

# Prevalence And Severity Of High Blood Pressure In Morocco

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## Abstract:

**Background:** Hypertension, also known as high blood pressure (HBP), is a chronic medical condition characterized by persistently elevated blood pressure in the arteries. Although it may not always exhibit noticeable symptoms, hypertension can lead to serious long-term health complications, including an increased risk for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease, and dementia. The objective of this study is to determine the prevalence and severity of hypertension among patients in Rabat, Morocco.

**Methods:** This is a retrospective descriptive study that included all patients diagnosed with hypertension at the Military Hospital Mohammed V of Rabat (Morocco), during the period between 2004 and 2018. A standardized questionnaire was completed for each patient. Prior to data collection, patients were informed about the objectives of the study, and measures were taken to protect their confidentiality and anonymity. The study parameters included age, gender, time elapsed since hypertension diagnosis, and hypertension severity.

**Results:** A total of 10,929 individuals were included in the study, with half being male. The mean age of the patients was  $71 \pm 17$  years. The age group most affected was those aged 65 years or older, representing 62% of all groups. Of the hypertensive cases, 70% were classified as moderate hypertension. Furthermore, hypertension significantly increased with age ( $p < 0.001$ ).

**Conclusion:** Adopting positive lifestyle changes and adhering to prescribed medications are key strategies that can effectively lower blood pressure and reduce the risks of severe health complications commonly associated with hypertension. Examples of effective lifestyle changes include weight loss, regular physical exercise, reduced salt and alcohol consumption, and a healthy diet. Medications for managing hypertension may also be necessary in some cases.

**Keywords:** Hypertension; Severity; Lifestyle changes

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## I. Introduction

High blood pressure is a common condition that affects the body's arteries. It's also called hypertension. The force of the blood pushing against the artery walls is consistently too high. The heart has to work harder to pump blood. Most people with high blood pressure have no symptoms, even if blood pressure readings reach dangerously high levels. We can have high blood pressure for years without any symptoms.

A few people with high blood pressure may have: Headaches, Shortness of breath or Nosebleed. However, these symptoms aren't specific. They usually don't occur until high blood pressure has reached a severe or life-threatening stage.

Blood pressure is determined by two things: the amount of blood the heart pumps and how hard it is for the blood to move through the arteries. There are two main types of high blood pressure: Primary hypertension, also called essential hypertension. For most adults, there's no identifiable cause of high blood pressure. It tends to develop gradually over many years. Plaque buildup in the arteries, called atherosclerosis, increases the risk of high blood pressure and a Secondary hypertension: This type of high blood pressure is caused by an underlying condition. It tends to appear suddenly and cause higher blood pressure than does primary hypertension. Conditions and medicines that can lead to secondary hypertension include: Adrenal gland tumors, Blood vessel problems present at birth, also called congenital heart defects, Cough and cold medicines, some pain relievers, birth control pills, and other prescription drugs, Illegal drugs, such as cocaine and amphetamines, Kidney disease, Obstructive sleep apnea and Thyroid problem.

Abnormally high blood pressure values define hypertension. Hypertension is a major risk factor and the cause of an estimated nine million deaths per year worldwide [1–3]. In 2000, hypertension affected an estimated 972 million people, including 639 million in developing countries [4]. Projections based on these data suggest

that the number will increase by 60% in 2025 [5]. Low- and middle-income countries account for more than three quarters of global deaths related to cardiovascular diseases according to the World Health Organization [1, 6]. Premature deaths, personal and family disruption, loss of income, and high health care costs associated with hypertension are a significant economic burden for families, communities, and public health system with 57 million disability-adjusted life year (DALY) at the global level and 658.301 DALY in Morocco [7]. Due to its chronicity and the need for lifespan treatment, hypertension is hence a factor of poverty [8].

The Moroccan budget allocated to tackle hypertension rose from 33 million dirhams in 2010 to 45 million dirhams in 2014 [7]. A first Moroccan national survey was conducted in 2000 on a sample of 1802 participants and revealed that hypertension had an estimated prevalence of 33% among people aged 20 and over [9]. Altogether, it appears that data on hypertension in Morocco are still very scarce.

A better knowledge of the current characteristics of the hypertensive population would highly improve the clinical management of the disease and its cardiovascular complications. A multi-center epidemiological trial of hypertension in North Africa conducted between September 2008 and January 2009 involving 28.500 patients showed that 45% of the population were known as hypertensive and 64% of those individuals had uncontrolled blood pressure (UBP) [7, 10]. The benefit of antihypertensive treatment should correlate with the decline in blood pressure. UBP (systolic blood pressure greater than 140 mmHg and / or diastolic blood pressure greater than 90 mmHg after treatment) is often complicated by serious cardiovascular events for which it multiplies the risk of death [11, 12].

