.029$ ), and kind and status of physical activity ( $p=0.002$ ). Similar to this, there was a significant correlation between age group ( $p=0.040$ ) and physical activity status ( $p=0.001$ ) and the amount of time spent engaging in vigorous-intensity activities at work on an average day.

**Conclusion:** The findings of this study confirmed that Saudi adults living in the Riyadh region spent a significant amount of time sedentary, and the most common factors associated with sedentary behavior were education, employment, monthly income, physical activity status, type of physical activity, and reasons for not practicing physical activity. The findings of this study can be used by healthcare providers and those associated with policymaking to improve health outcomes in healthcare settings.

**Keywords:** sedentary behavior, social factors, economic factors, sitting time, vigorous activity

## Introduction

In recent years, the frequency of physical inactivity and sedentary behavior has increased, causing people to suffer from a variety of chronic metabolic disorders.<sup>1–3</sup> Despite the benefits of physical activity, sedentary behavior is becoming more frequent among people, boosting the possibility of numerous lifestyle-related illnesses.<sup>2–5</sup> Longer periods of sitting have been linked to a higher risk of developing chronic cardio metabolic diseases, including obesity and overweight, stress, difficulty sleeping, anxiety, and depressive disorders.<sup>2–5</sup>

Emerging evidence suggests that as people age, their frequency of physical activity decreases and sedentary behavior increases.<sup>5,6</sup> According to literature, the most important factors affecting in reduced physical activity were increased technologies, advanced use of transportation, easy accessibility of televisions, mobile phones, widespread use of internet, status of the individuals,<sup>7</sup> stress, use of smart phone,<sup>8</sup> increased age  $\geq 65$  years, presence of chronic diseases such as hypertension and sedentary lifestyle<sup>9</sup> increased sedentary behavior among adults, on the other hand, was linked to their place of residence, financial status, being a smoker or ex-smoker, being physically inactive, having a computer or laptop

at home, and owning a motorized vehicle. Although physically active people are less likely to die early, they also have a decreased risk of coronary heart disease, strokes, high blood pressure, a specific type of cancer, type 2 diabetes, osteoporosis, obesity, and weight disorders, and have better mental health.<sup>10–13</sup>

The prevalence of sedentary behavior is different among individuals, depending on the population studied.<sup>1,14,15</sup> For instances among working individuals, it was 690 minutes in a day,<sup>14</sup> while among young adults it was 9.5 hours.<sup>1</sup> Similarly, another recent study revealed >4 h in a day as sedentary time was spent by Saudi adults. It is interesting to see that the majority of sedentary time was spent on activities related to work, followed by time spent on social media, business-related activities, and coffee.<sup>15</sup> Additionally, women were more likely than males to engage in sedentary activity.<sup>1</sup> Previous research in Saudi Arabia showed that a substantial percentage of adults and children there were physically inactive and did not satisfy the WHO's basic recommendations for physical activity.<sup>12</sup>

According to the World Health Organization (WHO), individuals should engage in at least 2 hours and 30 minutes of moderate-to-high intensity physical activity each week, as well as muscle-strengthening activity at least two days per week.<sup>16</sup> Even though it is difficult to keep this figure, one can divide their daily physical activity routine into smaller chunks of time.<sup>16</sup> According to the Centers for Disease Control and Prevention (CDC), physical activity is better than idleness. It is also recommended that people move around more and sit less. It is preferable to get moving a little than not at all.<sup>16</sup> Prior research has indicated that adults who engage in moderate to vigorous exercise and spend less time sitting are healthier overall.<sup>16</sup> Physical activity has a beneficial effect on seven of the ten most common chronic conditions.<sup>17</sup> Despite the fact that nearly 80% of adults do not fulfill the fundamental aerobic and muscle-strengthening activity standards, only half meet the aerobic activity standard. The predicted annual healthcare costs due to a lack of PA were more than \$117 billion.<sup>17</sup>

Modern technology progress has resulted in humans requiring less PA; however, this has resulted in a scenario of severe unfavorable lifestyle modifications. Furthermore, this adds to a rise in noncommunicable illnesses caused by lifestyle.<sup>18–21</sup> Physical inactivity is affecting not only individuals, but the entire community. Additionally, people with an active lifestyle were shown to be far less likely to get the disease than those who led more sedentary lives. Additionally, more recent research has found that the rise in physical inactivity is caused by a number of causes, including the embrace of Western culture and unhealthful eating practices. Saudi Vision 2030 suggested a socially conscious strategy. The Saudi Vision Plan 2030 includes increasing community engagement in sports, emphasizing the importance of PA. This effort is a component of the Quality of Life Program of the Vision Program.<sup>18–21</sup>

