

# The Prevalence of Hypertension and its Determinants among Health Care Professionals in Saudi Arabia

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## Abstract

**Objective:** The aim of the study is to determine the prevalence of hypertension and related factors among health-care employees in Najran, Saudi Arabia. **Methods:** A cross-sectional survey was done among health care professionals who work for the Ministry of Health's, Directorate of General Health Affairs in Najran, Saudi Arabia southern region. The study sample size was 200 and the data were collected through a self-administered questionnaire. Assessed the level of hypertension by checking blood pressure followed by determinants related to hypertension. Data were analyzed by using descriptive and inferential statistics. **Results:** The study's findings, the majority of medical staff (92%) and non-medical employees (88%) had pre-hypertension, and 88 (42%) medical and 80 (40%) non-medical staff had stage one hypertension, and 24 (12%) medical staff and 32 (16%) non-medical staff had stage two hypertension. BMI, junk food, family history of hypertension, smoking status, and physical activity all play a role in hypertension levels. **Conclusion:** The study's findings show that healthcare employees, regardless of their job description, suffer from a high rate of hypertension. Hypertension levels are strongly linked to determining factors such BMI, junk food, family history of hypertension, smoking status, and physical activity. Health-care professionals should have frequent medical checks, and effective health-promotion programs should be established to reduce the risk of hypertension and improve the health of health-care workers.

**Keywords:** Hypertension, determinants, health care professionals.

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## INTRODUCTION

Hypertension, often known as high blood pressure (HBP), is a chronic medical disorder in which blood pressure in the arteries remains consistently high [1]. Hypertension is a leading cause of illness and mortality worldwide [2]. In the previous thirty years, the number of persons aged 30–79 years with hypertension has risen from 650 million to 1.28 billion [3]. Coronary artery disease (CAD), hypertensive heart disease (HHD), stroke, myocardial infarction, atherosclerosis peripheral vascular disease, eyesight loss, and chronic renal disease are all major effects of uncontrolled high blood pressure [4]. Non communicable diseases (NCDs) account for the majority of deaths worldwide and in the majority of low- and middle-income nations [5]. Hypertension epidemiological research in Arab countries have found a wide range of figures in 26.3 percent in Kuwait, 32.1 percent in Qatar, 33 percent in Oman, and 20.1 percent in Egypt, according to studies [6]. According to a recent

epidemiological study, HTN affects 26% of individuals in the Kingdom of Saudi Arabia [7].

Health care professionals' working conditions are a major source of concern that should not be overlooked. As a result, there are disparities in the prevalence of hypertension risk factors among medical professionals. Workplace stress has recently been identified as a risk factor for the development of hypertension. High demands, poor decision-making abilities, psychological job load, and physical exertion are all variables that contribute to hypertension among health care workers [8]. A poor diet, obesity, physical inactivity, and cigarette use are the key etiological variables linked to NCDs [9]. Krusun *et al.* conducted a study on health problems among health care workers, in which the workers were tested for fasting and postprandial blood sugar, cholesterol levels, and triglyceride and the findings revealed that metabolic derangements are the most common health problem among health care workers [10]. A similar study was

undertaken on the prevalence of hypertension among hospital staff, and the results revealed that hospital employees had a significant incidence of hypertension [11, 12].

Hypertension and other associated health risk factors and behaviors among HCW in so have remained unaddressed to date. HCWs are thought of as professionals who should be well-versed in health promotion and serve as health role models for their patients. However, it has been reported that the prevalence of NCDs is not restricted to the general public it also affects healthcare staff. Hypertension is prevalent in 22% of HCWs in Mexico, type 2 diabetes is prevalent in 8%, and hypercholesterolemia is prevalent in 70% [13]. As a result, the investigator set out to conduct a research among health care professionals to analyze hypertension and its factors.

## MATERIALS AND METHODS

### Study design

A cross-sectional survey was adopted to determine the level of hypertension and its determinants among health care workers.

### Setting and participants

The study included health care employees from the Ministry of Health's Directorate of General Health Affairs in Najran, Saudi Arabia's southern region. The research took place between August and October 2020. Nearly 300 health care workers in the region were providing administrative services to Ministry of Health employees. Two hundred employees who decided to take part and met the study's inclusion criteria. All health care workers, including men and women, Saudis and non-Saudis, medical and non-medical professionals who volunteered to participate in this study who seemed to be in good health Individuals with undiagnosed and untreated hypertension were included in the study. However, employees who had been diagnosed and were being treated, either with medicine or a limited diet, and pregnant women were excluded from the study.

