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Prevalence and Predictors of Physical Activity among Hypertensive Patients in Saudi Arabia

Abdulaziz Ahmed Mohsen Alrashah (1) *, Ahmed Mohsen Hussain Al Mawtah (2), Samiyah Belal Sultan Alyami (3), Reem Abdullah Hussain Al Sama (3), Tahani Ahmed Mohammed Asiri (4), Ahlam Mohammed Abdrabuh Abdullah (5), Khalid Ali Abdullah Al Rashah (6), Halimah Awadh Saeed Alwadai (7), Maha Mohammed Abdrabuh Abdullah (8), Abdulmohsen Yahya Mohsen Al Rashah (9), Ahmed Saleh Yahya Alkhaywani (10), Sultan Ahmed Yahya Asiri (11)

(1) Pharmacist, Directorate General of Health Affairs in Najran, Saudi Arabia.
(2) Specialist Physiotherapy, Directorate General of Health Affairs in Najran, Saudi Arabia.
(3) Technician Nursing, Directorate General of Health Affairs in Najran, Saudi Arabia.
(4) Specialist Nursing, Directorate General of Health Affairs in Najran, Saudi Arabia.
(5) Midwifery, Directorate General of Health Affairs in Najran, Saudi Arabia.
(6) Pharmacist, Al-Diyafa Health Canter, Najran, Saudi Arabia.
(7) Specialist Nursing, Women and Children's Hospital, Najran, Saudi Arabia.
(8) Nursing, King Khalid Hospital Najran, Najran, Saudi Arabia.
(9) Bachelor of Emergency Medical Services, King Khalid Hospital Najran, Najran, Saudi Arabia.
(10) Specialist Sociology, Al-Faisaliah Health Canter, Najran, Saudi Arabia.
(11) Technician Public Health, Yedamah General Hospital, Najran, Saudi Arabia

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*Corresponding author

Abstract

Introduction: Physical activity is a lifestyle factor that helps to control and reduce complications of hypertension disease. Despite the importance of physical activity and its impact on hypertensive patients but there are few studies on this aspect in Saudi Arabia, especially in Najran. This study aimed to assess the prevalence and determination of physical activity among hypertensive patients in the primary healthcare setting.

Methods: This is a cross-sectional study that included all hypertensive patients who attended chronic disease clinics in primary health care centers. The sample was selected based on 3 stages of random sampling. A self-administered questionnaire was used for data collection, which was divided into two parts. Part 1 contains questions about sociodemographic characteristics, while part 2 contains questions about physical activity using the Global Physical Activity Questionnaire (GPAQ), Arabic version.

Results: A sample of 263 hypertensive patients attending chronic disease clinics in primary health care centers. About half of the patients were males and 61% aged less than 50 years old. About 94% had light physical activity, while 22% had moderate-intensity sports, fitness, or recreational activities that cause a small increase in breathing or heart rate for at least 10 minutes continuously. The moderate-intensity activity during work was significantly more common in males gender and young age.

Conclusions: The prevalence of physical activity in hypertension patients attending primary healthcare settings was found inadequate. Practicing physical activity was significantly more common in the male gender and patients younger than 40 years old than in females or those 40 years or older.

Keywords: Physical activity, Exercise, Hypertension, Blood pressure, Saudi

Introduction

Hypertension is a disease that has a huge impact on the health of communities. prevalence of hypertension in Saudi Arabia 25.5% (male 27.1%, female 23.9%) among age group (15-64 years) [1]. This number very high and represent a challenge for the health field. All these patients need medication plus lifestyle modification: (reduce weight, healthy food, stop smoking, physical activity). In this research will concern about (physical activity). Despite the importance of physical activity and impact on public health observe in some previous study in the Kingdom of Saudi Arabia the prevalence of physical activity low [2].

Physical activity is defined as any body movement produced by skeletal muscles that require energy expenditure above the basal line [3]. Physical inactivity considers important risk factor for many chronic diseases, but this risk factor Can be modified [4]. Regular Physical activity help to reduce risk and control of many chronic diseases as cardiac disease, hypertension, diabetic, osteoporosis or cancer. also, some mental benefits reduce stress, anxiety, and depression. finally reduce health care costs [5].

Some studies talk about physical activity in the kingdom of Saudi Arabia: a study published in 2007 Al-Hazzaa describe the physical activity profile of Saudi adults living in Riyadh, using the International Physical Activity Questionnaire (IPAQ) short-version telephone format. Based on the three activity categories established by IPAQ, 40.6% of Saudis were inactive, 34.3% were minimally active and 25.1% were physically active. Physical inactivity increased with advancing age [5].