The person's level of physical activity may have been reduced due to a range of factors such as facilities, climate, and the nature of the location. Despite the fact that Saudi Arabia's climate is characterized by intense heat in the summer, with average temperatures reaching the low 100s F (low 40s C), and coldness in the winter, with lows averaging in the low 50s F (low 10s C).<sup>22,23</sup> The midday and overnight temperatures differ significantly. Riyadh has low humidity all year, especially in the summer, due to its distance from major bodies of water and the city's general lack of precipitation.<sup>22,23</sup> When it rains, it usually does so between November and May. Furthermore, Saudi Arabia is one of the largest and wealthiest countries in the Eastern Mediterranean Region (EMR). Despite the fact that Riyadh is Saudi Arabia's capital and the most populous city, with a total surface area of 1798 kilometers squared.<sup>22,23</sup> It has experienced rapid socioeconomic development, increasing sedentary behavior, and a high-calorie food pattern in recent decades.<sup>22,23</sup> The concept of physical activity and persistent sitting behavior is seen as a novel concept related to a variety of disorders. As a result, addressing the variables that contribute to sedentary behavior is critical in order to improve individual lifestyles. To fill the gap in the literature on sedentary behavior, the current study evaluated characteristics linked with physical activity and sedentary behavior among the Riyadh community in Saudi Arabia. As a result, the aim of this study is to assess the factors associated with physical activity and sedentary behavior among the Riyadh community in Saudi Arabia.

## Materials and Methods

### Study Design, Setting, and Population

A cross-sectional self-reporting web-based survey was performed between March and June 2023 utilizing Google forms. Individuals over the age of 20, living in Saudi Arabia's capital region, Saudi nationals of both genders, able to read

Arabic and English, and willing to complete the questionnaire by signing verbal informed permission were included in the targeted group. Others who did not meet the inclusion criteria and lived in other parts of Saudi Arabia were barred from participating in the study. Throughout the study, respondents' anonymity and confidentiality were maintained. Although a statement regarding informed consent and data confidentiality was provided prior to the commencement of the study or questionnaires, those who agreed and proceeded with the study were deemed to have given informed consent (Verbal) and were included in the study.

## Questionnaires

The questionnaire used to assess the status of sedentary behavior and physical activity was based on previous studies published in a similar setting.<sup>1,12,24,25</sup> The questionnaire was created in English and then translated into the local Arabic language using forward and backward translation techniques. A study tool was divided into five sections. The section one collected demographic characters, which include age, gender, employment status, marital status, monthly income, physical activity status and reason for not active physically (8-items). The second section of the study deals with a total of three items the section two focused on activity at work, which includes work involving vigorous intensity activity (significantly raises breathing or heart rate, such as carrying or lifting heavy loads), work involving moderate intensity activity (raises breathing or heart rate only slightly, such as brisk walking for at least 10 minutes continuously), status of walking or use of bicycles (for traveling one place to another). The third section of the study collected information about the two items about the activities in their leisure time. Where one question about the status of vigorous intensity sports, fitness activity and the second question about the status of moderate intensity sports, fitness activities. In all these sections, two of the questionnaires were assessed on a binary scale (Yes/No).

Section four, on the other hand, concentrated on days, and time spent on various physical activities with a total of 9-items. The final domain focused on sedentary behavior with one item (How much time do you typically spend sitting or reclining on a typical day). These surveys were all scored using a binary and continuous scale.

After the preparation of the tool, the study tool underwent pilot testing among a selected group of people. Pilot testing was followed by random sampling, which included (n=30) adults. The purpose of the pilot study was to evaluate the questionnaires' accuracy, contents, and completion time. Additionally, the Cronbach's alpha value, which was reported to be 0.81, was used to assess the reliability of the questionnaires. This indicates that the questionnaires were reliable for conducting the study.

Following that, the questionnaire was distributed online using an electronic platform. Participants were requested via social media platforms like Facebook, Twitter, and WhatsApp utilizing a Google Form. Emails and other strategies for boosting response rates were taken into account. An invitation link and a survey form were given to the participants. The snowball method of data collection, in which each survey participant recruit's multiple suggestions, was used by researchers.

## Statistical Analysis

Descriptive statistical approaches were employed to summarize data on socio-demographic factors. The data for categorical variables was presented as frequencies (n) and percentages (%). The continuous data was presented as mean (M) and standard deviations (Std). The data was analyzed using the Statistical Package for Social Sciences version 26.0 (SPSS Inc., Chicago, IL, USA). The multiple linear regression analysis was employed to determine the significant factors effecting on the sedentary behavior and various items of physical activity, and a p-value of 0.05 was considered statistically significant.

