

Hypertension Prevalence and Risk Factors Among Patients Attending Hoima Regional Referral Hospital in Hoima City, Western Uganda

Samson Nakhokho

Department of Medicine and Surgery, Kampala International University, Uganda.

ABSTRACT

The prevalence of hypertension in Uganda is 26.5%, with only 7.7% of the population aware of their status. A study was conducted to determine the prevalence and associated factors of hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda. The majority of the patients were females, with a majority of them being married. The study found a 29.4% prevalence of hypertension. Factors such as BMI, smoking, and physical exercise were significantly related to hypertension. Obese participants were three times more likely to have hypertension than normal participants, while those who smoked were three times more likely. Physical exercise was 90.2% less likely to have hypertension than those who did not engage in physical exercise. The prevalence of hypertension among patients aged 40 and above attending Hoima RRH was moderately high, with smoking and obesity being significantly associated with high risk, and physical exercises significantly reducing the risk.

Keywords: prevalence, associated factors, hypertension. age

INTRODUCTION

Between 1990 and 2010, hypertension (HTN) was the leading cause of death and disability globally [1, 2]. During this period, the prevalence of HTN in SSA increased by 67% and it was responsible for more than 500,000 deaths which is at variance with many other countries worldwide where absolute BP levels may be decreasing [1].

A recent review showed that hypertension prevalence varies between 15% and 70% with 30% average among SSA countries. Furthermore, between 44% and 93% of people with HTN in SSA are unaware of their hypertensive status [3]. Therefore, the extent of adverse effects of HTN on health and lives of populations within Uganda and SSA remains largely unexplored with 42% cases of ischemic heart disease related to hypertension and increases the risk of stroke by at least five folds and 1/3 of heart failure cases in SSA are due to HTN [4].

HTN once rare in traditional African societies [5, 6, 7] has become a major public health problem because of high prevalence rates contrasting with low awareness,

treatment and control rates [5]. The prevalence of HTN in Uganda is at 26.5% and studies show that there is no remarkable difference in distribution by geographical locations where by the central region, the prevalence is highest at 28.5%, followed by eastern region at 26.4%, western region at 26.3% and lastly northern region at 23.3%... Studies show that only 7.7% of Ugandans are aware of their hypertension status signaling a high problem of undiagnosed and uncontrolled hypertension [8].

In Uganda, national health programs currently prioritizing NCDs specifically HTN are still on a low scale as most efforts and funds are directed to most infectious diseases such as HIV-AIDS, malaria and tuberculosis [9, 10, 11, 12]. This has led to little awareness about HTN in Hoima communities leading to increased undiagnosed hypertensive cases and its diverse complications. Not only that but little data has been documented on the prevalence of hypertension and its associated factors in Hoima district thus the need for this research.

METHODOLOGY

Study design

The study employed descriptive cross sectional study design [13].

Study area

Hoima is a city in the Western Region of Uganda. It is the main municipal, administrative, and commercial center of Hoima District.

Study population

Hoima harbors people of different origin with different cultures, background, behavior and instincts with most being Banyoro. Data therefore was obtained from persons aged 40 and above attending Hoima RRH. The study focused on natives and citizens of Hoima i.e., those who have settled in the area for at least 6 months to determine prevalence of HTN and its associated factors.

Sample size determination

Sample size was determined using Kish Leslie method of 1965.

Formula,

$$n = \frac{Z^2 pq}{d^2}$$

Where;

Z= 1.96

p = Prevalence of hypertension; 12.7% [14]

q= 1-p

d = level of significance.

$$n = \frac{1.96^2 0.127 \times 0.873}{0.05^2} = 170$$

n = 170

Inclusion criteria

All patients aged 40 years, and above in Hoima district during the time of study, settled in Hoima for > 6 months and were given an informed consent for the study.

Exclusion criteria

All patients below 40 years and those without informed consent for the study and those outside Hoima district were also excluded.

Data Processing

Crude data was sorted, cleaned and entered into MS Excel 2013.

Data Analysis

Sociodemographic and other baseline characteristics were analyzed based on the type and/or scale of measurement they assume. Numerical variables were analyzed by way of central tendency i.e. mean and median and measures of variation i.e. standard deviation and interquartile ranges respectively. All statistical analysis was carried out using SPSS version 25.

