

Prevalence of Hypertension Among Adults

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Abstract— Hypertension, commonly known as high blood pressure, is a significant public health concern globally due to its widespread prevalence and its role as a major risk factor for cardiovascular diseases, stroke, and renal failure. This study aims to assess the prevalence of hypertension among adults, with an emphasis on identifying demographic and lifestyle factors associated with its occurrence. The findings indicate that the prevalence of hypertension varies across different regions, age groups, and socioeconomic statuses, highlighting the influence of urbanization, diet, physical inactivity, and genetic predispositions. Higher prevalence rates are observed among older adults, males, and individuals with obesity, diabetes, and a sedentary lifestyle. The study underscores the importance of early detection, public health interventions, and lifestyle modifications to manage and prevent hypertension, ultimately reducing the burden of cardiovascular diseases. Comprehensive strategies, including awareness campaigns and policy-level actions, are crucial to mitigating the growing impact of hypertension on adult populations worldwide.

I. INTRODUCTION

Hypertension is frequently called the “silent killer” because it usually doesn’t present any symptoms but can still cause severe health problems if not managed properly.¹

Hypertension (HTN), a major global public health concern, is widely recognized as the most modifiable risk factor for cardiovascular disease (CVD), cerebrovascular disease, and end-stage renal disease. The World Health Organization (WHO) ranks hypertension (HTN) as the third leading cause of death worldwide, causing one in eight fatalities. Alongside HTN, common risk factors for cardiovascular diseases (CVD) include abdominal obesity, dyslipidemia, and insulin resistance.²

The increasing aging population, rapid urbanization, and globalization of unhealthy lifestyles are contributing to the rise in hypertension, particularly in developing countries. Early detection and effective treatment of hypertension are crucial for reducing cardiovascular risks and improving overall health outcomes. This underscores the importance of integrated approaches to managing cardiovascular health, emphasizing prevention, early intervention, and access to healthcare services.³

Updated guidelines in 2017 aimed to increase diagnosis rates by lowering the threshold for hypertension diagnosis. The CDC analyzed data from the Behavioral Risk Factor Surveillance System (BRFSS) to understand trends in the prevalence of self-reported diagnosed hypertension and the use

of antihypertensive medications. This analysis helps in assessing and addressing hypertension as a critical public health concern in the United States.⁴As populations in Western countries age, the prevalence of hypertension increases, further contributing to the burden of cardiovascular diseases and strokes. This demographic shift underscores the importance of effective management and preventive measures for hypertension to mitigate its impact on public health.⁵

India’s rapid economic development and urbanization have led to significant changes in dietary patterns and lifestyles. People are now less physically active and consume higher amounts of fats, meat, and salt, while eating fewer complex carbohydrates, fruits, and vegetables.⁶

II. DEFINITION

High blood pressure, defined as systolic blood pressure of 140 mm Hg or higher, diastolic blood pressure of 90 mm Hg or higher, use of antihypertensive medication, among adults 30 to 79 years.⁷

High blood pressure, or hypertension, is a serious condition where the force of blood against the artery walls is too strong. This occurs when the heart pumps blood through the arteries with excessive force. Blood pressure can vary throughout the day, typically rising when you first wake up, after physical activity, or during periods of stress.⁸



III. INCIDENCE

Hypertension is estimated to affect 1.13 billion people worldwide, with two-thirds living in low- and middle- income countries. Hypertension (HTN) is directly responsible for 57%

of stroke deaths and 24% of coronary heart disease deaths in India. The World Health Organization (WHO) rates hypertension as one of the leading causes of death worldwide. The prevalence of hypertension in India was 29.8% between 1950 and 2013.⁹

IV. CLASSIFICATION

Normal: A systolic pressure less than 120 mmHg and a diastolic pressure less than 80 mmHg can be considered "normal blood pressure". This range is considered healthy and is the standard level for most adults.

Elevated: A systolic pressure of 120 to 129 mm Hg and a diastolic pressure of less than 80 mm Hg is classified as "hypertension". This indicates that while the diastolic pressure is still within the normal range, the systolic pressure is higher than what is considered normal.