## Results

### Sociodemographic Characteristics of Participants

Of the 833 study participants, 569 (68.3%) one-third of them were male aged between years 30–35 years old. The majority were Saudi 746 (89.6%). Socio-demographic characteristics showed that participants 365 (43.8%) were private employee with the monthly income of more than 5000 SAR 475 (57%). The highest level of education attained was

university level 522 (62.7%) followed by secondary level 199 (23.9%). More than two-third of the participants do PA on a weekly basis. The most common type of PA was walking 386 (46.3%), followed by bodybuilding 97 (11.6%), respectively. The detailed information about the respondent's demographic characters are given in Table 1.

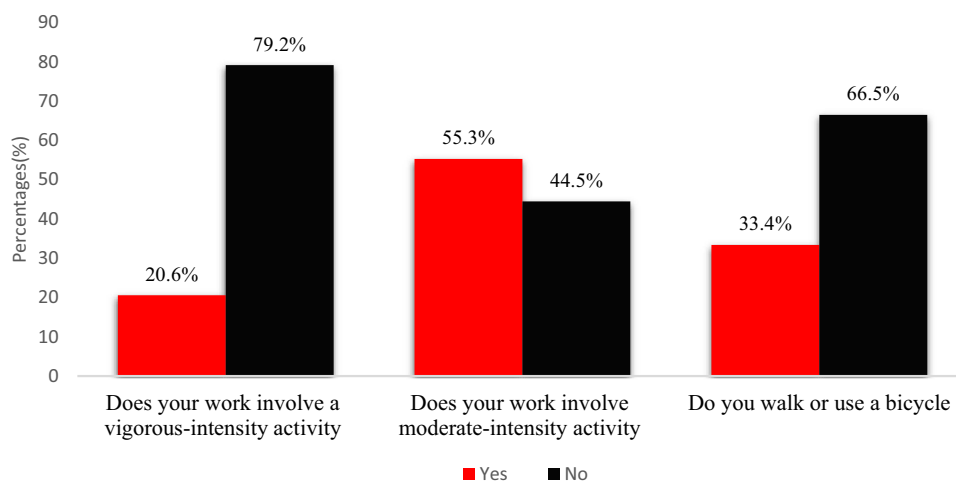
The main explanations for not practicing physical activity were a lack of time 370 (44.4%) and an unwillingness to do physical activity 140 (16.8%). Only 20.6% (n=172) of the activities that induced high levels of breathing or heart rate (carrying or lifting large weights, digging, or construction labor) were vigorous-intensity activities (Figure 1). Regarding moderate intensity activities such as brisk walking (or carrying light objects) that causes an increase in breathing or heart rate constituted 461 (55.3%) of the participants. Brisk walking, cycling, swimming, and volleyball are examples of moderate-intensity sports, exercise, or leisure activities that make up more than a third (33.4%) of the work of participants.

With regard to leisure activities, 49.3% (n=411) of the individuals engaged in vigorous-intensity sports, fitness, or leisure activities that induce significant increases in breathing or heart rate for at least 10 minutes continuously, such as jogging or football. More than one-third of the participants rode their bicycles for at least 10 minutes to and from work (Figure 2).

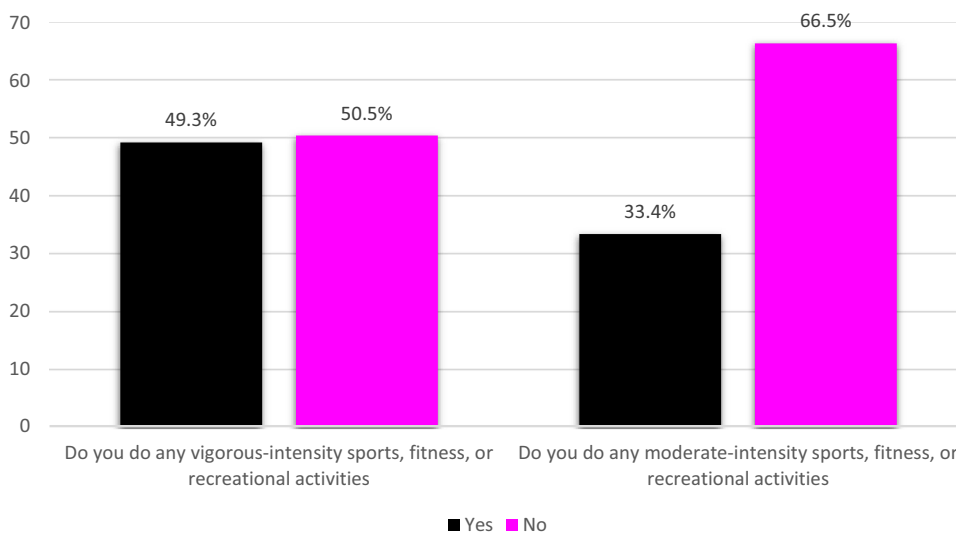
The average number of days spent participating in strenuous intensity activities by participants in a typical week was 6.35 (1.531). In comparison, they were active for an average of 5.13 hours (SD=0.930) (median= 5). Table 2 depicts the time and features of several forms of physical activity. In this study, adults spend 5.13 (0.930) engaging in vigorous-

