

## Nurses' Knowledge of Hypertension in Sudan Heart Center, Khartoum (2021): A Cross-Sectional Study

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### Abstract

**Background:** Hypertension is a prevalent chronic health issue associated with significant health hazards, ranking as a major contributor to mortality in both developed and developing nations.

**Aim of the Study:** To study Nurses' Knowledge of Hypertension in Sudan Heart Center, Khartoum, 2021.

**Method:** A hospital-based study with a descriptive cross-sectional design was carried out at Sudan Heart Center between January and May 2021. It involved 40 nurses; the information was gathered through the administration of a structured questionnaire. The data was processed using the SPSS program version (23).

**Results:** The socio-demographic characteristics of the respondents indicated that 60.0% were between 20-25 years old, 35.0% were between 26-30 years old, 5.0% were over 30 years old, while the information indicated that 70.0% were female and 30.0% were male, out of the participants, 90.0% had obtained a bachelor's degree, while 10.0% had achieved a master's degree in terms of their educational level, 45.0% had less than one-year' experience, 10.0% had more than 5 years' experience, the total knowledge of hypertension is 45.0% of the respondents have poor knowledge, 37.0% of them have fair knowledge, and(17.0%) have good knowledge.

**Conclusions:** The study reflect clear outlook about nurse's knowledge regarding hypertension the overall nurses examine by questionnaire the result show good level of knowledge(17.5%), poor level of knowledge(45.0%), and fair knowledge is(37.5%).

**Keyword:** Patients, Knowledge, hypertension, Sudan heart center.

### Introduction

Hypertension is a widely prevalent chronic

condition and a significant health concern in both developed and developing nations, representing

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a prominent cause of mortality<sup>(1)</sup>. The presence of hypertension can elevate the risk of developing these cardiovascular conditions by two to three times, in conjunction with factors like obesity, sedentary lifestyles, and individual risk factors<sup>(2,3)</sup>.

Hypertension is a significant global health issue due to its high prevalence, severe complications, and inadequate control. It affects more than one billion individuals worldwide, with approximately seven million annual deaths directly attributed to the disease<sup>(4)</sup>. In the lower-income countries of Europe and Central Asia, hypertension has been responsible for over one-third of all fatalities.<sup>(6)</sup>

Approximately 31% of adults residing in the United States are affected by hypertension. Among them, African-Americans have the highest prevalence rate, reaching 37%<sup>(7)</sup>.

Hypertension is a global health crisis that affects an astonishing one billion individuals and is the primary factor contributing to worldwide deaths. As per the World Health Statistics report of 2012, approximately 29.2% of males and 24.8% of females are estimated to be affected by hypertension<sup>(8,9)</sup>.

Nurses who are actively engaged in the care of hypertension patients play a vital role in mitigating the risk factors linked to cardiovascular disease. Nurses have the duty to provide patients with information and guidance regarding changes they can make in their lifestyle<sup>(10,11)</sup>.

Nurses regularly monitor patients' blood pressure levels, both in clinical settings and during home visits. Nurses administer antihypertensive medications as prescribed by physicians<sup>(12,13)</sup>. Nurses provide guidance on adopting a healthy lifestyle to manage hypertension. They conduct health screenings, perform risk assessments, and promote early detection and intervention<sup>(14,15)</sup>.

**Research significance:** Nurses play a crucial role in managing and educating patients about hypertension. By studying a nurse's knowledge about hypertension, you can assess their ability to provide appropriate care, including accurate assessment, monitoring, medication administration, and lifestyle modifications.

## Research question

What is the level of knowledge among nurses regarding the definition, classification, risk factors associated with hypertension and pathophysiology, complications of hypertension?

## Methodology

### Study Design, Setting and Sampling

A hospital-based study with a descriptive cross sectional design was carried out at Sudan Heart Center. It has done during the period, which extended from JANUARY to May 2021. A convenience sampling approach was used to determine the final sample size of 40 nurses based on specific inclusion and exclusion criteria.

### Data Tool and Method

After conducting a comprehensive literature review, a team of research has formulated a standardized closed-ended questionnaire. The questionnaire consists of several sections, including Section (A) (1-5), which focuses on personal information such as gender, age, education level, experiences, and marital status. Section (B) (1-20): regarding, it hypertension include (definition, risk factor, prevention, sign and symptom, cause, complication and DASH Diet<sup>(16)</sup>).

### Data Processing and Statistical Analysis

Statistical Package for the Social Sciences (SPSS 24.0), was utilized for data analysis. Descriptive statistics were employed, including frequencies and percentages for categorical variables, as well as means and standard deviations for numerical variables. An analysis of variance (ANOVA) test was conducted to explore the association between knowledge and demographic characteristics, with a significance level of 0.05 (P-value) indicating statistical significance.