## **II. Methods**

### **Design and study area**

This research was a This is a retrospective descriptive study undertaken from 2004 to March 2018, in the Military Hospital of Rabat (Morocco). Study participants who were followed and who agreed to participate in the study were included in the sampling pool. The patients were selected by the simple random sampling method. Sample size was determined by  $p=0.05$  and confidence interval 95%.

### **Questionnaire**

Data was collected using a questionnaire whose validity was obtained using the content validity. The questionnaire included items on various aspects as follows:

1. Socio-demographic component: age, gender;
2. High blood pressure severity.

### **Data collection**

Data was collected by a trained research doctor. It was based on patient record.

### **Operational definitions**

HBP was classified according to the criteria of the European Society of Hypertension and the European Society of Cardiology (ESH/ESC) guidelines [13]. According to these guidelines, UBP was identified in the treated general population when the systolic blood pressure (SBP) was greater than or equal to 140 mmHg whereas the diastolic blood pressure (DBP) was greater than or equal to 90 mmHg.

The level and severity of hypertension was classified according to the criteria of ESH/ESC guidelines as [13]: grade I, SBP 140–159 mmHg and/or DBP 90-99mmHg; grade II, SBP 160–179 mmHg and/or DBP 100–109 mmHg; grade III, SBP 180 mmHg and/or DBP 110 mmHg;

We defined severity according to the grade:

- Grade I and II: moderate
- Grade III: severe

### **Data analysis**

Data were analyzed using IBM SPSS 19.0 for Windows. Descriptive as well as analytical analyses were employed to determine epidemiological profile of patients and to describe the severity of high blood pressure in the Moroccan population. The results are expressed in terms of numbers for the qualitative variables and on average  $\pm$  standard deviation for the quantitative variables. Differences between categorical groups were determined by using ( $\chi^2$ ) test. P-values $<0.05$  were considered to be statically significant in all analyses.

Description of socio demographic variables

## **III. Results**

Between 2004 and 2018, we administered questionnaire to 10929 patients.

The mean age of participants was  $71 \pm 17$  years, with extremes ranging from 13 to 116 years. The most concerned age group were those aged 65 years or older, representing 62% of all groups, followed by the age

group between 45 and 65 years old [Figure 1].  
50% were female, sex ratio 1 [Figure 2].

### High blood pressure severity

Regarding to the severity of high bold pressure, we found that 70% were classified as moderate hypertension [Figure 3].

Furthermore, regarding to the association between hypertension and the age of patients, we found that there is a statistically significant association (Chi square= 0.708 ,  $p < 0.001$ ). [Table 1], [Figure 4].

Regarding the association between the high blood pressure and the gender of patients, we found that there is no statistically significant association.

## IV. Discussion

Cardiovascular diseases, particularly high blood pressure become a major public health problem. Indeed, of the 10929 patients, we find an equivalence between male and female.

In our sample, it affects older people more young young people. The age group most affected was those aged 65 years or older, representing 62% of all groups age increased the risk for the frequency of HBP. The distribution by age is similar to the literature. Our study is consistent with results reported and published from studies conducted in Algeria and Burkina Faso [11, 14] as well as results reported from a study conducted in the USA [15].

We also found that 70% were classified as moderate hypertension.

Furthermore, hypertension significantly increased with age, We report the same observation in our study.

The results show a statically significant association between HBP end the age of patients. These results are similar to those published.

Cardiovascular diseases in general effect on mortality and morbidity. the chronic nature results in a significant impact in terms of medical care utilization, direct and indirect economic costs and quality of life.

## V. Conclusion

This study provides useful findings that could be elaborated and expanded in future studies on obesity in Morocco. Primary prevention of High blood pressure should be a national public health priority in our country. Initiatives to combat this kind of cardiovascular diseases must improve adherence of health professionals to the guidelines and standards of management of hypertensive patients, adherence to the drug and must promote a healthy lifestyle.

Strategies for the prevention, diagnosis and early treatment should be introduced before the problem spreads more widely.

Blood pressure screening is an important part of general health care.

## VI. Declaration

Ethics approval and consent to participate:

Permission to conduct the study at the hospital was received from the hospital administration.

Availability of data and material: The data sets during and/or analyzed the current study available from the corresponding author on reasonable request.