**Table 1** Socio Economic Characteristics of the Participants (n=833)

Variables	Frequency (n)	Percentages (%)
<b>Gender</b>		
Male	569	31.6%
Female	263	68.3%
<b>Age (years)</b>		
20–25	179	21.5%
26–30	127	15.2%
31–35	309	37.1%
36–45	217	26.1%
<b>Nationality</b>		
Saudi	746	89.6%
Non-Saudi	86	10.3%
<b>Marital status</b>		
Married	364	43.7%
Single	468	56.2%
<b>Employment status</b>		
Employed	365	43.8%
Unemployed	28	3.4%
Student	307	36.9%
Housewife	132	15.8%
<b>Monthly income</b>		
>5000 Saudi Riyals	475	57%
6000–10, 000 Saudi Riyals	95	11.4%
11–20, 000 Saudi Riyals	118	14.2%
<21, 000 Saudi Riyals	144	17.3%
<b>Do you engage in any kind of physical activity on a weekly basis?</b>		
Yes	546	65.5%
No	286	34.3%



**Figure 1** Participants responses towards physical activity at work.



**Figure 2** Participants responses towards recreational activities (leisure).

intensity activities during a typical workday. The average number of days' individuals spent practicing moderate-intensity exercise per week was 6.03 (SD=1.718), and the average number of hours per day was 5.61 (SD1.393). 6.03 (2.093) was the average number of days spent walking or riding for 10 minutes continuously to go to and from locations in a week (Table 2).

The participants in this study engaged in vigorous intensity sports and fitness activities for an average of 8.47 hours (1.812) per day and 4.74 (1.416) average days per week. Additionally, on atypical days, 6.75 hours on average are spent engaging in moderately intense sports, exercise, or leisure activities. An average individual spends 6.74 (SD 41.577) hours a day sitting or being idle, according to research on sedentary behavior. The exhaustive responses from the participants are shown in Table 2.

According to our findings, 310 (37.2%) of participants practiced vigorous-intensity activity twice per week, whilst 287 (34.5%) did for zero days in a week. (Figure 3) Approximately 28.2% (n=235) of the respondents did not engage in moderate-intensity activities in a week, while 10.6% (n=88) engaged for 1 day, followed by 29.9% (n=249) 2 days 13.7% (n=114) of them engaged for 3 days only 9.5% (n=79), 1.4% (n=12) and 1.1% (n=9) of them engaged for 5, 6 and 7 days in a week as shown in Figure 4.

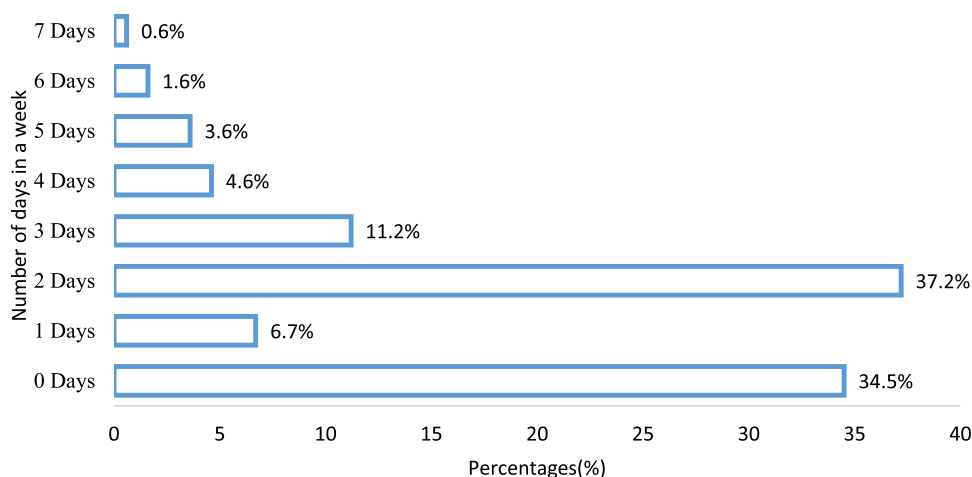
**Table 2** Participants' Responses Towards Time Spent on the Various Physical Activities