Another Study published in 2015 to determine the levels of physical activity in the Saudi population and to assess its socio-demographic correlates Physical activity was assessed using the Global Physical Activity Questionnaire (GPAQ) version 2.0. Overall, physical inactivity was found to be 66.6%, 60.1% for males and 72.9% for females. Leisure time physical inactivity was found to be 87.9%, 85.6% for males and 90.2% for females. The northern and central regions reported the highest prevalence of no physical activity at work [6]. A population-based cross-sectional study. Inactivity prevalence (96.1%) was very high. There were significantly more inactive females (98.1%) than males (93.9%). Inactivity prevalence increases with increasing age category, especially in males, and decreases with increasing education levels. Inactivity was the highest in the central region and the lowest in the southern region of Saudi Arabia [7].

Physical activity is one of the most important factors that help to control and reduce complications of hypertension disease. Despite the importance of physical activity and its impact on hypertensive patients but there few studies in this aspect in the Kingdom of Saudi Arabia. This study aims to evaluate the prevalence and determines of physical activity among hypertensive patients attending primary health care center in Saudi Arabia.

Methods

This is a cross sectional study recruited all among hypertensive patients attending primary healthcare center. Using Raosoft sample size calculator website, a total of 263 was calculated as the minimum sample size sufficient to detect the prevalence of physical activity at 95% confidence level, 5% estimation error and study response rate 50%. The sample was selected based on 3 stages random sampling. A self-administered questionnaire was used for data collection which was divided into two parts. Part 1 contains questions about the sociodemographic

characteristic of the participants (age, gender, marital status, education level, job, history of hypertension, history of smoking). Part 2 contains questions about physical activity using Global Physical Activity Questionnaire (GPAQ), Arabic version. The GPAQ covers several components of physical activity, such as intensity, duration, and frequency, and it assesses three domains in which physical activity is performed (occupational physical activity, transport-related physical activity, and physical activity during discretionary or leisure time). World Health Organization developed the Global Physical Activity Questionnaire (GPAQ) for physical activity surveillance. Since then, the GPAQ was underwent a research program which assessed its validity and reliability and demonstrated its ability to incorporate cultural and other differences. It has been used in more than 100 countries globally, mainly through the WHO Stepwise approach to NCD risk factor surveillance (8). The researcher distributed self-administer questionnaire to hypertensive patients in the waiting area. He was assisted by male medical interns in the male side and female medical interns in female side and collected the questionnaires at the end of the day. After explaining the aim and expected study outcomes for the participants with assurance of data confidentiality, the written consents were obtained. Ethical approval was obtained from ethical committee of the joint program of family medicine and permissions of data collection was obtained from the ministry of health.

Results

A total sample of 263 hypertensive patients who registered in the primary healthcare centers. About half of the patients were males and 61% aged less than 50 years old, while only 19% were older than 60 years old. The majority of the patients had a university degree (58.9%) and most of them were married (93%). About 3 quarters of the patients had an income higher than 5,000 SAR per month. The prevalence of smoking among the respondents was 33.7% (table 1). The patterns of physical activity in the hypertensive patients are demonstrated in table 2. Only 2 patients (less than 1%) had a job work involve vigorous-intensity activity that causes large increases in breathing or heart rate for at least 10 minutes continuously. A slightly higher percentage of patients (3.1%) worked in a job with moderate-intensity activity, that causes small increases in breathing or heart rate such as brisk walking for at least 10 minutes continuously. However, most patients (about 94%) had a light physical activity such as walking or using a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places. Twenty two percent of the patients had moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate for at least 10 minutes continuously. The response rate of the patients varied widely regarding questions of frequency and duration of the physical activity. It ranged from 1 respondent in the question about duration of vigorous-intensity activities to 259 respondents in the question of duration of sitting or reclining per day. The mean frequency of vigorous-intensity sports and leisure activities, vigorous-intensity activities as part of the work, and moderate-intensity activities as part of the work were 3, 2.5, and 2 days per week, respectively. The mean duration of vigorous- and moderate intensity sports and leisure activities were 24.7 and 23.5 minutes, respectively, while the mean duration of vigorous-intensity activities during work was 15 minutes. Practicing vigorous-intensity activities during work was not associated with any respondents' characteristics. Few participants reported that they were practicing vigorous-intensity activities during work.

However, the moderate-intensity activity during work was significantly more common in male gender and patients younger than 40 years old than females or those 40 years or older ($p=0.038$ and <0.001, respectively). Education, income, or smoking were not significantly associated with practicing moderate-intensity activity during work. Table 3 showed that respondents' characteristics were not significantly related to practicing of light physical activity as walking or use of a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places. Differently, practicing of moderate-intensity sports, fitness or recreational (leisure) activities were significantly related to male, ≤ 50 years old, smokers and patients who had income more than 5,000 SAR (table 4).

