

Original Research Article

Knowledge of the Saudi hypertensive individuals towards hypertension: a cross-sectional analytical study

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Received: 26 March 2023

Revised: 03 April 2023

Accepted: 10 April 2023

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ABSTRACT

Background: This cross-sectional study aimed to assess the knowledge of hypertension among adults living in Saudi Arabia. This information will be valuable for healthcare providers, public health organizations, and policy makers in developing effective health education programs and interventions to improve the management and prevention of hypertension in Saudi Arabia

Methods: The study was conducted during the period from October 2022 to December 2022 and utilized an online survey with a sample size of 1234 adults with a minimum age of 18 years. The survey consisted of questions regarding sociodemographic characteristics and knowledge of hypertension, including causes, symptoms, risk factors, and management.

Results: The results showed that most participants had a general understanding of hypertension, with the majority (79.7%) knowing the normal values of blood pressure and 63.7% understanding that it is a treatable condition. The most common source of knowledge about hypertension was through friends and family (53.1%).

Conclusions: The study highlights the need for continued education and awareness about hypertension in Saudi Arabia, particularly for those with limited education and older individuals.

Keywords: Knowledge, Hypertension, Saudi

INTRODUCTION

Hypertension, also known as high blood pressure, is a common and serious global health issue that affects millions of people worldwide. It is one of the leading risk factors for cardiovascular disease and death.¹ In Saudi Arabia, the prevalence of hypertension has increased significantly in recent years, and it has become a major public health concern.²

The study by Al-Nozha et al investigated the prevalence of hypertension and its association with coronary artery disease (CAD) in the Kingdom of Saudi Arabia.² The study included 17,230 subjects and found that the overall prevalence of hypertension was 26.1%, with a higher prevalence in males (28.6%) and urban populations

(27.9%) compared to females (23.9%) and rural populations (22.4%). The study also found that the prevalence of CAD was higher among hypertensive patients (8.2%) compared to normotensive subjects (4.5%). The study highlights the need for aggressive management and early screening of hypertension to prevent its damaging consequences, as well as promoting public health awareness of simple measures to maintain normal blood pressure.

The level of knowledge about hypertension among patients with the condition has been investigated in numerous studies conducted both in developing and developed countries. These studies have revealed that hypertensive patients with good knowledge are scarce in the world.³⁻⁵ In the USA, 22% of participants were found to have lower hypertension knowledge, while in Brazil,

17.7% of participants had little hypertension knowledge, which was significantly associated with non-adherence to antihypertensive treatment.^{3,4} In Turkey, the majority of participants didn't have adequate knowledge, with one-third of the study participants having a low level of knowledge about hypertension.⁵ In China, about half of the respondents had a low level of knowledge about hypertension, while in Pakistan, the level of knowledge was average, but respondents hadn't understood the importance of continuously taking medication well, resulting in non-adherence.^{6,7} Another study from Pakistan indicated that knowledge about hypertension was limited among patients with hypertension, particularly those with uncontrolled blood pressure.⁸ In Iran, only 25.2% had good knowledge about hypertension.⁹ Studies conducted in Zimbabwe, Cameroon, and Ethiopia have also revealed poor knowledge about hypertension among patients with the condition.¹⁰⁻¹³ Low educational level has been found to be significantly associated with a low level of hypertension knowledge in these studies.^{3,5,9,11} A study from Pakistan showed that a low level of hypertension knowledge was common in patients who were unable to control their blood pressure.⁸ Studies from Iran and Ethiopia indicate that women and elders have lower hypertension knowledge compared to men and younger age groups, respectively.^{9,13} Similarly, those with lower income, non-employees, and those who have no regular physical activities were more likely to have lower hypertension knowledge.⁹ Rural living and dietary risk factors were also found to be significantly associated with low levels of hypertension knowledge.^{9,13}

The results of this study will provide important information on the current knowledge, attitudes, and practices of the Saudi hypertensive individuals towards hypertension and its risk factors. This information will be valuable for healthcare providers, public health organizations, and policymakers in developing effective health education programs and interventions to improve the management and prevention of hypertension in Saudi Arabia.

METHODS

This cross-sectional study was conducted using an online survey in the period from October 2022 to December 2022 to assess the knowledge of hypertension among adults living in Saudi Arabia. The sample size was 1234 adults living in Saudi Arabia. The inclusion criteria included any Saudi adult with a minimum age of 18 years who was residing in Saudi Arabia during the period of the study. The data was collected through an online survey, which was developed using Google forms and was accessible through social media platforms and websites. The survey consisted of questions regarding sociodemographic characteristics and knowledge of hypertension. The questions were designed to assess the participants' knowledge of hypertension causes, symptoms, risk factors, and management. The survey also

included questions about the source of participants' knowledge about hypertension and their current medication regimen.