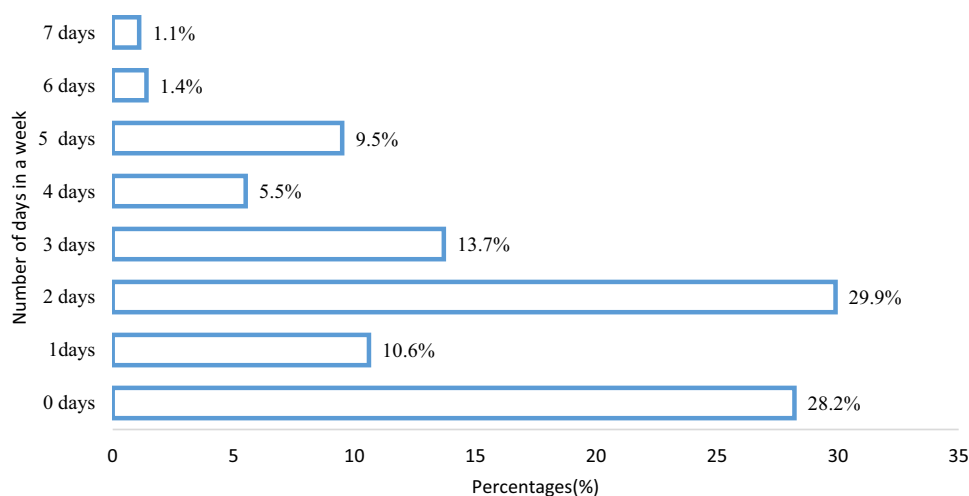
Variables	Mean (SD)
How many days in a week do you engage in physically demanding activities for work?	6.35(1.531) Median (6)
How long do you typically spend at work engaging in activities of a vigorous nature?	5.13(0.930) Median (5)
How many days in a typical week do you spend engaging in activities of a moderate level of intensity for work?	6.03(1.718) Median (6)
How much time do you typically spend at work engaging in moderate-intensity activities?	5.61(1.393) Median (6)
How many days in a week do you travel by foot or bicycle for at least ten minutes at a time?	6.03(2.093) Median (7)
How many days do you engage in strenuous exercise, sports, or leisure activities on average each week?	4.74(1.416) Median (5)
How much time do you typically spend engaging in strenuous exercise, sports, or leisure pursuits? (Please indicate how many hours)	8.47(1.812) Median (9)
How much time do you spend on a normal day engaging in moderately intense sports, fitness, or leisure activities?	6.75(1.711) Median (8)
How much of your day do you typically spend sitting down?	6.74(1.577) Median (8)

Regarding the number of days per week spent walking or bicycling, 25.6% (n=213) reported doing so only once, followed by 12.2% (n=102) for two days, 11.9% (n=99) for three days, and 4.3% (n=36), 7% (n=58), 1.9% (n=16), and 6.7% (n=56) for four, five, six, and seven days, respectively, as shown in Figure 5.

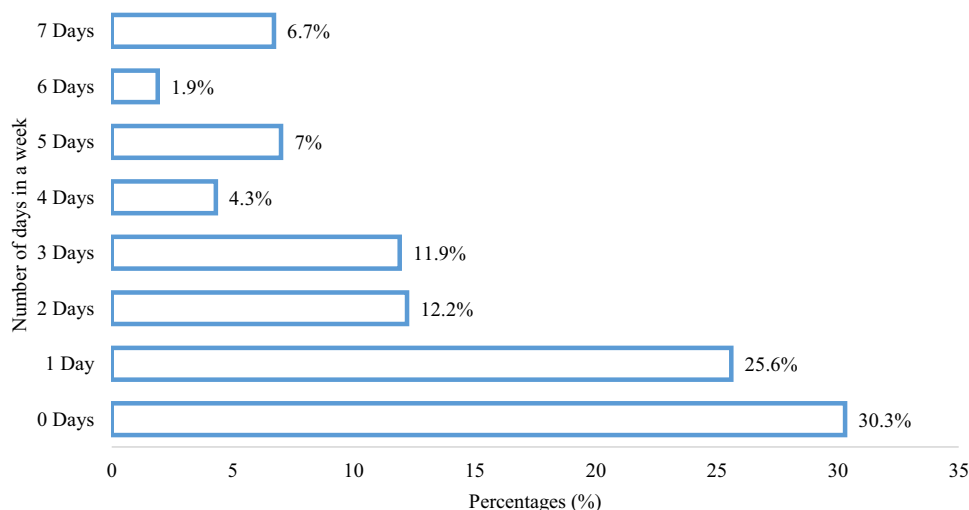
With regard to number of days engage in vigorous-intensity sports, fitness, or recreational activities 31.8% (n=265) reported once in a week, followed by 13.1% (n=109) for 2 days 8.4% (n=70) for 3 days in a week and 3.4% (n=28), 5.8% (n=48), for, 4, 5, days in a week as shown in Figure 6.

With regard to number of days engage in moderate-intensity sports, fitness, or recreational activities 12.1% (n=101) reported once in a week, followed by 13.8% (n=115) for 2 days 10.4% (n=87) for 3 days in a week and 2.8% (n=23) for four days in week, 5.4% (n=45), 0.4% (n=3) and 1.9% (n=16) for, 5, 6 and 7 days in a week as shown in Figure 7.