Table (1): Background characteristics of the hypertensive patients

	Frequency	Percent (%)
Gender		
Male	134	51.1
Female	128	48.9
Age		
30-40	97	36.9
41-50	64	24.3
51-60	52	19.8
>60	50	19.0
Education		
Secondary school	91	35.3
University level	152	58.9
Other	15	5.8
Marital status		
Married	238	93.0
Not married	18	7.0
Income		
<5000 SAR	194	74.3
≥5000 SAR	67	25.7
Smoking		
Yes	87	33.7
No	171	66.3

Discussion:

Prevention of cardiovascular diseases is considered as a major public health challenge. In the last decades, studies found that physical exercise reduced the risk of mortality by 20-35%, mainly death related to cardiovascular diseases [6-8]. There is a substantial evidence suggesting that physical activity and exercise reduces blood pressure as well as prevention of development of hypertension [9, 10]. The recent evidence demonstrated the temporal and dose-response relation between physical activity and hypertension [11]. However, the prevalence and factors influencing the pattern of physical activity among hypertensive patients have been not well studied. This study aimed to assess prevalence and determinants of physical activity in hypertensive patients. In the hypertensive patients attended primary healthcare center in Najran city, only 2 patients (less than 1%) had a job involves vigorous-intensity activity that causes large increases in breathing or heart rate for at least 10 minutes continuously.

This finding seems to be reasonable since patients with hypertensive are either have non-physical work or opted to non-physical work after being diagnosed with hypertension or associated cardiovascular diseases [12]. However, the majority of the respondents (about 94%) had a light physical activity such as walking or using a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places.

Even a repetitive form of light physical activity, such as walking or slight resistance activities for 6 minutes per hour, was found effective in the reduction of blood pressure as stated by the paper published at Journal of Hypertension [13]. It is recommended to combine light physical activity to reduce sedentary time and moderate-intensity activities to improve the aerobic capability. The perfect balance between light and moderate-intensity activity among hypertensive patients needs more research. This study found a 22% prevalence of moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate for at least 10 minutes continuously in hypertensive patients. This is better than the level of physical activity reported, by Al-Nozha et al., in general Saudi population as 4% found to be physically active. However, the assessment of physical inactivity by Al-Nozha et al. was strict and only those who reported 150 minutes of moderate-intensity activity per week were considered physically active [14]. Similar prevalence of moderate physical activity (23.3%) was reported by Al-Hamdan et al. who recruited Saudi hypertensive patients in a large scale comparative cross-sectional community-based study [15].The prevalence of moderate physical activity among Indonesian middle-aged men was 13.4% but 57.2% had a high level of physical activity [16]. Despite the majority of these Indonesian men were either prehypertensive (39%) or hypertensive (44%), the effect of physical activity on reduction of progression to hypertension stage was significant.

The identification of high-risk groups who have low level of physical activity such as women and elderly are important in order to develop targeted interventions focusing on high-risk people. In the literature, it has always been a challenge to quantify the level of physical activity suitable for these demographic groups [17]. In the present study, current

Table (2): Pattern of physical activity among hypertensive patients

Item	*Frequency*	*Percent (%)*
Does your work involve vigorous-intensity activity that causes large increases in breathing or heart rate, such as carrying or lifting heavy loads, digging or construction work, for at least 10 minutes continuously?		
Yes	2	0.8
No	257	99.2
Does your work involve moderate-intensity activity, that causes small increases in breathing or heart rate, such as brisk walking or carrying light loads, for at least 10 minutes continuously?		
Yes	8	3.1
No	246	96.9
Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?		
Yes	244	93.8
No	16	6.2
Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate, such as brisk walking, cycling, swimming, or volleyball, for at least 10 minutes continuously?		
Yes	56	22.0
No	198	78.0

activities with vigorous-intensity during work was not associated with any respondents' characteristics. The lack of the association between vigorous-intensity activities and patients' characteristics could be attributed to very small number of cases who reported that they were practicing vigorous-intensity activities during work. However, both moderate-intensity activity during work and moderate-intensity sports, fitness or recreational (leisure) activities were significantly more common in male gender and patients younger than 40 years old than females or those 40 years or older. This gender and age differences are commonly reported by clinical or epidemiological studies [18]. A longitudinal study, recruited 3,001 Australian women with hypertensive, found 28% higher odds of hypertension in women who reported no physical activity in comparison to those who reported high physical activity [19]. Moreover, physical activity seems to reduce the effect of obesity on the development of hypertension. In Saudi women, the level of physical activity was significantly lower than that in men [14].

Effect of age on the likelihood of physical practices and subsequently on the risk of cardiovascular disease were reported by several studies [20, 21]. Elderlies with moderate physical activity had 31% reduction in the risk of hospital admission from cardiovascular diseases regardless of gender [22]. The self-assessment of the physical activity is the main limitation of the present study which may lead to misclassification error but this error is usually random. The random error can dilute the strength of the associations but it does not lead to bias during identification of determinants of physical activity. Moreover, it is recommended to assess the determinants using prospective study designs to reduce recall bias.

