Research Article

Relationship between nutrition and hypertension among Jazan University employees

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Abstract

Hypertension is a common problem facing people all over the world and is known as the silent killer, Hypertension is a serious disease with increasing worldwide prevalence, leading to life-threatening complications. This study aims to determine the prevalence of hypertension and risk factors among Jazan University employees and to evaluate the relative impact of lifestyle and Nutritional factors on hypertension levels in Jazan University employees. Cross-sectional study using a self-administered electronically distributed questionnaire. The study was carried out on 207 participants from Jazan University employees (male &female) above 18 years old during the period 2022 to December 2023 randomly selected. Most of the participants (92.3%) were Saudis and (64.7%) were in academic roles. Only 39.6% of the participants claimed to have normal weight, and 30.9% reported being overweight. Only 39.6% had normal BMI, while 30.9% were overweight. Negative behaviors were detected in only 15% of healthy diets, and 41.1% did not follow any prevention strategies. Only 24.6% practiced physical activity regularly, and 86% were not familiar with DASH. Hypertension was significantly associated with being Saudi, overweight, taking less amounts of salt, and having a negative attitude towards physical activity. Strategies for managing and preventing hypertension were either disregarded or unknowledgeable. Employees had poor levels of awareness of and adherence to techniques for preventing and controlling hypertension.
Keywords: Body mass index, Employee, Hypertension, Nutrition, Physical activity

Introduction

Hypertension is a common health problem in developed countries, and its prevalence is probably increasing in nations of the developing world (Abolfotouh et al, 1996). There are at least 970 million people worldwide who have elevated blood pressure (hypertension). In the developed world, about 330 million people have hypertension, as do around 640 million in the developing world. The problem is growing in 2025 it is estimated there will be 1.56 billion adults living with high blood pressure (http://www.world-heart.federation.org, 2013). Hypertension is estimated to cause 4.5% of the global disease burden and is as prevalent in many developing countries as in developed countries (WHO, 2003). Worldwide, seven million premature deaths have been attributed to hypertension. In recent decades, it has become increasingly clear that the development of stroke, ischemic heart disease, and renal failure have been attributed to hypertension. Treating hypertension has been associated with a 40% reduction in the risk of stroke and about a 15% reduction in the risk of myocardial infarction Hypertension is increasing in prevalence in KSA affecting more than one-fourth of the adult Saudi population. (Al-Nozha et al., 2007) Various risk factors have been associated with hypertension, including age, sex, race, physical activity, and socioeconomic class (Wang & Vasan, 2005). Among risk factors for HTN, stress, especially work stress, has drawn increasing attention. In Saudi Arabia, studies have estimated its prevalence among adults to range from 4% to 15 % (Ibrahim et al., 2008). Over the last twenty years, Saudi Arabia has witnessed major socioeconomic development leading to significant changes in its standard of living and lifestyle. The transformation of society has also resulted in changes in dietary habits and related social practices, many of which are not necessarily healthy ones. This has been compounded by a lack of exercise among large segments of society. These factors and others have contributed to the emergence of degenerative diseases in adult life such as obesity, and hypertension. These have essentially replaced communicable diseases as the principal causes of morbidity and mortality (Sadeghi et al., 2004; Al-Shahri et al., 1998). Nurses can be more effective while serving as resources for developing and implementing health education programs for Lifestyle modification. Our aims of the study are to determine the prevalence of hypertension and risk factors among Jazan University employees and evaluate the relative impact of lifestyle and Nutritional factors on hypertension levels in Jazan University employees through defining the relationship between hypertension and sociodemographic and occupational parameters, Assessing employee's knowledge and risk factor leading to hypertension and assessing lifestyle habits such as smoking, psychological pressure, and socio-

emotional support. Hypertension is a silent disease in which the symptoms are rarely seen during the early stages until a serious complication such as heart attack, stroke or chronic kidney disease occurs. (Chobanian et al., 2003; Sengul et al., 2016) In a study evaluating the prevalence of HT at a global level and involving 19.1 million people, it was shown that although there were regional differences, the prevalence of HT increased globally in the last four decades, and the number of hypertensive persons increased by 90% to 1.13 billion in 2015 NCD Risk Factor Collaboration (NCD-RisC, 2017). It is estimated that 7.5 million people die from hypertension-related diseases worldwide, which is responsible for about 12.8% of all deaths. (WHO, 2018) It is also estimated that approximately 75% of the world's hypertensive population will be in developing countries by 2025 (Kearney et al., 2005). In addition, the global economic burden created by hypertension is estimated to be approximately 370 billion dollars (Gaziano et al., 2009). Several risk factors are involved in the etiology of hypertension: age, geographic factors, genetics, socio-economics, ethnicity, diet, and nutrition. Occupation-related factors are also among the significant risk factors for hypertension. (Rau, 2014).