In this study, the hypertension fact questionnaire (HFQ) which was developed by Viera et al.³ and was adapted from Saleem et al was used to assess the knowledge of the Saudi hypertensive individuals towards hypertension.⁷ The questionnaire consists of 15 questions that evaluate the patients' understanding of the causes, treatment, and management of hypertension. The answers to each question were graded as 'yes,' 'no,' or 'not sure,' with a scoring range of 0 to 15. The individual knowledge scores were calculated by adding the answers to each question, and the overall knowledge score provides an indication of the level of knowledge of the hypertensive individuals towards hypertension. The use of the HFQ in this study is important because it provides a standardized and validated tool for evaluating the knowledge of the hypertensive individuals towards hypertension. The questionnaire has been widely used in similar studies, and its reliability and validity have been established in previous research.⁷ By using the HFQ, this study was able to compare its results with previous studies and provide a more comprehensive understanding of the knowledge of the Saudi hypertensive individuals towards hypertension.

The data was analyzed using IBM SPSS Statistics 26.0. Descriptive statistics were used to summarize the sociodemographic characteristics of the participants. The association between sociodemographic characteristics and knowledge of hypertension was assessed using chi-square test. A p value less than 0.05 was considered statistically significant.

The study was approved by the institutional review board (IRB) and was conducted in accordance with the declaration of Helsinki. Participants were informed about the purpose of the study and were asked to provide informed consent before starting the survey. Confidentiality was maintained throughout the study, and the data collected was used for research purposes only.

RESULTS

Table 1 provides a summary of the sociodemographic characteristics of the participants in the study (n=1234). The majority of the participants were between the ages of 50 and 74 (70.3%) and were female (52.8%). Most of the participants were married (58.9%) and were not working (44.6%). The most common source of knowledge about hypertension was through friends and family (53.1%). Most of the participants took 1 to 2 medications daily for hypertension (80.8%).

Table 2 presents the participants' knowledge about hypertension and its related factors. The results showed that the average HFQ score was 9.5 ± 2.1 , with 26.6% of the participants having good knowledge (≥ 11) and 73.4% having poor knowledge (< 10).

Table 2 shows that the majority of the participants (79.7%) knew the normal values of blood pressure, and the majority (82%) believed that hypertension can progress with age. The data also shows that 60.3% of the participants believed that both men and women have an equal chance of developing hypertension, while 27.6% did not. A majority of the participants (63.7%) believed that hypertension is a treatable condition and 80.7% believed that older people have a higher risk of having hypertension. A majority of the participants (82%) believed that smoking is a risk factor for hypertension, while 12.1% did not.

The results also showed that 85.2% of the participants believed that eating fatty food affects blood cholesterol level, which is a risk factor for developing hypertension. A majority of the participants (85.7%) believed that being overweight increases the risk of hypertension and 71.8% believed that regular physical activity lowers the chance of getting hypertension. The results showed that 49.7% of the participants believed that eating more salt has no

effect on the blood pressure, while the 45.4% of them did not.

The data also showed that 43.8% of the participants believed that a dietary approach to reduce hypertension does no good, while 42.3% of them did not. A majority of the participants (42.9%) believed that white meat is as good as red meat in hypertension, while 37.7% of them did not. The majority of the participants (59.3%) believed that medication alone can control hypertension, while 33.2% of them did not. A majority of the participants (81.5%) believed that hypertension can lead to other life-threatening diseases, while 11% of them did not.

Table 3 shows the results of the survey regarding the knowledge about hypertension and its association with various sociodemographic characters. The results indicate that good knowledge about hypertension was associated with younger age (18-28 years), being female, being single, having higher educational level. Other significant factors are summarized in Table 3.

Table 1: Sociodemographic characters of participants and history of hypertension (n=1234).

Parameters	Frequency (%)
Age (years)	18
	58 (4.7)
	30
Sex	308 (25)
	50-74
	868 (70.3)
Marital status	Male
	582 (47.2)
	Female
Educational level	652 (52.8)
	Single
	59 (4.8)
	Married
	727 (58.9)
Father education	Widow
	313 (25.4)
	Divorced
	135 (10.9)
	Illiterate
Occupational status	186 (15.1)
	Primary education
	153 (12.4)
	Intermediate education
	340 (27.6)
Nationality	Secondary education
	277 (22.4)
	University or more
	278 (22.5)
	Illiterate
Type of residency	640 (51.9)
	Primary education
	267 (21.6)
	Intermediate education
	191 (15.5)
	Secondary education
	88 (7.1)
Occupational status	University or more
	48 (3.9)
	Public sector
	388 (31.4)
	Military
	112 (9.1)
	Private work
Nationality	67 (5.4)
	Student
	18 (1.5)
	Self-employed
	99 (8)
	Not working
	550 (44.6)
Type of residency	Saudi
	1213 (98.3)
Type of residency	Non-Saudi
	21 (1.7)
Type of residency	Rural area
	53 (4.3)
Type of residency	Urban area
	1181 (95.7)

Continued.