### Ethical Considerations

The study was approved by the Institutional Review Board (IRB) with registration number KACST, KSA: H-11-N-081, in Najran. All the participants provided consent before participating in the research study. Administrative permission was obtained to conduct the study. The importance of voluntary involvement and data confidentiality was assured. Only the researchers had access to the data. The data was stored in a password protected file.

### DATA COLLECTIONS INSTRUMENTS

Part I: Socio demographic characteristics and occupational history included Age, gender, civil status, nationality, professional category, family history of hypertension and hobbies.

Part II: Hypertension-related determinants included Body Mass Index, systolic/diastolic blood pressure, food habits, excessive intake of carbonated drinks, Junk food intake, exposure to the stress duration of sleep and physical activity duration.

### DATA COLLECTION PROCEDURE

The study participants were explained about the purpose of the study. Self-administered questionnaires and anthropometric measurements were used to collect data. Data on demographic and hypertension-related variables was collected using a self-administered questionnaire. An electronic weigh machine scale was used to record body weight in kilograms, and a wall measurement scale was used to record height in centimeters. The BMI was then calculated as follows:  $BMI = \text{weight (kg)} / [\text{height (m)}]^2$ . According to WHO guidelines, BMI was categorized as follows: normal weight (18.5-24.9 kg/m<sup>2</sup>), overweight (25.0-29.9 kg/m<sup>2</sup>), obese (30.0-39.9 kg/m<sup>2</sup>), and extremely obese (40 kg/m<sup>2</sup>). Participants were also asked if they were happy with their body weight, if they thought they were overweight, and if they had tried to lose weight before [14]. The benefits and hazards of involvement were clearly known by all participants who reported to the main hall. An electronic machine was used to measure blood pressure (Omron Corporation). In those participants whose blood pressure was higher than normal during the initial reading, measurements were conducted on the right on three separate occasions. As a final observation, the average of all three values was used. BP was classified as follows: Normal (SBP <120 and DBP <80 mmHg), prehypertension (SBP 120–139 and/or DBP 80–89 mmHg), hypertension Stage I (SBP 140–159 and/or DBP 90–99 mmHg), hypertension Stage II (SBP 160–179 and/or DBP 100–109 mmHg), and hypertension Stage III (SBP ≥180 and/or DBP ≥110 mmHg) [15].

### STATISTICAL ANALYSIS

Data entry and statistical analysis were done using SPSS 21. The sample characteristics were described using frequency and percentage distribution. Chi-square was used to associate the level of hypertension with its determinants.

## RESULTS

### Summary of hypertension prevalence among health care professionals

Figure -1 Depicts the summary of hypertension among health care professionals. The majority of the medical staff 92(46%) and 88(44%) non-medical professional had pre -hypertension and 88 (42%) medical and 80(40%) non-medical staff had stage one hypertension, and 24 (12%) medical staff and 32 (16%) Non- medical staff had Stage two hypertension.

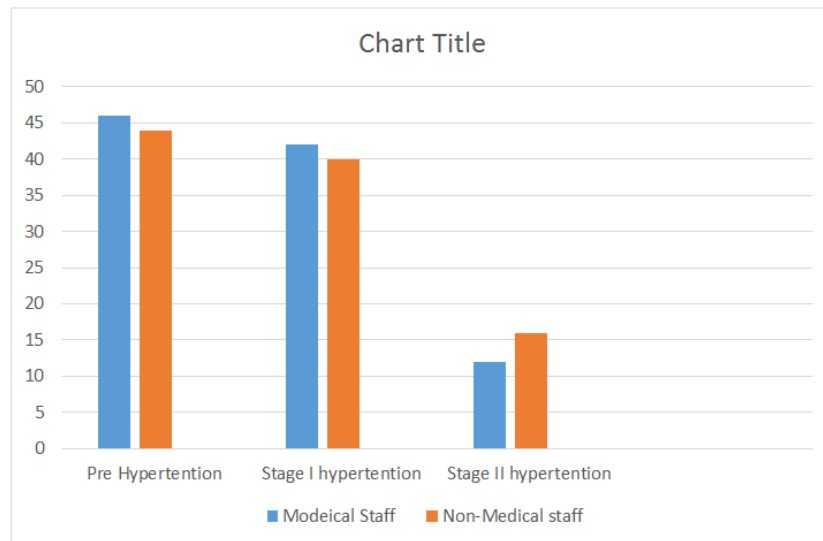
**Socio demographic characteristics of the study participants**

