

# Knowledge, Attitudes and Practices of Health care providers regarding prehypertension: An exploratory descriptive study in Kisangani, Democratic Republic of Congo

## Original Research Article

### ABSTRACT

**Background:** Regardless of the development of overt hypertension, prehypertension (PHTN) is a serious health issue that puts participants at higher risk of cardiovascular disease. This study aimed to evaluate the level of knowledge, attitudes and practices (KAP) of Health care providers regarding prehypertension in Kisangani.

**Methods :** A cross-sectional descriptive study was undertaken among Health care providers in Kisangani. KAPs on prehypertension were assessed using a survey questionnaire.

**Results :** 76% of doctors and 80.2% of nurses had never heard of the PHTN. Only 18.3% of doctors and 11% of nurses knew the correct definition of PHTN. The majority of doctors (82.6%) and nurses (91.2%) did not know the blood pressure values considered to be prehypertensive, or the factors associated with PHTN (78% of doctors and 92% of nurses respectively). According to 46.8% of doctors and 33.8% of nurses, PHTN is a public health problem. 17.4% of doctors and 15.4% of nurses are very confident in their ability to identify PHTN in patients. 77% of doctors claim to detect PHTN by measuring blood pressure, compared with 52% of nurses. Most study respondents (33% of doctors and 62.5% of nurses) did not make any recommendations to their patients about controlling their blood pressure.

Only 16.5% of doctors and 6.6% of nurses proposed lifestyle changes to patients, while the majority of study participants did not propose any intervention for the management of PHTN. The majority of respondents to the study are interested in receiving training and participating in activities on PHTN and have not received any specific training on PHTN.

**Conclusion :** In low-resource nations, prehypertension is becoming a serious public health concern that has to be managed, and all healthcare providers should be made aware of this.

**Keywords :** Knowledge, Attitude, Practice, Health care providers, Prehypertension, Kisangani, Democratic Republic of Congo.

## INTRODUCTION

Cardiovascular disease (CVD) is a major global health concern accountable for more than half of NCD deaths worldwide, where hypertension is the leading risk factor for it [1,2]. High blood pressure (HBP) commonly known as hypertension is a major public health problem worldwide, affecting one in three adults and with a 40% prevalence in Africa although underdiagnosed. Because of their high prevalence, morbidity, and mortality worldwide, cardiovascular diseases (CVDs) including hypertension are considered by the World Health Organization (WHO) as the challenge of the twenty-first century [3]. One of the conditions that can progress to hypertension and is associated with cardiovascular risk is prehypertension [4]. According to the Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure (JNC 7), this condition is defined as systolic blood pressure (SBP) of 120 to 139 mmHg and/or diastolic blood pressure (DBP) of 80 to 89 mmHg [5].

The PHTN phase refers to a critical state of blood pressure, and if persistently present, it may induce phenomena such as myocardial remodeling and changes in vascular structure and metabolic function. Clinical studies have found that the risk of prehypertensive individuals developing hypertension within two years is 3 to 6 times higher than that of individuals with normal blood pressure, concurrently increasing the risk of various cardiovascular diseases [6]. This state of PHTN is particularly worrying in countries with limited resources as the DR Congo, where health systems are often inadequate to manage chronic diseases. In this country, very little research into PHTN has focused on its epidemiology and some of its risk factors [7-10]. Any strategy to reduce complications attributable to poor management of PHTN must start at the peripheral level. For all these reasons, PHTN must be known by healthcare providers because they are crucial to the diagnosis and treatment of blood pressure problems in the Democratic Republic of the Congo at the primary and secondary levels of the health pyramid. Nonetheless, the expertise and professional conduct of healthcare practitioners play a major role in the management of PHTN. As of right now, there is a lack of information on the assessment of healthcare practitioners' knowledge, attitudes, and practices about the PHTN in sub-Saharan Africa as a whole, and in Democratic Republic of the Congo specifically. A comprehensive assessment of healthcare practitioners' knowledge, attitudes, and practices

regarding PHTN in Kisangani, a rapidly growing city in the Democratic Republic of the Congo, is necessary in order to develop effective prevention and management measures. The aim of this exploratory study is to evaluate the knowledge, attitudes and practices of healthcare providers on PHTN in Kisangani in order to identify gaps and needs, necessary to develop effective prevention and management measures.

## **METHODS**

### **1. Study setting**

This study was conducted in Kisangani in the following health facilities: Hôpital Général de Référence de Makiso-Kisangani, Hôpital Général de Référence de Kabondo, Hôpital Général de Référence Mangobo, Hôpital Général de Référence de la Tshopo, Centre de Santé Alwaleed. These hospitals were chosen because of their geographical accessibility and the large number of medical staff working there.

### **2. Study design and study period**

This was a cross-sectional study conducted from 1 May to 31 July 2024, a period of 3 months.