Parameters	Frequency (%)
Do you have children?	No 125 (10.1)
	Yes 1109 (89.9)
Number of children (n=298)	1 to 4 358 (32.3)
	5 to 8 556 (50.1)
	9 to 16 195 (17.6)
Source of hypertension knowledge	Friends and family 655 (53.1)
	Social media 149 (12.1)
	Journals and newspapers 160 (13)
	No specific source 270 (21.9)
Number of medications taken daily	1 to 2 997 (80.8)
	3 to 4 237 (19.2)
Years of receiving anti-hypertensive medications	1 to 5 671 (54.4)
	6 or more 563 (45.6)

Table 2: Hypertension fact questionnaire (HFQ) items and scores (n=1234).

HFQ items	No, N (%)	Yes, N (%)	Not sure, N (%)
Do you know the normal values of blood pressure?	224 (18.2)	983 (79.7)	27 (2.2)
Is elevated BP called hypertension?	540 (43.8)	615 (49.8)	79 (6.4)
Is hypertension a condition which can progress with age?	102 (8.3)	1012 (82)	120 (9.7)
Are men and women both have equal chance of developing hypertension?	340 (27.6)	744 (60.3)	150 (12.2)
Is hypertension a treatable condition?	332 (26.9)	786 (63.7)	116 (9.4)
Is the older the person, the greater their risk of having hypertension?	159 (12.9)	996 (80.7)	79 (6.4)
Is smoking a risk factor for hypertension?	149 (12.1)	1012 (82)	73 (5.9)
Does eating fatty food affect blood cholesterol level which is a risk factor for developing hypertension?	144 (11.7)	1051 (85.2)	39 (3.2)
Does being overweight increase risk for hypertension?	95 (7.7)	1053 (85.7)	80 (6.5)
Will regular physical activity lower a person's chance of getting hypertension?	182 (14.7)	886 (71.8)	166 (13.5)
Does eating more salt have no effect on blood pressure?	613 (49.7)	560 (45.4)	61 (4.9)
Does dietary approach to reduce hypertension do no good?	522 (42.3)	541 (43.8)	171 (13.9)
Is white meat as good as red meat in hypertension?	465 (37.7)	529 (42.9)	240 (19.4)
Can medication alone control hypertension?	410 (33.2)	732 (59.3)	92 (7.5)
Can hypertension lead to other life-threatening diseases?	135 (11)	1001 (81.5)	92 (7.5)
Hypertension knowledge levels	Good knowledge (≥11)	328 (26.6)	
	Poor knowledge (<10)	906 (73.4)	
Average HFQ score		9.5±2.1	

Table 3: Sociodemographic characters in association with hypertension knowledge (n=1234).

Parameters		Good knowledge, N (%)	Poor knowledge, N (%)	P value
Age (years)	18	28 (48.3)	30 (51.7)	0.000
	30	87 (28.2)	221 (71.8)	
	50-74	213 (24.5)	655 (75.5)	
Sex	Male	170 (29.2)	412 (70.8)	0.048
	Female	158 (24.2)	494 (75.8)	

Continued.