Table-1 describes the socio demographic characteristics of the study participants. The majority of the study participants 124(62%) were between the age of 30 to 40, the main stream of the samples 167(83.5) were men and the majority of the study participants 126(63%) were married. Medical professionals made up the majority of the samples 120(60%). In term of work experience, 135(68.5%) of the samples had more than five years of experience.

**Hypertension and its determinants among healthcare professionals**

The predictors of hypertension among health care professionals are summarized in Table III. In terms of BMI, 54 (45.8%) of medical personnel were overweight, and 25 (20.1%) were obese, whereas 24 (30%) of non-medical workers were overweight, and 19 percent (23.7 %) were obese. The proportion of medical professionals who were overweight or obese was much greater than that of non-medical professionals. In terms of eating patterns, the majority of the medical staff members are non-vegetarian 98(78.3%) and in bar with

the non-medical professional 63(78.7%). When it comes to carbonated beverages, the majority of medical staff 44 (35.8%) consumes them excessively, while 51.7% of non-medical staff consumes them, and 43.8% of medical personnel consume junk food. There was little distinction between medical and non-medical personnel. Medical professionals reported having a family history of hypertension in 57.5% of cases, whereas non-medical personnel reported having the same problem in 37.2% of cases. Most of the medical staff reported that they are excessively exposure to stress 73(60.8) and 42 (52.5%) of the non-medical staff reported with the same with regards to the smoking status 63 (52.5%) medical and 49(51.2%) non-medical staff reported that no habit of smoking. With regards to length of sleep majority of the participants medical 67(55.8%) and non-medical 41(51.2%) sleepless than 7 hours. In terms of physical exercise, most medical and non-medical professionals engage in 30 to 45 minutes of physical activity each day. The level of hypertension has a substantial relationship with determining factors such as BMI, junk food, family history of hypertension, smoking status, and physical activity.



**Fig-1: Summary of Hypertension Prevalence among Health Care Professionals**

**Table-1: Socio demographic characteristics of the study participants**

S.No	Demographic variable		Number n=200	Percentage %
1	Age	30-40	124	62
		41-50	43	21.5
		51-60	33	16.5
2	Gender	Male	167	83.5
		Female	33	16.5
3	Civil status	Unmarried	74	37
		Married	126	63
4	Professional category	Medical	120	60
		Non-Medical	80	40
5	Work experience	<5 years	63	31.5
		>5 years	137	68.5

**Table-2: Hypertension and its determinants among healthcare professionals**

S.No	Determinants related to hypertension		Medical staff		Non-Medical staff		Chi square p-Value
			Number 120	Percentage %	Number 80	Percentage %	
1	Body Mass Index	Normal weight	41	34.1	37	46.3	$X^2=1.722$ P=000.5
		Over Weight	54	45.8	24	30	
		Obesity	25	20.1	19	23.7	
2	Food Habits	Non Vegetarian	94	78.3	63	78.7	$X^2=2.079$ P=0.103
		Vegetarian	26	21.7	17	21.3	
3	Excessive intake of carbonated drinks	Yes	43	35.8	29	36.3	$X^2=1.100$ P=0.173
		No	77	64.1	51	63.7	
4	Junk food Intake	Often	43	35.8	24	30	$X^2=0.153$ P=0.967
		Occasionally	63	52.6	45	56.3	
		Never	14	11.6	11	13.7	
5	Family history of hypertension	Yes	57	47.5	37	46.2	$X^2=2.134$ P=0.517
		No	63	52.5	43	53.8	
5	Exposure to the stress	Yes	73	60.8	42	52.5	$X^2=1.365$ P=0.010
		No	47	39.2	38	47.5	
6	Smoking Status	Yes	57	47.5	31	38.7	$X^2=1.1736$ P=000.5
		No	63	52.5	49	61.3	
7	Duration of Sleep	<7 hours	67	55.8	41	51.2	$X^2=2.351$ P=0.029
		> 7 hours	53	44.2	39	48.8	
8.	Physical activity duration.	30-45 minutes	53	44.2	35	43.7	$X^2=1.045$ P=0.005
		45-60 minutes	39	32.5	23	28.7	
		> 60 minutes	28	23.3	22	27.6	