Ethical consideration

Informed Consent

Informed consent was acquired from each participant as shown in appendix 1.

Autonomy

Involvement in the study will be totally voluntary [15]. The participants shall have the freedom to quit the survey at any time they want without punishment.

Confidentiality

All reactions were kept confidential. Only members of the research team and associated support staff saw completed questionnaires. No information was addressed in a way that permitted a reader to relate any reactions to individual respondents. Results of the study were accounted for as summative information.

Human Rights

Participants had the freedom to decline to take part in the study and to pull out from the study willingly with no punishments.

RESULTS

Table 1 shows that majority 85(50.0%) were aged 40-49 years, 109(64.1%) were females, many 74(43.8%) were catholic,

many 61 (35.7%) were of primary level of education, and lastly majority 99 (58.1%) were married.

Table 2: Demographic data of respondents

	Frequency	Percent
Age		
40-49	85	50.0
50-59	67	39.5
60 and above	18	10.5
Sex		
Female	109	64.1
Male	61	35.9
Religion		
Pentecostal	30	17.6
Catholic	74	43.8
Moslem	28	16.2
SDA	6	3.3
Anglican	30	17.6
Bishaka	2	1.4
Education level		
None	32	19.0
Primary	61	35.7
Secondary	39	22.9
Tertiary/ university	38	22.4
Marital status		
Single	57	33.8
Married	99	58.1
Divorced	3	3.3
Widow	8	4.8