**Figure 3** Participants responses towards vigorous activities in a seven days of the week.



**Figure 4** Participants responses towards moderate intensity activities in a seven days of the week.

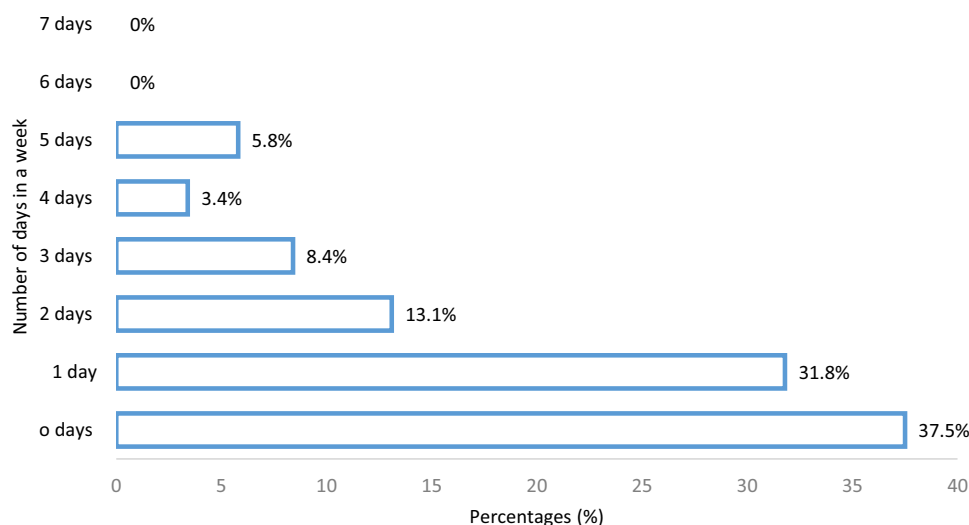


**Figure 5** Participants responses towards walking or bicycling in a seven days of the week.

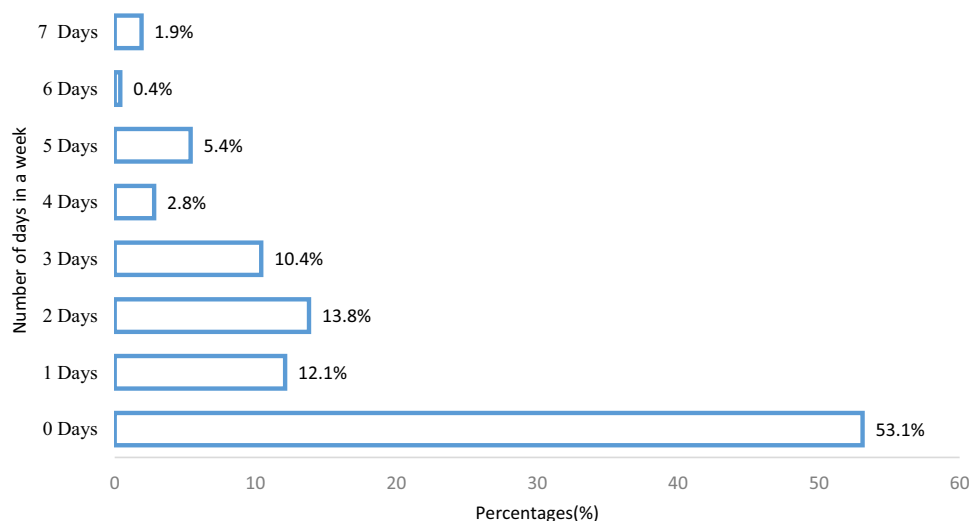
To find out the relationship between the mean score of sitting time, and participants' demographics, a multiple linear regression model was utilized in which gender, age, education level, marital status, monthly income, physical activity status, reasons for not practicing physical activity were considered as explanatory variables and mean sitting time as the dependent variable. There was a significant association between level of education, employment of the participants, physical activity status, type and reason for not practicing physical activity. The results of the regression model demonstrated that there was a significant relationship between mean sitting time and level of education ( $p=0.008$ ), employment ( $p=0.001$ ), monthly income ( $p=0.029$ ) and type and physical activity status ( $p=0.002$ ) as shown in Table 3.

To find out the relationship between the mean score of time spend on doing vigorous-intensity activities at work, and participants' demographics, a multiple linear regression model was utilized in which gender, age, education level, marital status, monthly income, physical activity status, reasons for not practicing physical activity were considered as explanatory variables and mean sitting time as the dependent variable. There was a significant association between the age of the respondents and physical activity status. The results of the regression model demonstrated that there was a significant relationship between time spent on doing vigorous-intensity activities at work on a typical day and age group ( $p=0.040$ ), physical activity status ( $p=0.001$ ), as shown in Table 4.





**Figure 6** Participants responses towards vigorous-intensity sports, fitness, or recreational (leisure) activities that cause large increases in breathing in a seven days of the week.