### **3. Study population**

The study population was composed of up of nurses and general practitioners doctors who worked in the Department of Internal Medicine's outpatient consultation and patient management departments.

### **4. Selection criteria**

Any healthcare provider involved in outpatient consultations and patient management in the Department of Internal Medicine who gave informed consent was selected. Any healthcare provider involved in outpatient consultations and patient management in the Department of Internal Medicine who refused to participate in the study, as well as those who were absent from the study setting at the time of data collection, were not included in this study.

### **5. Sample size**

This was a convenience sample. A total of 245 healthcare providers were selected to participate in the study.

## 6. Conduct of the survey

Data were collected using an individual, self-administered, anonymous questionnaire. The questionnaires were numbered in advance and distributed in envelopes to the health care providers present at the health facility on the day of the survey. The questions were divided into several sections covering the variables of interest in the study.

## 7. Variables of interest

Each survey form contained information on the socio-demographic and professional data of the health care providers, and data on their theoretical knowledge, attitudes and clinical practices on the PHTN.

## 8. Data Processing and Analysis

The data collected was entered into Excel 2016 and analyzed using IBM SPSS version 22.0 software. The percentage of each variable category was calculated for all categorical variables.

## RESULTS

**Socio-demographic and professional characteristics of study participants :** The majority of care providers were aged between 30 and 39 years (49.7%), male (64.1%), nurses (55.5%), with more than 5 years experience in professional practice (60%). These data are shown in Table 1.

**Healthcare providers' knowledge of PHTN:** 76% of doctors and 80.2% of nurses had never heard of the PHTN. Only 18.3% of doctors and 11% of nurses knew the correct definition of PHTN. The majority of doctors (82.6%) and nurses (91.2%) did not know the blood pressure values considered to be prehypertensive, or the factors associated with PHTN (78% of doctors and 92% of nurses respectively). These data are shown in Table 2.

**Attitudes of healthcare providers towards PHTN:** According to 46.8% of doctors and 33.8% of nurses, PHTN is a public health problem. Only 17.4% of doctors and 15.4% of nurses are very confident in their ability to identify PHTN in patients. **These data are given in Table 3.**

**Clinical practices of healthcare providers in relation to PHTN:** 77% of doctors claim to detect PHTN by measuring blood pressure, compared with 52% of nurses. Most study respondents (33% of doctors and 62.5% of nurses) did not make any recommendations to their patients about controlling their blood pressure. Only 16.5% of doctors and 6.6% of nurses proposed lifestyle changes to patients, while the majority of study participants did not propose any intervention for the management of PHTN. **These data are presented in Table 4.**

**Data on the training and resources of healthcare providers in relation to PHTN:** The majority of respondents to the study are interested in receiving training and participating in activities on PHTN and have not received any specific training on PHTN. These data are shown in Table 5.

## **DISCUSSION**

Information on healthcare practitioners' knowledge and practices regarding PHTN is provided by this exploratory study, the first to be conducted out in our region.

The knowledge that healthcare workers have about PHTN could not only guide them in managing PHTN in their daily care practice, but also contribute to raising awareness among the patients with whom they come into contact. This study of the KAPs of healthcare providers in relation to PHTN in Kisangani shows that, overall, healthcare workers' knowledge of the subject is low or even inadequate. This could be explained by the fact that healthcare providers are unfamiliar with the PHTN. The concept of PHTN, which has recently appeared in the literature, was first proposed in 2003 by American experts in the JNC 7 report [5].

This result can also be explained by the following: on the one hand, **PHTN** in cardiovascular pathologies is not given enough attention in basic training at the Faculty of Medicine and the Higher Institute of Medical Technology; on the other hand, in-service training in the professional setting primarily addresses infectious diseases (like HIV infection, malaria, and tuberculosis) and appears to ignore chronic non-communicable diseases.

Our research generally showed that most healthcare professionals in Kisangani lacked the proper attitudes and behaviours for better PHTN management. This could be explained by the absence of guidelines and protocols for the management of standardised screening for PHTN at national level. The prevarication of regulatory provisions relating to the management of PHTN are also factors in this situation.

Nonetheless, when it came to the treatment of prehypertensive individuals, only 16.5% of doctors and 6.6% of nurses recommended dietary, physical activity, weight loss, and moderate alcohol intake modifications to patients, while the majority of study participants did not propose any intervention for the management of PHTN.

This supports other researchers' findings that non-pharmacological interventions help prehypertensive patients experience a delayed development of hypertension and a lower risk of consequences [11–14].

## **CONCLUSION**

The study's findings demonstrate how urgently healthcare workers need additional training in order to enhance the management of PHTN in our community. Other factors, like a lack of resources and ongoing training, also appear to be involved in these disparities. In low-resource nations, prehypertension is becoming a serious public health concern that has to be managed, and all healthcare providers should be made aware of this.