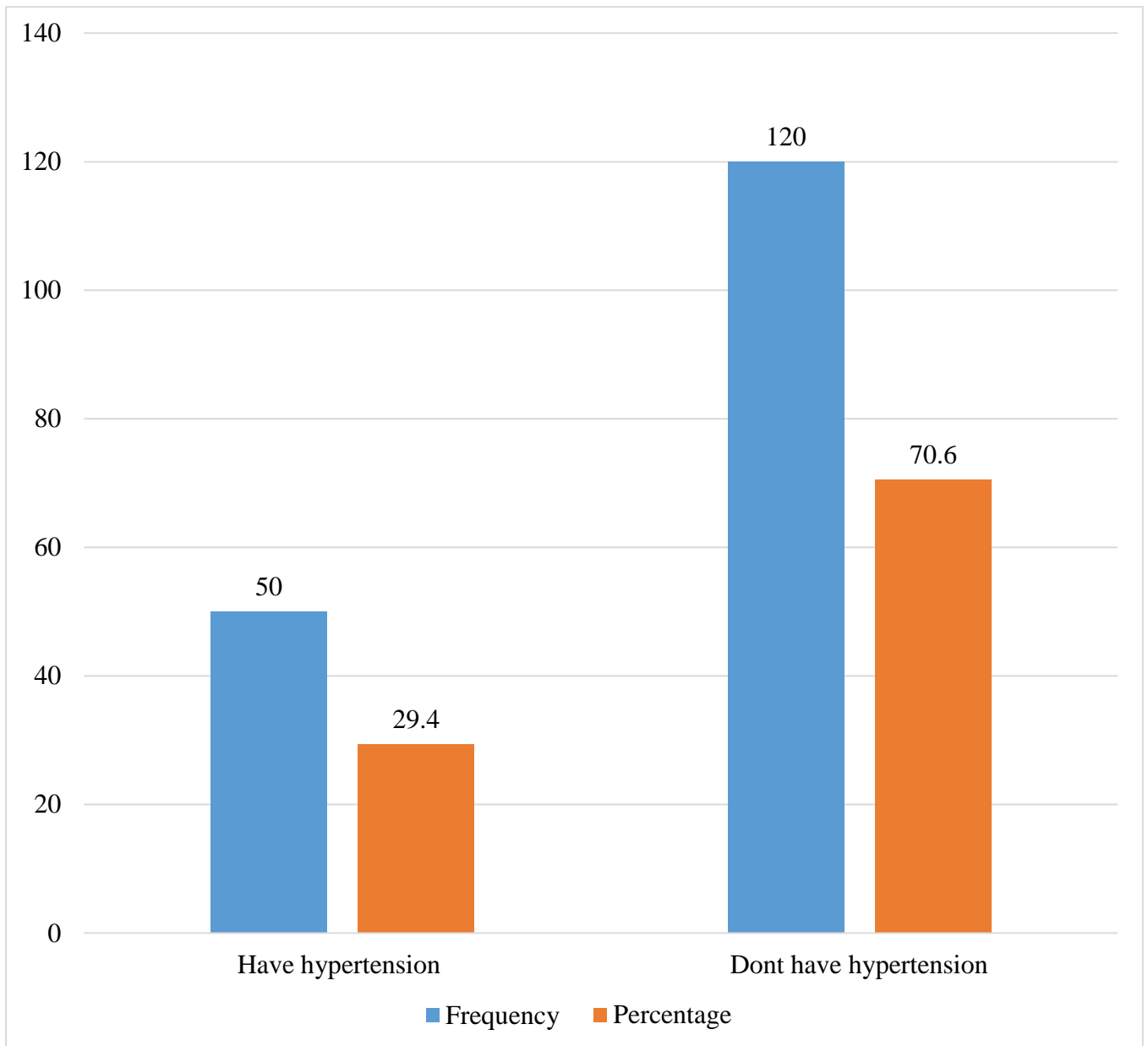


Figure 1: Prevalence of hypertension among patients aged 40 and above attending Hoima RRH in Hoimacity, western Uganda.

According to figure 50 (29.4%) had hypertension while 120 (70.6%) did not

have hypertension. Thus, the prevalence of hypertension in this study was 29.4%.

Table 3: Bivariate analysis of socio-demographic factors associated with hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda

Hypertension status		cOR(95%CI) p-value		
Variable n (%)	Hypertensive	Not hypertensive		
Age in years				
40-49	30	55	1.00	
50-59	12	55	0.82(0.22-3.0)	0.76
60 and above	8	10	0.31(0.06-1.56)	0.16
Religion				
Pentecostal	6	24	1.00	
Catholic	18	56	1.59(0.19-13.17)	0.67
Moslem	7	21	1.48(0.17-12.76)	0.72
SDA	2	4	3.60(0.26-50.33)	0.34
Anglican	17	13	0.25(0.05-1.15)	0.46
Bishaka	1	1	0.29(0.07-24.38)	0.87
Education level				
Uneducated	11	19	1.00	
Primary	20	41	2.61(0.71-9.58)	0.15
Secondary	5	34	0.77(0.38-1.55)	0.16
Tertiary	14	24	2.18(0.58-8.20)	0.25
Marital status				
Single	16	41	1.00	
Married	29	70	0.19(0.17-1.42)	0.81
Divorced	1	3	0.23(0.04-1.37)	0.38
Widow	4	4	2.47(0.71-8.61)	0.46
Body Mass Index				
Normal	26	65		
Under weight	4	8	0.38(0.11-1.26)	0.71
Over weight	13	37	1.32(0.14-12.33)	0.12
Obese	7	10	2.74(0.29-25.54)	0.19

Table 4: Multivariate binary logistic regression: Socio-demographic factors associated with hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda

Variable	aOR	95%CI	p-value
Age in years			
18-35	1.00		
36-59	0.87	0.07-10.3	0.91
60 years and above	0.18	0.01-3.79	0.27
Education level			
None	1.00		
Primary	4.38	0.73-26.34	0.11
Secondary	3.05	0.53-17.63	0.21
Tertiary	7.74	0.78-76.28	0.08
Body Mass Index			
Normal	1.00		
Under weight	0.08	0.005-1.20	0.07
Overweight	1.25	0.55-5.15	0.07
Obese	2.4	1.23-4.96	0.04

Table 5: Bivariate analysis of behavioral and metabolic factors associated with hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda

Hypertension status				
Variables	Hypertensive	Not Hypertensive	cOR(95%CI)	p-value
Do you smoke				
Yes	13	26	2.3(1.01-8.74)	0.001
No	37	94	1.00	
Do you take alcohol				
Yes	9	33	2.79(1.0-7.83)	0.054
No	41	87	1.00	
Do you engage in physical exercises				
Yes	31	66	0.51(0.27-0.94)	0.03
Do add raw salt in already prepared food				
Yes	14	48	0.52 (1.0-7.83)	0.674
No	36	72	1.00	
Do you eat meat with high animal fat				
Yes	46	111	0.54(0.25-1.16)	0.437
No	4	9	1.00	
History of chronic illness				
Yes	45	103	1.37(0.15-12.51)	0.78
No	5	17	1.00	