Parameters		Good knowledge, N (%)	Poor knowledge, N (%)	P value
Marital status	Single	36 (61)	23 (39)	0.000
	Married	235 (32.3)	492 (67.7)	
	Widow	37 (11.8)	276 (88.2)	
	Divorced	20 (14.8)	115 (85.2)	
Educational level	Illiterate	45 (24.2)	141 (75.8)	0.003
	Primary	44 (28.8)	109 (71.2)	
	Intermediate	72 (21.2)	268 (78.8)	
	Secondary	70 (25.3)	207 (74.7)	
	University	97 (34.9)	181 (65.1)	
Father education	Illiterate	207 (32.3)	433 (67.7)	0.000
	Primary	64 (24)	203 (76)	
	Intermediate	32 (16.8)	159 (83.2)	
	Secondary	20 (22.7)	68 (77.3)	
	University	5 (10.4)	43 (89.6)	
Occupational status	Public sector	104 (26.8)	284 (73.2)	0.000
	Military	20 (17.9)	92 (82.1)	
	Private work	22 (32.8)	45 (67.2)	
	Student	6 (33.3)	12 (66.7)	
	Self-employed	51 (51.5)	48 (48.5)	
	Not working	125 (22.7)	425 (77.3)	
Nationality	Saudi	328 (27)	885 (73)	0.005
	Non-Saudi	0 (0)	21 (100)	
Type of residency	Rural area	0 (0)	53 (100)	0.000
	Urban area	328 (27.8)	853 (72.2)	
Do you have children?	No	42 (33.6)	83 (66.4)	0.061
	Yes	286 (25.8)	823 (74.2)	
Number of children (n=298)	1 to 4	97 (27.1)	261 (72.9)	0.001
	5 to 8	120 (21.6)	436 (78.4)	
	9 to 16	69 (35.4)	126 (64.6)	
Source of hypertension knowledge	Friends, family	144 (22)	511 (78)	0.000
	Social media	49 (32.9)	100 (67.1)	
	Journals and newspapers	30 (18.8)	130 (81.3)	
	Not specific	105 (38.9)	165 (61.1%)	
Number of medications per day	1 to 2	290 (29.1)	707 (70.9%)	0.000
	3 to 4	38 (16)	199 (84%)	
Years of receiving anti-hypertensive medications	1 to 5	202 (30.1)	469 (69.9%)	0.002
	6 or more	126 (22.4)	437 (77.6%)	

DISCUSSION

The present study aimed to assess the knowledge of hypertension among adults living in Saudi Arabia using a cross-sectional study design. The results of the study revealed that the majority of the participants had knowledge of the normal values of blood pressure (79.7%) and that hypertension was a treatable condition (63.7%). However, there was a lack of understanding about some key aspects of hypertension, such as the fact that both men and women have an equal chance of developing the condition (60.3%).

The study also revealed that the major source of knowledge about hypertension was from friends and family (53.1%) followed by social media (12.1%), journals and newspapers (13%), and no specific source (21.9%). This highlights the importance of providing reliable and accurate information about hypertension through different platforms, such as healthcare professionals, educational institutions, and the media.

In terms of the management of hypertension, the majority of participants were taking 1 to 2 medications per day (80.8%) and had been receiving anti-hypertensive medications for 1 to 5 years (54.4%). The long-term use

of medications suggests that hypertension is a chronic condition that requires ongoing management and highlights the importance of continuous monitoring and patient education.

This study's findings are similar to previous studies that have found low levels of knowledge about hypertension among patients with the condition worldwide. For example, in the USA, 22% of participants had lower hypertension knowledge, while in Turkey, the majority of participants didn't have adequate knowledge.^{3,5} In China, about half of the respondents had a low level of knowledge about hypertension, and in Iran, only 25.2% had good knowledge about hypertension.^{6,9} Similarly, studies in Zimbabwe, Cameroon, and Ethiopia have revealed poor knowledge about hypertension among patients with the condition (Mbekwa et al; Chimberengwa and Naidoo, Worku Kassahun et al; Bacha and Abera).¹⁰⁻¹³

Limitations

There were several limitations to this study that should be noted. Firstly, the sample size of the study was limited to 1234 participants, which may not be representative of the entire population. Secondly, the study was conducted in Saudi Arabia, and the results may not be generalizable to other populations. Thirdly, the study relied on self-reported data, which may have resulted in response bias. Finally, the study did not assess the actual behaviour of the participants regarding hypertension risk factors, and it was limited to the assessment of knowledge and attitudes.

CONCLUSION

This study found that while the majority of participants had good knowledge of hypertension, there was still a lack of understanding about the basic definition and causes of hypertension. This highlights the need for better public education and awareness campaigns about hypertension, including the importance of lifestyle changes in the management of hypertension. These findings are consistent with previous studies conducted both in developing and developed countries, which have revealed low levels of knowledge about hypertension among patients with the condition.

Recommendations

Based on the results of this study, it is recommended that health education programs be developed to increase knowledge about hypertension and its risk factors, particularly for high-risk populations such as those with a family history, smokers, and the overweight. Health professionals should provide regular counselling to patients with hypertension on lifestyle changes to reduce the risk of complications, and the media should be utilized to raise public awareness about hypertension and its risk factors. To confirm the findings of this study,

further studies with larger sample sizes and more diverse populations should be conducted.

ACKNOWLEDGEMENTS

We would like to thank all the participants in this study.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

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Cite this article as: Al-Shehri HM. Knowledge of the Saudi hypertensive individuals towards hypertension: a cross-sectional analytical study. *Int J Community Med Public Health* 2023;10:1635-41.