Stage 1: A systolic pressure of 130 to 139 mm Hg, a diastolic pressure of 80 to 89 mm Hg is classified as "stage 1 hypertension" or "stage 1 hypertension." This range indicates that your blood pressure is high and requires lifestyle changes and medication to reduce your risk of heart problems.

Stage 2: A systolic pressure of at least 140 mm Hg or a diastolic pressure of at least 90 mm Hg is classified as "stage 2 hypertension" or "high blood pressure stage 2." This indicates a more severe level of high blood pressure that requires more lifestyle changes and medication to control.

Hypertensive crisis : Systolic pressure exceeds 180 mm Hg and/or diastolic pressure exceeds 120 mm Hg, it is referred to as a hypertensive crisis. This condition is a medical emergency that necessitates urgent care to avoid serious health risks.¹⁰

V. ETIOLOGICAL FACTORS

1. **Age:** The risk of developing high blood pressure (BP) increases with age. It is more prevalent among men until approximately age 64. After age 65, however, women are more likely to develop high blood pressure than men. This age-related shift in the prevalence of high blood pressure between genders highlights a significant trend in cardiovascular health as individuals age.
2. **Family history:** Having a family history of high blood pressure does not mean you will develop high blood pressure, but it does increase your risk.
3. **Obese:** As your body weight increases, more blood is required to supply oxygen and nutrients to your tissues. This increased volume of blood circulating through your vessels also leads to higher pressure on the walls of your arteries. This condition is often associated with higher risks of cardiovascular problems like hypertension and heart disease.
4. **Drinking too much alcohol:** excessive alcohol consumption over time can harm your heart, and drinking more than one drink per day for women or more than two drinks per day for men can increase your blood pressure.
5. **Using tobacco:** smoking or chewing tobacco temporarily increases your blood pressure, and the harmful chemicals in tobacco can damage your artery walls, leading to narrowed arteries and a higher risk of heart attacks. Additionally, exposure to secondhand smoke also elevates

the risk of heart attacks.

6. **Not being physically active:** Lack of physical activity not only tends to result in higher heart rates but also increases the workload on the heart during contractions. This can lead to higher blood pressure and strain on arteries. Additionally, insufficient physical activity is a contributing factor to weight gain and obesity. Therefore, maintaining an active lifestyle is crucial for overall cardiovascular health and weight management.
7. **Too much salt (sodium) in your diet:** Consuming a high amount of sodium in your diet can cause your body to retain fluid, leading to increased blood pressure.¹¹

VI. RISK FACTORS

1. **Salt intake:** The estimated per capita salt intake was determined by asking individuals to recall all foods and beverages they consumed over a 24-hour period for three consecutive days. Researchers then calculated the average amount of salt consumed across these three days per person. This method allows for a more comprehensive assessment of typical daily salt intake, reducing the impact of day-to-day variations in diet.
2. **Smoking:** A person who meets the criteria of having smoked at least 100 cigarettes in their lifetime and has smoked either daily or on some days within the past 30 days is typically classified as a current smoker. This definition is often used in health research and surveys to distinguish current smokers from former smokers or those who have never smoked.
3. **Tobacco chewing:** A person who has regularly used smokeless tobacco at least once a day or nearly every day in any form continuously over the past 12 months would be considered a regular user of smokeless tobacco. This definition helps to identify individuals who have consistently engaged in the habitual use of smokeless tobacco products over a sustained period.
4. **Measurement of blood pressure:** The sound of blood flow is heard through the stethoscope, the systolic blood pressure is recorded, and when the sound disappears completely, the diastolic blood pressure is recorded. These measurements were taken on the subject's left arm using a cuff of appropriate size positioned at the level of the heart. This method ensures accurate readings of both systolic and diastolic blood pressures, crucial indicators of cardiovascular health.
5. **Alcohol:** A present consumer of alcohol is someone who has consumed alcohol either daily or on some days within the last 30 days. On the other hand, a past consumer of alcohol is defined as someone who used to consume alcohol but ceased drinking 12 months ago. These definitions categorize individuals based on their recent and historical alcohol consumption behaviors, which are important distinctions in studies and assessments related to alcohol use and its effects.¹²