## DISCUSSION

Hypertension is a significant independent risk factor for major artery disease with myocardial infarction, stroke, and peripheral vascular disease are all common causes of mortality or disability, Individuals in developing nations are beginning to reflect the move toward globalization and urbanization, which is linked to poor diet, physical inactivity, and obesity, putting communities at higher risk of non-communicable diseases. Health-care providers face challenges on the job and require expert assistance. Stress is a global problem that, regrettably, is well-known among healthcare professionals in various regions of the world. A cause-and-effect relationship between work-related problems and hypertension has been described in numerous articles. However, the research hasn't always been consistent [16].

The goal of this study was to find out how common hypertension is among health care professionals and what factors influence it. Pre-hypertension was found in 46 percent of medical staff and 44 percent of non-medical professionals in the study. Regardless of age or BMI, there was no difference in hypertension prevalence between medical and non-medical employees. Stage two hypertension was reported by 12 percent of medical staff and 16 percent of non-medical workers in our study. Although we did not investigate whether the healthcare workers tested their blood pressure on a regular basis, we anticipated that some of them were ignorant that they

had hypertension. As a result, healthcare providers should be required to check blood pressure on a frequent basis in order to identify those who are at a higher risk of developing CVD and metabolic syndrome. In a similar study, the prevalence of hypertension among Taiwanese health care professionals was substantial, with an odds ratio of 1.74 (95 percent CI=1.05–2.91), and medical technicians had a considerably higher prevalence of hypertension than non-medical workers [17]. In Saudi Arabia, hypertension is quite widespread among the general population, as evidenced by numerous studies. However, it is extremely uncommon among health-care professionals. The bulk of the participants in the current study were between the ages of 30 and 40, with men accounting for 83.5 percent of the sample and medical professionals accounting for 60% of the sample.

The current study investigated the elements that affect hypertension. Non-vegetarians made up 78.3 percent of the medical workforce, while non-vegetarians made up 78.7 percent. 45.8% of medical professionals were overweight, and 20% were obese, whereas 23% of non-medical personnel were overweight, and 23.7 percent were obese. 35.8% of medical personnel and 51.7 percent of non-medical employees consume excessive amounts of carbonated beverages, while 43.8 percent of medical workers eat junk food. Medical professionals had a family history of hypertension in 57.5 percent of cases, while non-medical employees had the same condition in 37.2

percent of instances. Sixty percent of medical employees and 52.5 percent of non-medical workers stated they were overly exposed to stressful situations. The findings matched those of a study conducted by Akinwumi, *et al.* on work-related stress perception and hypertension amongst health workers of a mission hospital in south-western Nigeria, which found that the prevalence of hypertension amongst subjects with high job strain is 42.4 percent, which is quite high when compared to the prevalence of hypertension amongst subjects with active, passive, and low job strain, which is 15.8 percent [18]. Similarly to Kivimäki *et al.*, who discovered no link between occupational stress and hypertension in their research [19]. According to the results of the current study, the level of hypertension has a significant association with determining factors such BMI, junk food, family history of hypertension, smoking status, and physical activity. Lindquist *et al.* suggested that work stress had no direct effect on blood pressure, but that the methods of coping with stress that individuals reported were significantly related to blood pressure, with blood pressure elevation effects apparently mediated largely by dietary, drinking, and physical inactivity, according to the contractor findings [20]. The study had various limitations, including a cross-sectional design and the fact that it was conducted in a single location so the findings cannot be generalized.

## CONCLUSION

The findings of the study demonstrate that healthcare workers, regardless of their job title, have a significant prevalence of hypertension. There is a strong link between hypertension levels and deciding factors such BMI, junk food, family history of hypertension, smoking status, and physical activity. The findings of the study also advised that health-care professionals should have regular medical checkups and that effective health-promotion programs should be implemented to lower the risk of hypertension and improve the health of health-care employees.

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