## **LIMITATION**

The primary constraint of this exploratory investigation is the dearth of data, either nonexistent or extremely rare, on healthcare practitioners' knowledge, attitudes, and practices about PHTN in our **country** and sub-Saharan Africa. Some aspects that have not been covered in our work will be able to be thoroughly investigated in future research.

## ETHICAL APPROVAL AND CONSENT

Anonymity and confidentiality were guaranteed to the respondents. Participation in the study was voluntary after explanation and free informed consent. Authorization was obtained from provincial health authorities before initiating this study.

## COMPETING INTERESTS

Authors have declared that no competing interests exist.

## DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of manuscripts.

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Table 1. Socio-demographic and professional characteristics of KAP care providers in relation to PHTN.

Characteristics	n	%
<b>Age groups (years)</b>		
20-29	22	8.9
30-39	122	49.7
40-49	78	31.8
50 and over	23	9.6
<b>Mean ± Standard deviation</b>		
<b>(38.4±7.9 years)</b>		
<b>Gender</b>		
Male	159	64.9
Female	86	35.1
<b>Professional category</b>		
Nurses	136	55.5
Doctors	109	45.5
<b>Seniority (years)</b>		
≤ 5	98	40
> 5	147	60

Table 2. Healthcare providers' knowledge of the PHTN.

Characteristics	Professional category	
	Doctors n (%)	Nurses n (%)
<b>Have you ever heard of PHTN?</b>		
Yes	36 (33)	27 (19.8)
No	74 (67)	109 (80.2)
<b>Do you know the correct definition of PHTN?</b>		
Yes	20 (18.3)	15 (11)
No	89 (81.7)	121 (89)
<b>Do you know what blood pressure values are considered prehypertensive?</b>		
Yes	19 (17.4)	12 (8.8)
No	90 (82.6)	124 (91.2)
<b>Do you know the factors associated with PHTN?</b>		
Yes	24 (22)	11 (8)
No	85 (78)	125 (92)

Table 3. Attitudes of healthcare providers towards PHTN.

Characteristics	Professional category	
	Doctors n (%)	Nurses n (%)
<b>Do you think PHTN is a health problem in Kisangani?</b>		
Yes	51(46.8)	75 (55.1)
No	24 (22)	61 (44.9)
Don't know	46 (31.2)	57 (42)
<b>How confident are you in your ability to identify PHTN to your patients?</b>		
Very confident	19 (17.4)	21 (15.4)
Confident	21 (19.3)	28 (20.6)
Not very confident	30 (27.5)	34 (25)
Not at all confident	36 (33)	53 (39)

Table 4. Clinical practices of healthcare providers in relation to PHTN.

Characteristics	Professional category	
	Doctors n (%)	Nurses n (%)
<b>How do you detect prehypertension in your patients?</b>		
Measurement of blood pressure	84 (77)	71 (52.2)
Patient's medical history	12 (11)	29 (21.3)
Blood pressure measurement + medical history	13 (12)	36 (26.5)
<b>How often do you recommend blood pressure checks to your patients?</b>		
Every visit	29 (26.6)	12 (8.9)
Monthly	12 (11)	22 (16.1)
Semi-annually	17 (15.6)	9 (6.6)
Annually	15 (13.8)	8 (5.9)
No recommendation	36 (33)	85 (62.5)
<b>What interventions do you recommend to manage prehypertension?</b>		
Lifestyle changes (diet, physical activity, weight reduction, moderate alcohol consumption)	18 (16.5)	9 (6.6)
Antihypertensive medication	0 (0)	0 (0)
Lifestyle changes + antihypertensive medication	6 (5.5)	6 (4.4)
Regular follow-up	5 (4.5)	29 (21.3)
No recommendation	80 (73.5)	92 (67.7)

Table 5. Data on the training and resources of healthcare providers in relation to the PHTN.

Characteristics	Professional category	
	Doctors n (%)	Nurses n (%)
<b>Have you received specific training on PHTN?</b>		
Yes	5 (4.6)	0 (0)
No	104 (95.4)	136 (100)
<b>Would you be interested in PHTN training?</b>		
Yes	106 (97.2)	133 (97.8)
No	3 (2.3)	3 (2.2)
<b>Would you be interested in participating in PHTN activities (conferences, seminars)?</b>		
Yes	107 (98.1)	130 (95.5)
No	2 (1.9)	6 (4.5)
<b>What types of resources do you use to find out about PHTN ?</b>		
Scientific articles	17 (15.5)	7 (5.1)
Continuing education courses	5 (4.6)	0 (0)
Courses at your university or college	23 (21.1)	0 (0)
Television and radio programmes	10 (9)	2 (1.5)
No source	54 (49.8)	127 (93.4)