

(RESEARCH ARTICLE)



## The prevalence and associated risk factors of hypertension in wad medani banks employees, Gezira state, Sudan 2022

Sawsan A. Omer <sup>1,\*</sup>, Ahmed A. Mohamed Alamin <sup>2</sup>, Amani S. Elsayed <sup>2</sup>, Awab A. Mohammed Osman <sup>2</sup>, Maab O. Khalid <sup>2</sup>, Mohamed E. Abass <sup>2</sup>, Waeil Alamin <sup>2</sup> and Salwa Elsanousi <sup>3</sup>

<sup>1</sup> Department of Medicine, Center of Non-Communicable Diseases, Faculty of Medicine - University of Gezira (FMUG), Sudan.

<sup>2</sup> Department of Community Medicine, Faculty of Medicine - Wad Medani College for Sciences and Technology (MST), Sudan.

<sup>3</sup> Department of Community Medicine, FMUG, Sudan.

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### Abstract

**Background:** Hypertension (HTN) is one of the highly prevalent worldwide health non-communicable diseases. It is a major cause of cardiovascular disease and deaths worldwide. There is a very high frequency of hypertension in the general population among bank employees, according to studies conducted in various parts of the world. In Sudan including Wad Medani city there is paucity of information on the prevalence of hypertension and its risk factors among bank employees. Therefore, this study aimed to assess the prevalence and associated risk factors of hypertension among bank employees in Wad Medani city, Gezira state, Sudan, 2022.

**Method:** A cross sectional study was conducted on bank employees from 20 banks in Wad Medani Gezira state 2022. Data was collected by medical students from Wad Medani college of Medical Sciences and Technology using self-administered Questionnaire. Data was analyzed by SPSS version20.

**Results:** The total number of bank employee in Wad-Medani was187. A 55 (29.4%) of them were hypertensive and were enrolled in the study. 60% were males and 40% were females, 26 % were aged 50-59 years.60% of them were married and 69% of the participants had a positive family history of hypertension, 60% of them were symptomatic and diagnosed by doctors as hypertensive,40% were diagnosed during routine follow up. 70.9% have regular follow up with their physicians and 89.1 received antihypertensive drugs. 67.3% do not exercise .81.8% have the habit of adding salt to diet. 88% were not smoker. 76% think their job is stressful.

**Conclusion:** The prevalence of hypertension was high among bank employees. The associated risk factors of hypertensive were: male sex, old age, positive family history, salty diet intake, job stress and sedentary life style. The study recommended strengthening adoption of certain interventional measures in lifestyle such as reducing salt intake and promoting physical activity among this vulnerable group. The bank managers should advise their employee to check their blood pressure periodically.

**Keywords:** Hypertension; Prevalence; Bank employees; Risk factors; Wad Medani

### 1. Introduction

Hypertension (HTN) is one of the highly prevalent worldwide health non-communicable diseases. It is a major cause of cardiovascular disease and deaths worldwide. Over 18 million deaths each year, or about one third of all deaths worldwide, are caused by cardiovascular events<sup>1</sup>. It is becoming a global public health emergency where it is predicted

\* Corresponding author: Sawsan A. Omer

that there will be an 80% increase in the number of hypertensive people by the year 2025. High arterial blood pressure is referred to as hypertension or high blood pressure. The Joint National Committee 7 (JNC7) defines normal blood pressure as having a systolic pressure less than 120 mmHg and a diastolic pressure less than 80 mmHg. A systolic blood pressure reading of less than 140 mmHg and/or a diastolic reading of less than 90 mmHg<sup>2</sup>. Job stress has also been discovered to be strongly associated with hypertension<sup>3</sup>. Due to their sedentary jobs, bank employees are more likely to develop hypertension. The prevalence and causes of hypertension in this population group, however, are little understood<sup>3</sup>. In addition, married men and women who worked as artisans had greater blood pressure than those who worked in administrative jobs<sup>4</sup>. In many communities, the prevalence of hypertension is rising; bankers and other sedentary professions have been found to have higher prevalence rates<sup>5</sup>. Another Warsaw-based study discovered a connection between high blood pressure and socioeconomic status (significantly higher blood pressure was found in people at lower educational level)<sup>6</sup>. HTN is associated with dementia, ischemic heart disease, stroke, and renal insufficiency, and these are the leading causes of morbidity and mortality in older adults<sup>4</sup>. In Africa there is recently enormous increase in HTN due to a sedentary lifestyle and easy availability to fatty foods<sup>7</sup>. There is a very high frequency of hypertension in the general population among bank employees, according to studies conducted in various parts of the world. For instance, in Iran and India, the prevalence of hypertension is 33.1% and ranges from 33.1% to 65.5%. A few researches conducted in other parts of Ethiopia also suggested that bank employees have a greater prevalence of hypertension than the general population, which ranged from 19.1% to 27.5%<sup>8</sup>. The prevalence of hypertension rose with bank employee seniority and official position, with managers having the highest rate<sup>9</sup>. Among bank employees, hypertension was highly common. Age-related factors, male sex, weight gain and obesity, daily fruit consumption, moderate to vigorous physical exercise, stressful experiences, a family history of hypertension, and inadequate cerebrovascular awareness were linked to hypertension<sup>3</sup>. In Sudan including Wad Medani city there is paucity of information on the prevalence of hypertension and its risk factors among bank employees. Therefore, this study aimed to assess the prevalence and associated risk factors of hypertension among bank employees in Wad Medani city, Gezira state, Sudan, 2022.