### Ethics approval and consent to participate. (15/11/2020) - (G-245)

The research study obtained approval from the scientific committee board, and the general hospital manager granted necessary permissions and head nurse to carry out the investigation. The participants were provided with a clear explanation of the study's objectives, emphasizing that their information would be used solely for research purposes.

## Results

### Demographic data of the patients.

**Table(1)** noted that more than half (60%) of nurses were in the age group between 20 and 25 years old, and 70% of them are female. (90%) of nurses have bachelor in nursing. Regarding working experiences, the percentage of nurses with less than one year of experience is equal to those with experience ranging between 1-5 years by (45%), and finally, (70%) of nurses are single.

### Nurse's knowledge about hypertension.

**Figure(1)** noted that the majority (45%) of nurses

had poor knowledge, followed by (38%) who had fair knowledge, while (17%) had good knowledge about hypertension.

### Association between the Education level of nurses and the total knowledge score about hypertension.

**Table(2)** shows that the results indicate that there is no significant statistical relationship between the overall knowledge score and the educational level of the nurses (p-value > 0.05).

**Table(3)** shows that is no a statistically significant association between total knowledge score and experiences of the nurses (p-value > 0.05).

**Table 1: Distribution of patients according to demographic data**

Demographic Data		F	%
Age group	20-25 years	24	60
	26-30 years	14	35
	More than 30 years	2	5
Sex	Male	12	30
	Female	28	70
Marital status	Single	28	70
	Married	12	30
Educational level	B.Sc. nursing	36	90
	M.Sc. nursing	4	10
	Ph.D. nursing	0	0
Working experiences	Less than 1 year	18	45
	1-5 years	18	45
	More than 5 years	4	10



**Figure 1: Distribution of nurse's knowledge about hypertension.**

**Table 2: Association between Education level and total knowledge score about hypertension.**

P.value=0.079		Overall knowledge			Total
		Good knowledge	Fair knowledge	Poor knowledge	
Education level	Bachelor	5	15	16	36
	B.Sc.	12.5%	37.5%	40.0%	90.0%
	Master	2	0	2	4
	M.C.s	5.0%	0.0%	5.0%	10.0%
Total		7	15	18	40
		17.5%	37.5%	45.0%	100.0%

**Table 3: Association between experiences and total knowledge score about hypertension.**

P_value=0.204		Overall knowledge			Total
		Good knowledge	Fair knowledge	Poor knowledge	
Experiences	Less than 1 year	1	9	8	18
		2.5%	22.5%	20.0%	45.0%
	1-5 years	4	5	9	18
		10.0%	12.5%	22.5%	45.0%
	More than 5 years	2	1	1	4
		5.0%	2.5%	2.5%	10.0%
Total		7	15	18	40
		17.5%	37.5%	45.0%	100.0%

## Discussion

Hypertension is a global health concern affecting people of all ages and backgrounds. As of my knowledge cutoff in September 2021, hypertension is a prevalent condition worldwide<sup>(17)</sup>.

### Demographic Data of patients

In present study, a majority of nurses, specifically (60%), were in the age group between 20 and 25 years old, and 70% of them are female. (90%) of nurses have bachelor in nursing. Regarding working experiences, the percentage of nurses with less than one year of experience is equal to those with experience ranging between 1-5 years by (45%), and finally, (70%) of nurses are single.

This result agreement with study in Sri Ganga Nagar, India<sup>(22)</sup> who reported that the most of the staff nurses 48% were in the age group of 21 to 30 years, Maximum of the staff nurses 78% were females, highest number of 43% of staff nurses had less than 5 years of experience. However, it differed from the

results of this study only when it stated that highest number 48% of staff nurses were married. In the study conducted in Dhaka Bangladesh<sup>(18)</sup>, this study had resemblances to prior research, as it found that approximately 61.8% of the participants were aged 33 years and younger. A majority of the participants (61.7%) were female. The marital status of the nurses varied, with a significant portion (69.6%) of the participants reported as married, according to the study.

### Nurses Knowledge about hypertension.

Hypertension, often referred to as the “silent killer” disease, remains asymptomatic until its damaging effects become evident<sup>(19)</sup>.