Conclusions

The prevalence of physical activity in hypertension patients attend primary healthcare setting was found inadequate. Practicing of physical activity was significantly more common in male gender and patients younger than 40 years old than females or those 40 years or older.

Conflict of interests:

The authors declared no conflict of interests.

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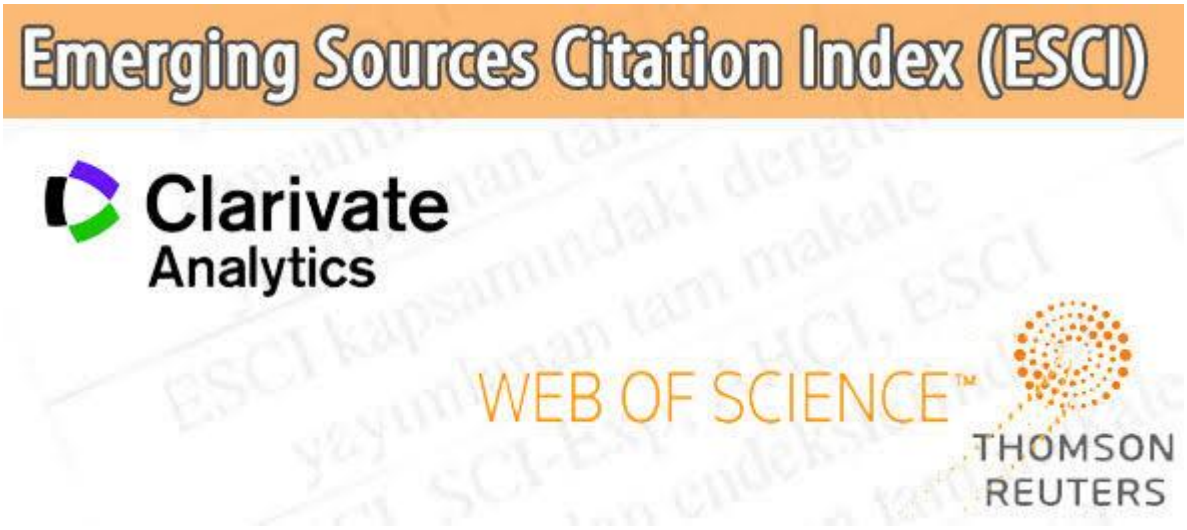
Table (3): Association between respondents' characteristics and light physical activity

Categories	*Do you walk or use a bicycle (pedal cycle) for at least 10 minutes continuously to get to and from places?*		***Chi-square***	***P value***
	Yes	**No**		
Gender				
Male	128 96.2%	5 3.8%	2.8	0.097
Female	115 91.3%	11 8.7%		
Age				
≤50	29 96.7%	1 3.3%	0.46	0.494
>50	215 93.5%	15 6.5%		
Marital status				
Married	221 94.0%	14 6.0%	0.005	0.945
Not married	17 94.4%	1 5.6%		
Education				
Secondary school	81 90.0%	9 10.0%	3.8	0.147
University degree	144 95.4%	7 4.6%		
Other	15 100.0%	0 0.0%		
Income				
<5000 SAR	176 92.1%	15 7.9%	3.5	0.063
≥5000 SAR	66 98.5%	1 1.5%		
Smoking				
Yes	85 97.7%	2 2.3%	3.5	0.060
No	154 91.7%	14 8.3%		

Table (4): Association between respondents' characteristics and physical activity as leisure activities

Categories	*Do you do any moderate-intensity sports, fitness or recreational (leisure) activities that cause a small increase in breathing or heart rate such as brisk walking, [cycling, swimming, volleyball] for at least 10 minutes continuously?*		***Chi-square***	***P value***
	Yes	**No**		
Gender				
Male	50 37.9%	82 62.1%	39.7	<0.001*
Female	6 5.0%	115 95.0%		
Age				
≤50	17 58.6%	12 41.4%	25.5	<0.001*
>50	39 17.3%	186 82.7%		
Marital status				
Married	53 22.9%	178 77.1%	0.94	0.332
Not married	2 12.5%	14 87.5%		
Education				
Secondary school	19 22.1%	67 77.9%	4.6	0.096
University degree	36 24.3%	112 75.7%		
Other	0 0.0%	15 100.0%		
Income				
<5000 SAR	34 18.1%	154 81.9%	6.1	0.014*
≥5000 SAR	21 32.8%	43 67.2%		
Smoking				
Yes	27 31.4%	59 68.6%	6.7	0.009*
No	28 17.1%	136 82.9%		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