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## 2. Material and methods

A cross sectional community based study that was conducted on bank employees from 20 banks in Wad Medani Gezira state from August 2021 to August 2022. All of Wad Medani 20 banks including about 187 bank employees were included in the study. Gezira state is one of 18 states of Sudan, it lies between the Blue Nile and White Nile in the east central region of the country it has an area of 27,549 km squared. Wad Medani is the capital and is the largest city in Gezira state. The population of Gezira state is around 4 million individuals. Study population included all hypertensive banker employees in Wad Medani banks (20 banks). Data was collected by medical students from Wad Medani college of Medical Sciences and Technology using self-administered Questionnaire from the bank employees after taking their verbal consent. The questionnaire consisted of (demographic data, disease status (diagnostic method, use of antihypertensive drugs, follow up) and duration and the risk factors). Frequency tables of the risk factors were obtained. The data was analyzed using SPSS Program version 2025.

### 2.1. Ethical considerations

Ethical Approval to conduct study was obtained from Wad Medani collage (M.S.T) –Program of Medicine. Permission was taken from bank managers. Verbal consent from bank employees was obtained before participation.

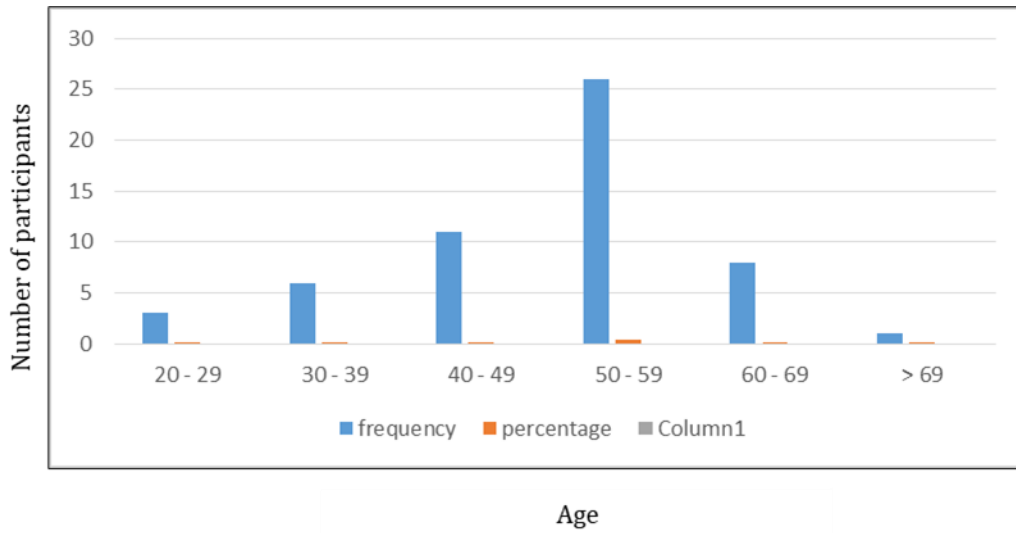
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## 3. Results

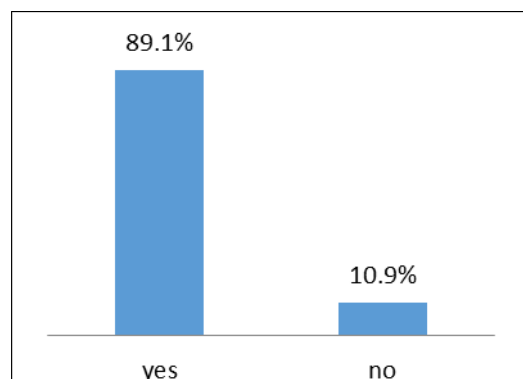
Out of 187 bank employees, 55 (29.41%) bank employees were found to be hypertensive and were enrolled in the study. 33 (60%) were male and 22 (40%) were females. 14 (26%), were in the age group between 50-59 years. Majority of them, 33 (60%), were married, all the participants were educated at least up to graduation. The majority of the participants, 36 (65.5%), lived on their own houses. 38 (69.1%) of the employees in the study population had positive family history of HTN. The majority of employees, 33 (60%), had symptoms and were diagnosed to have HTN by doctors and the rest, 22 (40%), were diagnosed incidentally during routine follow up.

**Table 1** Distribution of Wad Medani bank employees according to gender (N=55)

	Frequency	Percent
Male	33	60.0%
Female	22	40.0%
Total	55	100.0%



**Figure 1** Distribution of age groups of study population (N=55)



**Figure 2** Distribution of participants according to use of antihypertensive drug (N=55)

This figure shows that the majority of employees (89.1%) were using antihypertensive drugs and most of them 39 (70.9%) had regular follow up with their physicians. 14 (25.5%) of those who did not have regular follow up stated that they didn't have enough time for follow up.