The current study noted the distribution of nurse’s knowledge regarding hypertension. The majority (45%) of nurses had poor knowledge, followed by (38%) who had fair knowledge, while (17%) had good knowledge about hypertension. These results are similar to the results of a study conducted in Yozg province center Turkish<sup>(17)</sup>, which indicated that the

percentages of participants with low, moderate, and high levels of knowledge about hypertension were 31.3%, 62.1%, and 6.6%, respectively. Referring to the study conducted in Dhaka Bangladesh<sup>(20)</sup>, the findings of this study differed from the results presented here. Within this study, a notable majority of participants (92.2%) exhibited knowledge regarding normal BP measurements, and (81.7%) were informed about BP levels indicating prehypertension. Furthermore, 92.2% of participants possessed knowledge about the causes of hypertension, and 67.0% were aware of the risk factors associated with hypertension. In terms of specific management approaches, a notable portion of the participants (62.6%) acknowledged the importance of maintaining bed rest and elevating the head of the bed. Similarly, 60% of the respondents recognized the significance of monitoring and documenting blood pressure while the patient is at rest. Additionally, 62.6% of the participants demonstrated the ability to identify sudden hypotension, and 60% exhibited knowledge about monitoring electrolytes, BUN, and creatinine levels. When it came to assessing the patient's condition, a notable percentage (73%) of the respondents demonstrated awareness of the importance of observing blood circulation of the skin (moisture, color, temperature, and capillary refill time), while only 29.6% were knowledgeable about monitoring the patient's response to medications aimed at controlling blood pressure. Concerning the broad objectives of hypertension management, around 82.6% of the respondents acknowledged its purpose in preventing illness and death. However, only 39.1% possessed knowledge about the recommended dietary guidelines for individuals with hypertension. Moreover, 66.1% were aware of the importance of moderate salt restriction for hypertensive patients, while 87% recognized the significance of weight loss in managing hypotensive patients.

On the other hand, the study conducted in India<sup>(19)</sup> who showed a noticeable difference from the results of this study mentioned among the staff nurses surveyed, a substantial majority of 47% exhibited a high level of knowledge when it came to managing and preventing complications associated with hypertension. Furthermore, 24% possessed an average level of knowledge, 19% demonstrated good knowledge, and 10% had limited knowledge in this particular domain.

In the present study, the distribution of knowledge among nurses regarding hypertension was observed, and the relationship between nurses' education level and their overall knowledge was examined. However, no statistically significant association was found between the total knowledge score and the education level of the nurses ( $p$ -value  $> 0.05$ ). The results highlighted by this study were similar to the study conducted in Yozgat province center Turkish<sup>(17)</sup>; the study findings revealed a positive association between knowledge level and the proportion of individuals with controlled blood pressure. However, this relationship was not statistically significant ( $p > 0.05$ ). However, at the same time, it was similar to the study that was conducted in Mulago Hospital's medical outpatient clinic Republic of Uganda<sup>(21)</sup>, and the results of that study were similar to another study, as a notable disparity was observed in the proportion of nurses who attained satisfactory scores on the knowledge pre-post interventions test following the implementation of educational interventions. Prior to the interventions, the average test scores were 62.8%, while after the interventions, they increased to 82.9%. A paired sample t-test demonstrated a significant 32% increase in knowledge ( $P > 0.009$ ).

Lastly, this study investigates the correlation between nurses' experiences and their overall knowledge. However, no statistically significant relationship was observed between the total knowledge score and the nurses' experiences ( $p$ -value  $> 0.05$ ).

## Conclusion

According to findings of the study concluded the following. The study reflect clear picture about nurses knowledge regarding hypertension the overall nurses examine by questionnaire the result show, 60.0% of the respondents were between 20-25 years old, 35.0% were between 26-30 years old, and 5.0% were over 30 years old. While this study revealed that 70.0% were female and 30.0% Males. Regarding educational level, 90.0% hold a bachelor's degree, 10.0% hold a master's degree. In experience years related results showed that, 45.0% have less than one year of experience, 10.0% have more than 5 years of experience. Overall, the total knowledge about hypertension is 45.0% of the responders have weak knowledge, 37.0% of them

have good knowledge. While only 17.0% have good knowledge. The current study showed that bachelor had higher knowledge score than other did, however this observation has no significant.

### Recommendations

Enhancing reading materials on hypertension to gain knowledge about prevention. More studies about the guidelines of hypertension. Receive training for guidelines of hypertension. Further studies required to be conducted to evaluate nurses' knowledge and practice in different Health setting regarding hypertension.

### Funding

No financial assistance or grants were provided for this study.

### Conflict of interest

There are no conflicts of interest concerning any part or stage during the data collection stage or until the completion of the research requirements for this study. There were some obstacles regarding the response of some nurses when collecting data.

### Institutional Review Board Statement

All statements regarding approval to conduct the study, in addition to statements regarding data collection, are available to the co - responding author.

### Availability of data and materials

The data is accessible, and the corresponding author can furnish it upon receiving a reasonable request.

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