VII. CLINICAL MANIFESTATION

1. Severe headache
2. Chest pain

3. Dizziness
4. Difficulty in breathing
5. Nausea
6. Vomiting
7. Blurred vision
8. Anxiety
9. Confusion
10. Abnormal Heart rhythm

VIII. LIFE STYLE CHANGES

A heart-healthy diet typically includes foods rich in potassium (like bananas, spinach, and sweet potatoes), fiber (found in fruits, vegetables, and whole grains), and staying well-hydrated by drinking plenty of water throughout the day.¹³

Regular exercise is key for a healthy heart. Aim for at least 30 minutes of aerobic exercise each day. This can include activities like brisk walking, jogging, swimming, or cycling to help keep your heart strong and improve overall fitness.

- Stop smoking to improve heart health
- To promote heart health, limit alcohol consumption to one drink per day for women and two drinks per day for men.
- Reduce stress by avoiding stressful situations and practicing relaxation techniques such as meditation or yoga. These methods can help promote better heart health and overall well-being.
- Maintain a healthy body weight by following a suitable weight loss program if needed. This can involve balanced nutrition and regular physical activity to achieve and sustain a healthy weight, supporting heart health in the process.¹⁴

IX. COMPLICATION

1. Bleeding from the aorta, the main artery supplying blood to the abdomen, pelvis, and legs.
2. Chronic kidney disease (CKD).
3. Stroke
4. Heart failure and heart attack
5. Blurred vision
6. Poor blood supply to the legs, often referred to as peripheral artery disease (PAD).¹⁵

X. DIAGNOSTIC EVALUATION

1. History Collection
2. To know whether there is any family history of hypertension.
3. Physical Examination
4. To know whether the patient is stable and to know whether the body function is normal.
5. Check the blood pressure
6. To know the patient blood pressure is normal or not.
7. Complete blood count
8. To check any abnormality in the blood.
9. Echo cardiogram
10. Hypertension can lead to gradual damage to the heart. Through echocardiography, cardiologists can detect and monitor changes in your heart's structure and function.
11. Electro cardiogram

12. It shows whether the heart has enlarged due to high blood pressure or if there are signs of a previous heart attack.¹⁶

XI. MANAGEMENT MEDICAL MANAGEMENT

1. Diuretics: Help remove excess sodium and water from the body. eg: Furosemide, Chlorothiazide
2. ACE Inhibitors: Relax blood vessels by blocking a hormone that constricts them. eg: Captopril, Enalapril, Lisinopril
3. Beta-blockers: Reduce the heart's workload and lower blood pressure. eg: Propranolol, Metoprolol
4. Calcium Channel Blockers: Relax and widen blood vessels by blocking calcium's effects on the heart and blood vessels. eg: Amlodipine, Nicardipine, Verapamil.¹⁷

XII. NURSING MANAGEMENT

1. Proper history collection should be done which includes family history also.
2. Dietary habits should be assessed.
3. Identify the medical history such as diabetes, renal diseases
4. Instruct the patient to avoid smoking and alcoholism
5. Auscultate heart rate and palpate peripheral pulses.
6. Educate the patient about the importance of healthy activity.
7. Advice to sleep at least 8-9 hours daily.
8. Avoid warm bath and prolonged standing and sitting.
9. Explain the long term therapy.¹⁸

XIII. PREVENTION

- Adults over 18 should undergo regular blood pressure checks to monitor their cardiovascular health.
- Making lifestyle changes such as improving diet, exercising regularly, managing stress, limiting alcohol intake, and quitting smoking can help to control blood pressure.
- Follow your healthcare provider's guidance to address and manage potential causes of high blood pressure effectively.
- Detecting high blood pressure early can help avoid heart disease, stroke, vision issues, and chronic kidney disease.
- Scheduling routine visits with your doctor.
- maintain the body weight.¹⁹

XIV. CONCLUSION

Hypertension is a significant public health issue in India, with its prevalence rising quickly in both urban and rural areas. It is the chronic disease of the nation. Currently, high blood pressure affects 20-40% of urban adults and 12-17% of rural adults. The number of people with hypertension is expected to grow from 118 million in 2000 to 214 million by 2025, with almost equal numbers of men and women affected.²⁰

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