Regarding exercise practise, 37 (67.3%) do not exercise and 18 (32%) do regular exercise. The majority of employees 45 (81.8%) have the habit of adding salt to meals while 10 (18.2%) do not add salt to meals.

Regarding smoking habits, the majority of employees, 88%, are non-smokers. 10% are smokers and the minority 2% were ex-smokers. The majority of employees 76% think their job is stressful while 15% do not and the minority 9% don't know.

**Table 2** Distribution of Wad Medani bank employees according to hour of exercise (N=55)

	Frequency	Percent
1 Hour	17	30.9%
2 hours	1	1.8%
Not exercising	37	67.3%
Total	55	100.0%

**Table 3** Distribution of wad Medani bank employees working hours (N=55)

Working hours	Frequency	Percent
<8	38	69.1%
9-12	17	30.9%
Total	55	100.0%

This table shows that the majority of employees, 38 (69.1%), work less than eight hours per day.

#### 4. Discussion

There are few studies conducted among bank employees in Sudan and at international level as well. In this study the prevalence of hypertension and its risk factors among Wad Medani bank employees was assessed, and it was found that the prevalence of hypertension was 29.4%, and this prevalence was less than prevalence of hypertension among the general population in Sudan which was 40%<sup>13</sup>. A study conducted in Ethiopia reported that the prevalence of HTN among bank employees was 52.4%<sup>8</sup>. Another study conducted by Maroof et al. showed that the prevalence of hypertension among bank employees in India, was 69.5%<sup>12</sup>. Both studies showed higher prevalence of HTN than this study, and this may be due to the large populations in those countries.

In the present study males were more likely to be hypertensive than the females, this association was also reported by studies conducted in Nigeria, Ethiopia and India.<sup>8, 5</sup> But the hypertensive females in this study 40% were more than those in Ethiopia which were 22.5%, and this might be due to the difference between the female lifestyles.

The aging process is one of the main risk for developing hypertension, and the risk increases with age for both genders, and elevated blood pressure was significantly more common among employees above 50 years in Nigeria, and this is similar to our study that showed 47.3 % were more than 50 years<sup>4</sup>.

Smoking is linked to several mechanisms of elevated blood pressure levels, the non-smoker participants in our study had a higher percentage of HTN than the smoker participants, this is not similar to a study conducted in the River Nile that showed smokers were more affected<sup>10</sup>, but similar to the finding of the study conducted at Lowenstein Hospital Reanna, Israel<sup>13</sup> that showed smokers had lower BP than non-smokers. These differences could be explained by various potentially confounding factors, such as relative weight, ethnic origin, alcohol and coffee intake, and participation in leisure time sports.

Furthermore, the present study demonstrated that elevated blood pressure was significantly associated with intake of salty foods. Adding salt during eating by participants which was 80% and that is more than the previous data from a study in Sudan that showed 53.1%, reported extra consumption of salt<sup>10</sup>.

In this study, elevated blood pressure was significantly associated with low rates of daily exercise consistent with the previous study in Sudan and other studies from India and Ethiopia emphasizing the same results<sup>10, 8, 12</sup>. The Sedentary behaviour and lifestyle were associated with hypertension among the general population, and given that the banking profession necessitates extended hours of physical inactivity, they would be at higher risk of developing hypertension.

In India 38% of hypertensive bank employees were taking a physical activity and it's more than the participants taking physical activities in this study which was about 32.7%.

Job related stress has become a fundamental risk factor for hypertension with 76% of the participants find it stressful to work at the bank.

In this study the majority of the participants (89.1%) use antihypertensive drugs and (70.9%) follow up regularly with their physicians and this may be because most of them are well educated and most of them are married which entices the role of the family to help them be in track. Nevertheless, 10.9% of the bank employees do not use antihypertensive drugs at all and 25.5% said there is no enough time for the regular follow up, this may be due to carelessness and self negligence.

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## 5. Conclusion

The prevalence of hypertension among banker in Wad Medani was high. The most frequent associated risk factors of hypertensive employees were: Age, Salty diet intake, positive family history, job stress and sedentary life style. The attitude of the participants towards risk factor for hypertension was good

### *Recommendations*

The bank managers should advise their employees to check their blood pressure periodically. The study recommended strengthening adoption of certain interventional measures in lifestyle such as reducing salt intake and promoting physical activity among this vulnerable group. Bank managers should increase the number of employees to reduce the work pressure. Further studies in Sudan about hypertension among bank employees should be conducted.

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## Compliance with ethical standards

### *Acknowledgments*

We would like to thank all the banks' managers and employees for their participation in the study.

### *Disclosure of conflict of interest*

All authors have no conflict of interest.

### *Statement of ethical approval*

Ethical Approval to conduct study was obtained from Wad Medani collage (M.S.T) –Program of Medicine. Permission was taken from bank mangers. Verbal consent from bank employees was obtained before participation.

### *Statement of informed consent*

Informed consent was obtained from all individual participants included in the study.

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