Martial and methods

A cross-sectional study using a self-administered electronically distributed questionnaire aimed to evaluate the relative impact of lifestyle and Nutritional factors on hypertension, study carried out on 207 participants agree to participate from Jazan University employees (male &female) above 18 years old during the period 2022 to December 2023 randomly selected. The study was conducted at various colleges in Jazan University. Based on the total number of employees in Jazan University, a 95% confidence interval (CI), 5% margin of error, and 50% response distribution. The sample size was increased to 350 counting for a 25% nonresponse rate. The research sample was not fully realized due to project time constraints. The survey was carried out among 207 randomly selected samples. We used Steven K. Thompson's equation to calculate the sample size. The study sample was randomly selected from Jazan University employees. Participants aged 20 years and above were selected as study subjects. A web-based cross-sectional study was conducted to evaluate the impact of lifestyle and Nutritional factors on hypertension levels in Jazan University employees. The instrument was developed based on a review of previous studies consisting of validated items across a range of dimensions including lifestyle, Nutritional factors, and hypertension, the primary data was collected by sending a link to the participant including the questionnaire. The questionnaire Questions included all information related to the topics covered all objectives and were administered online using

Google Forms. Eligible participants (university Staff aged >=18 years. The secondary information is obtained from relevant, books, references, articles, reports, and sources. For the present study, the collected data from the participants was grouped and analyzed using both descriptive and inferential statistical methods. Statistical analysis is done manually by using statistical formulas. Study plan to carry out the following analysis: Gathered all the information obtained from the study. Organization of data in master sheet/computer. Demographic variables were analyzed in terms of frequency and percentage. Statistical analysis was presented using SPSS (Statistical Package for Social Sciences). Another level of data analysis chi-square test used to test some associations. A P Value less than 0.05 was considered significant.

Results

Table 1. General characteristics

			Hypertensive	Healthy	Total	p-value
Sex	Male	F	2	12	14	.823
		%	5.9%	6.9%	6.8%	
	Female	F	32	161	193	
		%	94.1%	93.1%	93.2%	
Age	<20	F	1	7	8	.041
		%	2.9%	4.0%	3.9%	
	20-35	F	13	109	122	
		%	38.2%	63.0%	58.9%	
	36-50	F	18	50	68	
		%	52.9%	28.9%	32.9%	
	over 50	F	2	7	9	
		%	5.9%	4.0%	4.3%	
Nationality	Saudi	F	28	163	191	.018
		%	82.4%	94.2%	92.3%	
	Non-Saudi	F	6	10	16	
		%	17.6%	5.8%	7.7%	
Job position	Academic	F	20	114	134	.430
		%	58.8%	65.9%	64.7%	
	Management	F	14	59	73	
		%	41.2%	34.1%	35.3%	

The results show that, of 207 participants in this study, the overwhelming majority 193 (93.2%) were females, while males were 14(6.8%). The majority 122 (58.9%) were between 20-35 years. Saudis were 191(92.3%) while the rest of them 16(7.7%) were foreign nationals. Those in academic roles were 134 (64.7%), while the rest of them 73(35.3%) were in managerial roles.

The prevalence of hypertension was high, as 86(41.5%) were hypertensive. The prevalence of hypertension was significantly higher among Saudis and those in the age range of 36-50 years.

Table 2. Hypertension associated factors

			Hypertensive	Healthy	Total	P-value
Smoking status	Smoker	F	3	13	16	.794
		%	8.8%	7.5%	7.7%	
	Non-smoker	F	31	160	191	
		%	91.2%	92.5%	92.3%	
My working hours prevent me from keeping fit as I want	Strongly disagree	F	2	12	14	0.02
		%	5.9%	6.9%	6.8%	
	Disagree	F	5	34	39	
		%	14.7%	19.7%	18.8%	
	Neutral	F	10	78	88	
		%	29.4%	45.1%	42.5%	
	Agree	F	14	27	41	
		%	41.2%	15.6%	19.8%	
	Strongly disagree	F	3	22	25	
		%	8.8%	12.7%	12.1%	
Comorbidities	None	F	19	116	135	.004
		%	55.9%	67.1%	65.2%	
	Obesity	F	7	8	15	
		%	20.6%	4.6%	7.2%	
	DM	F	1	4	5	
		%	2.9%	2.3%	2.4%	
	Immunity diseases	F	0	1	1	
		%	0.0%	0.6%	0.5%	
	Cardiovascular	F	2	0	2	
		%	5.9%	0.0%	1.0%	
	Blood diseases	F	0	3	3	
		%	0.0%	1.7%	1.4%	
	Lung diseases	F	0	2	2	
		%	0.0%	1.2%	1.0%	
	Other	F	5	38	43	
		%	14.7%	22.0%	20.8%	
	Renal diseases	F	0	1	1	
		%	0.0%	0.6%	0.5%	
Participants' knowledge of DASH	Yes	F	6	23	29	.504
		%	17.6%	13.3%	14.0%	
	No	F	28	150	178	
		%	82.4%	86.7%	86.0%	
Ways followed to maintain health and prevent high blood pressure	None	F	16	69	85	.728
		%	47.1%	39.9%	41.1%	
	Recommendations	F	6	37	43	
		%	17.6%	21.4%	20.8%	
	I follow a diet and sports regimen	F	12	67	79	
		%	35.3%	38.7%	38.2%	

Table 2 reveals the relationship between blood pressure and associated factors. Working hours, and comorbidities, were significantly associated with hypertension among the studied group.