Competing interests: The authors declare that they have no competing interests

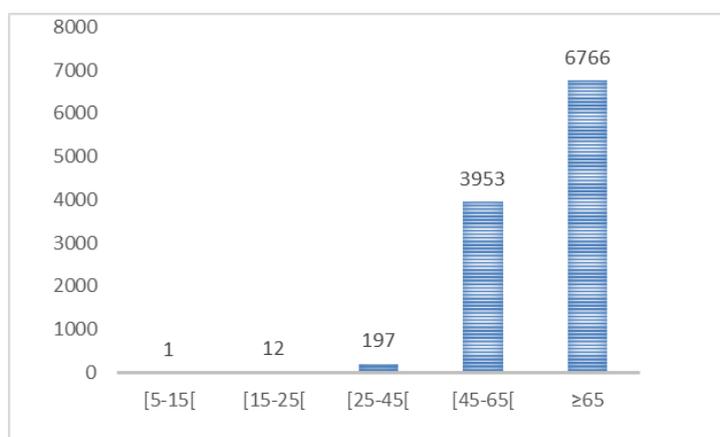


Fig. 1: Description Of Participants By Age Range (N=10929).



Fig. 2: Description Of Participants By Gender (N=10929).

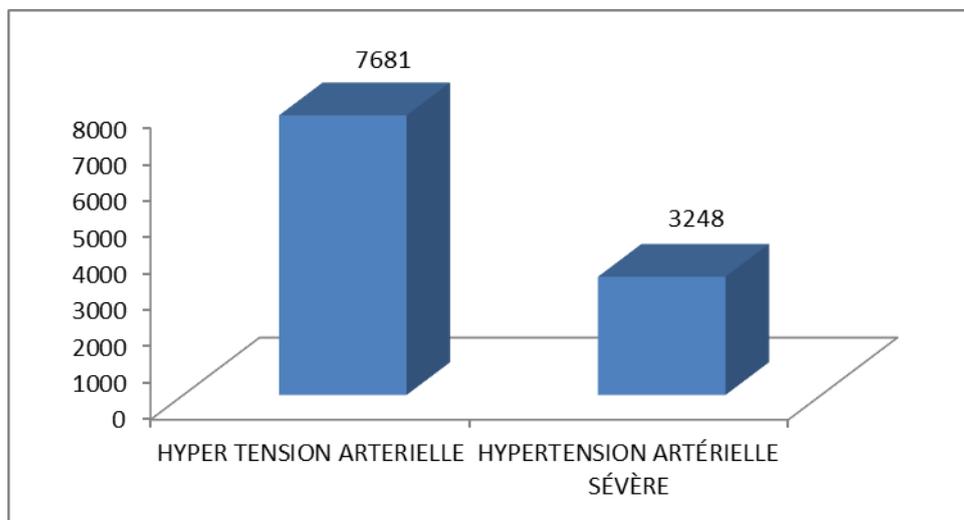


Fig. 3: Description Of Participants By High Blood Pressure Severity (N=10929).

Table 1: Results Of The Association Between The HBP And The Age, (N=10929).

	Valeur	Signification approximée
Nominal par Nominal Coefficient de contingence	,708	0,000
Nombre d'observations valides	57104	

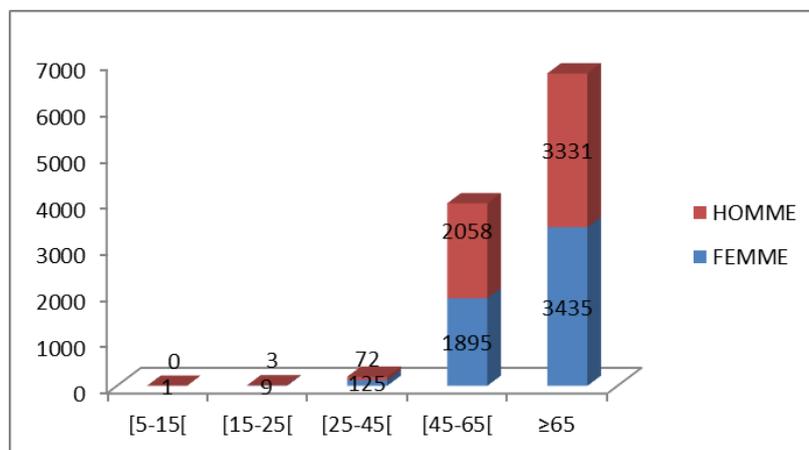


Fig. 4: Description Of Participants By High Blood Pressure Bye Age (N=10929).

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