**Figure 7** Participants responses towards moderate-intensity sports, fitness, activities that cause a small increase in breathing in a seven days of the week.

## Discussion

Our study assessed factors associated with sedentary behavior and physical activity among Arabic community of Saudi Arabia. In general, studies investigating factors associated with sedentary behavior and physical activity, particularly in the context of Arab populations, were limited. The motive behind this study was to create more awareness and significance among individuals since adoption of westernized culture, mobile use behavior is on rise since an early age-increasing trend of using nicotine in various forms (e-cigarettes and vaping) was a risk factor which is more among middle-aged undergraduates.

In this study, the considerably high mean sitting behavior was reported among studied population, with a mean score of 6.74 hours (1.576) range was 0–7 hours. The most common factors that are associated with sedentary behavior were education, employment, monthly income, physical activity status, type of physical activity, and reasons for not practicing physical activity were found. Similar findings were reported by Gaskin and Orellana in 2018, Mohammed et al in 2020, among Ethiopians, Ahumada et al in 2020, among south Americans.<sup>9,25–27</sup> According to Mohammed et al study, monthly



**Table 3** Association Between Mean Sitting Time and Various Factors

Variables	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	95.0% Confidence Interval for B	
	B	Std. Error	Beta			Lower Bound	Upper Bound
(Constant)	5.804	0.394		14.733	<0.001	5.030	6.577
Gender	0.187	0.114	0.055	1.640	0.101	-0.037	0.410
Level of education	0.190	0.057	0.115	3.341	<0.001	0.078	0.301
Employment	-0.197	0.052	-0.127	-3.757	<0.001	-0.300	-0.094
Marital status	0.140	0.110	0.044	1.267	0.205	-0.077	0.356
Monthly income	0.135	0.062	0.073	2.184	0.029	0.014	0.256
Physical activity status	0.624	0.125	0.191	4.977	<0.001	0.378	0.870
Type of physical activity	-0.060	0.024	-0.095	-2.444	0.015	-0.108	-0.012
Reasons for not practicing physical activity	-0.267	0.059	-0.152	-4.526	<0.001	-0.382	-0.151
Age group	0.054	0.049	0.037	1.101	0.271	-0.042	0.149

**Table 4** Association Between Time Spend on Doing Vigorous-Intensity Activities at Work on a Typical Day and Participants' Characters

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error (SE)	Beta		
(Constant)	3.692	0.209		17.672	<0.001
Gender	0.096	0.064	0.048	1.489	0.137
Education	0.021	0.032	0.022	0.650	0.516
Employment	-0.049	0.030	-0.053	-1.637	0.102
Marital status	-0.010	0.062	-0.006	-0.165	0.869
Monthly income	0.059	0.035	0.055	1.698	0.090
Physical activity status	0.765	0.071	0.397	10.771	<0.001
Type of physical activity performed	-0.010	0.014	-0.027	-0.727	0.468
Age group	0.057	0.028	0.066	2.061	0.040

income, access to television, and mobile internet, and use of social media were all positively correlated with adolescents' sedentary behavior.<sup>27</sup> Ahumada et al found that living in an urban area, having a high income, smoking or having previously smoked, being physically inactive, owning a computer or notebook at home, and owning a motorized vehicle were significant factors associated with sedentary behavior among Chilean population.<sup>9</sup> But statistics for low- and middle-income nations showed a substantial correlation between physical activity and sedentary behavior, age, and

employment.<sup>26</sup> A systematic review and meta-analysis, however, discovered that the other most common factors leading to a sedentary lifestyle were a lack of social support, a lack of space for physical activity, a lack of time and motivation, an intolerance to activity, retirement, living in a low-income country, laziness, a low socioeconomic status and a lack of knowledge about physical activity, being a female gender, and a belief that one has a physical disability.<sup>28</sup> Although numerous prior research has shown that being overweight, age, sex, monthly income, maternal education, parents' occupation, and media accessibility are associated factors for sedentary behavior.<sup>28–34</sup> Identification and management of these risk factors are therefore critical. Sedentary conduct in particular needs to be curbed, and steps should also be taken to increase awareness of the negative effects of prolonged sitting.

In this study, the median sitting behavior was 8 hours in a day which indicates that respondents had considerably higher sedentary behavior, which was comparable to previous study published among Netherlands workers and Australians (Jans et al, 2007; Proper et al, 2007).<sup>35,36</sup> For instance, Jans et al reported that an average 7 hours of sitting time among Dutch workers,<sup>35</sup> while Proper et al, 2007 revealed a 348 min per day.<sup>36</sup> The differences in the current findings and previous may be due to the fact that most of the respondents were employed, students and house wives, which is another possible reason for this sitting behavior, where many of the organizations, universities require their employee to work on the computer, or the use of screen. Furthermore, women were busy in the household chores which is another reason where housewives work involves sitting in doing their everyday activities. Despite the continuous sitting behavior in the current study, the results as well revealed that 65% of the respondents are active physically, among those 20.6% of them reported that their work involve carrying or lifting heavy loads. On the other hand, 55.3% of the respondents revealed that their work involves moderate-intensity activity such as brisk walking or carrying light loads. The reasons behind this finding were due to the nature of the employment, working environment and organization.