Table 3. Nutritional factors

			Hypertensive	Healthy	Total	p-value
BMI	underweight	F	4	23	27	.001
		%	11.8%	13.3%	13.0%	
	normal weight	F	9	101	110	
		%	26.5%	58.4%	53.1%	
	overweight	F	20	44	64	
		%	58.8%	25.4%	30.9%	
	obese	F	1	5	6	

		%	2.9%	2.9%	2.9%	
Participants' daily intake of salt	<4mg	F	17	96	113	.048
		%	50.0%	55.5%	54.6%	
	4-6mg	F	16	51	67	
		%	47.1%	29.5%	32.4%	
	>6mg	F	1	26	27	
		%	2.9%	15.0%	13.0%	
Distribution of participants according to consumption of a diet rich in vitamins, protein, and fiber	YES	F	3	28	31	.547
		%	9.1%	16.5%	15.3%	
	No	F	9	40	49	
		%	27.3%	23.5%	24.1%	
	sometimes	F	21	102	123	
		%	63.6%	60.0%	60.6%	
Frequency of consumption of ready food	I never eat it	F	2	8	10	.704
		%	5.9%	4.6%	4.8%	
	From time to time	F	12	69	81	
		%	35.3%	39.9%	39.1%	
	sometimes	F	13	58	71	
		%	38.2%	33.5%	34.3%	
	Most of the time	F	7	38	45	
		%	20.6%	22.0%	21.7%	

Table 3 shows a significant association between being hypertensive and each BMI and daily intake of salt (P=<0.05). Hypertensive participants have a significant tendency towards taking less amounts of salt and being overweight.

Discussion

The results of the study revealed that most of the participants (92.3%) were Saudis, in young age mostly (58.9%) ranging between 20-35 years; and females were the overwhelming majority of the studied group (93.2%). Further, the majority of the participants (64.7%) were in an academic role, and almost one-third of them (32.9%) were affiliated with health-related faculties (medical and applied sciences, medicine, and public health). These results show that many of the participants are aware of the influence of lifestyle and dietary variables on hypertension levels. Faculty members and other members of health and treatment groups who possess adequate knowledge about the risk factors associated with hypertension are essential in managing the disease's risk factors because their lifestyles can directly or indirectly affect other members of society. The prevalence of hypertension was high, with 86 (41.5%) of the population being hypertensive. Saudis and those aged 36-50 years had a much greater prevalence of hypertension. The majority of Saudi children, youth, and adults do not engage in enough physical exercise to avoid cardiovascular disease and other ailments, and levels of physical activity in Saudi society are inadequate to maintain good health. These results indicate the necessity to address risk factors for essential hypertension among Saudis. Elbashir et al. (2021) reported the prevalence of hypertension was higher among individuals over 50.

The university staff members who were enlisted for the current study had a high incidence of hypertension, but their lifestyle choices did not translate into actions for the management of the

condition or its risk factors. That can be attributed to the fact that they had poor knowledge of hypertension control and management. The results revealed that most of both hypertensive and health subjects in this study had no information on the DASH diet; which is widely regarded as the most effective dietary plan for treating or preventing high blood pressure. This aligns well with the findings of several previous studies. Diets high in fruits and vegetables and low in saturated fats have been shown to reduce blood pressure in controlled trials with hypertensive individuals (Elbashir et al., 2021). The results revealed that hypertensive participants have a significant tendency ($p=<0.05$) towards being overweight and having comorbidities. Despite the fact the hypertensive subjects in this study had taken significantly less salty meals, they had significantly decreased physical activity attributed to working hours. Overall, the population study had negative attitudes towards following a healthy diet and lifestyle, yet, hypertension patients were less likely to follow recommended diet and lifestyle modifications to maintain health and to prevent high blood pressure. While medications to treat hypertension are available, research has shown that modest lifestyle and dietary changes can help treat and often delay or prevent high blood pressure. However, there were a few drawbacks to the current investigation. Firstly, because this study was cross-sectional, it was not possible to establish a direct link between the variables and hypertension. Second, because the questionnaire was self-assessment, it was difficult to get accurate information and recollection bias could not be completely avoided. Thirdly, because the study's subjects were chosen from among Jazan University staff members, it may not apply to different settings or demographics.

Conclusion

In the current study, the prevalence of hypertension was high among the employees at Jazan University. Hypertension prevention and management strategies were either neglected or ignorant. Levels of awareness and control of hypertension were low among employees. The results should function as a reminder of the importance of preparing for, managing, and controlling hypertension as well as the risk factors for chronic diseases. Public awareness programs should be launched to increase understanding of this expanding health issue and the significance of lifestyle changes in order to stop the development of hypertension later on. The

development of strategies at public health levels to improve the DASH diet's adherence and to be included in the main guidelines for antihypertensive therapy is also suggested.

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