Table 6: Multivariate analysis of behavioral and metabolic factors associated with hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda

Variables	aOR	95% CI)	p- value
Do you take alcohol			
Yes	24.554	45.561-132.330)	0.061
No	1.00		
Do you smoke			
Yes	3.62	1.779-16.828	0.001
No	1.00		
Do you engage in physical exercises			
Yes	0.098	0.028-0.342	0.015
No	1.00		

DISCUSSION

In this study, the prevalence of hypertension was found to be 29.4% among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda. This result is consistent with the findings of the study, which found a rate of hypertension of 28.0 percent in Tanzania [16] and the prevalence of hypertension in Uganda which was 26.5% with the central highly plagued (28.5%). Eastern, Western and Northern regions reported 26.4%, 26.3% and 23.3% prevalence rates respectively. The prevalence in urban centers stood at 28.9%, 3.1% more than that in rural areas [14]. The reason for consistent result could be like to geographical location as people living in Hoima, Tanzania and Uganda generally live in similar conditions.

This study's hypertension prevalence rates were substantially higher than those (15.9%) recently reported for four Sudanese states (Khartoum, Gezira, Blue Nile, and Kassala) [17]. It was also high when compared to the global prevalence of HTN, which was 22 percent among people aged 18 and up in 2014 [18]. A hospital-based study in Ethiopia also found a low rate of hypertension (10.5 percent). The reason for high hypertension prevalence rate can be like change in eating habits as different people from different places eat differently.

However, the prevalence of hypertension in this study was low compared that in the capital, Addis Ababa, showed a

prevalence rate of 34.7 percent for hypertension [19]. The total pooled prevalence of hypertension was 57.0 percent (range from 22.3 to 90.0 percent) in a Meta analysis of 43,025 older individuals (> 53 years) in 15 African nations [20].

Obesity is often associated with essential hypertension as stated by [21]. The greater the body mass, the more blood is needed to supply oxygen and nutrients to the muscle and other tissues. Obesity also increases the number and length of blood vessels and therefore, increases resistance of blood that has to travel longer distances through those vessels. The occurrence of obesity has dramatically increased and is now estimated that over 50% American adults are either overweight or obese [22]. [22] further states that obesity adds to the development of several cardiovascular disease risk factors, especially hypertension, diabetes mellitus, low cholesterol elevated triglycerides and elevated levels of inflammatory markers. The positive relationship between body weight and blood pressure has been reported in longitudinal studies and has been replicated in other rapidly urbanizing setting in sub-Saharan Africa [23]. The growing obesity epidemic in SSA has been largely attributed to increasing consumption of western style diets high in sugar and fat. However, cultural perceptions that value heavier body weight as a sign of wellbeing and wealth cannot be underestimated [24].

This study found that smoking was significantly linked to hypertension, with those who smoked being three times more likely to have hypertension than those who did not. According to [25], cigarette smoking is a powerful cardiovascular risk factor and smoking cessation is the single most effective lifestyle measure for the prevention of a large number of cardiovascular diseases. Impairment of endothelial function, arterial stiffness, inflammation, lipid modification as well as an alteration of antithrombotic and prothrombotic factors are smoking-related major determinants of initiation, and acceleration of the atherothrombotic process, leading to cardiovascular events. Cigarette smoking acutely exerts a hypertensive effect, mainly through the stimulation of the sympathetic nervous system. Though smoking connection to

In conclusion, prevalence of hypertension among patients aged 40 and above attending Hoima RRH in Hoima city, western Uganda was moderately high. Smoking and being

high blood pressure (HBP or hypertension) is still being determined. This study found that physical exercise was significantly linked to hypertension, with those who did physical exercise being 90.2% less likely to have hypertension than those who did not. Similarly, a study done by [22] revealed that people with a more active lifestyle are at lower risk of cardiovascular disease. Inactive teenagers are more likely to have higher blood pressure [26]. Inactive adults tend to have higher heart rates, because their heart muscle does not function efficiently and have to work harder to pump blood; this is because physical activity is a vasodilator and allows blood to circulate faster [27]. A study done in the Western Cape documented low levels of physical activity among adults; according to [28].

CONCLUSION

obese were significantly associated with being at high risk of hypertension while physical exercises significantly reduced the risk of hypertension.

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