Similar to the current findings previous studies reported a high sedentary behavior of 65.5% among Ethiopian students<sup>27</sup> and 20.3% among working adults.<sup>25</sup> According to earlier data, the average amount of time spent sitting on workdays in Saudi Arabia was 690 minutes, with 575 minutes of that time occurring on non-working days. Level of education, the number of children, and employment in the private sector were the predictors of sitting time. The fact that having children, being unmarried, and having a tiny home all predicted non-work day sitting time suggested that Saudi Arabian individuals, particularly those who were female, have identified a high-risk group for sedentary behavior.<sup>14</sup> Similarly, another study found that age, height, weight were the other factors associated with walking among children. In addition, being a male children walked longer distances than females.<sup>37</sup>

Nevertheless, the variations in the incidence and prevalence rates of sedentary behavior and physical activity were brought on by variations in the tools used to measure physical activity and its characteristics as well as the case definition for “physically activity”, cultural and economic variations, workplaces, and health status.<sup>12,14,35</sup> These findings follow on from those of Saudi Arabia and another emerging country.<sup>14,36,38,39</sup> For instance, data from Saudi Arabia indicates that 20.2% of workers engaged in physical activity at work, with women being more active than men (21.9%) (18.3%).<sup>38</sup> In a different population-based study, it was found that 15.5% of individuals engaged in vigorous exercise that significantly increased their breathing. On the other hand, 56% of them were engaged in a moderately intense activity that just slightly increased their breathing.<sup>39</sup>

Despite the fact that a lack of physical activity is a serious public health concern connected to the emergence of numerous metabolic illnesses. Studies also discovered that persons who were not active enough had a death risk that was 20% to 30% higher than those who were.<sup>1,38,39</sup>

The aforementioned findings were significantly related to various characteristics of the participants. The differences between the current and prior findings were better explained by lifestyle variables such as employment type, transportation, leisure time activities, and physical activity intensity and duration.<sup>38,39</sup> Through suitable advertising, we propose increasing public awareness of the benefits of PA and the negative effects of inactivity. Furthermore, it is essential to provide educational programs that encourage women to participate in more PA in order to promote PA. In addition to sporting facilities, it is required to provide easily accessible parks with additional amenities or to provide a variety of technology gadgets for cycling, physical activity, and walking routes.

This study does have some limitations. For instance, the data used to produce the results came from an online survey, which may have increased the likelihood biases like social desirability or recall bias. Second, the results were only drawn from one region in Saudi Arabia; third, the sample as a whole had a low participation rate, and the population of the Riyadh region as a whole had a very low participation rate; and fourth, the distribution of women and men in the sample was unequal; this could have been because of a variety of local factors, which limited the results' generalizability and rendered them unrepresentative of other regions and ungeneralizable globally. In the end, Google forms were used to collect the data, which required an online connection. Given this, one of the reasons why all young adults did not complete the survey could be a lack of internet access. The conclusions in this study are vulnerable to subjectivity due to the subjective nature of the responses. Additionally, it only considers sedentary behavior and associated factors in order to document the level of physical activity from a range of perspectives. Despite these drawbacks, a report of this kind is essential because, if excessive inactivity happens, first recognizing such concerns, then further investigating their clinical impact, and finally demonstrating strategies to remedy them later. Our findings suggest that in order to increase young competency in spreading awareness and promoting a healthy lifestyle, greater focus should be given to developing youth comprehension of the importance of PA.

## Conclusion

The findings of this study confirmed that Saudi adults living in the Riyadh region spent a significant amount of time sedentary, and the most common factors associated with sedentary behavior were education, employment, monthly income, physical activity status, type of physical activity, and reasons for not practicing physical activity, with 65% of them practicing physical activity. Excessive sedentary behavior and physical inactivity have both been shown to be detrimental to one's mental and physical health. As a result, educating people about the importance of physical activity is essential.

## Ethical Approval

Although the Institutional Review Board of the College of Medicine King Saud University in Riyadh, Saudi Arabia, reviewed and approved the study protocol prior to its execution, informed consent was also sought from the respondents prior to their access to the study tool. The King Saud University College of Medicine's Institutional Review Board approved and accepted the verbal informed consent as valid. Furthermore, this research was carried out in complying with the Declaration of Helsinki standards for human research.

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## Disclosure

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as potential conflicts of interest.

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