Journal of Advanced Healthcare and Medical Sciences (JAHMS)
J. Adv. Healthc. Med. Sci.
E-ISSN: xxxx-xxxx; P-ISSN: xxxx-xxxx
Website: https://www.jahms.org/

Original Article

Hypertension Control Among Young Adults: A Cross-Sectional Study

Ishrat Khurshid
2nd year, MBBS, Abbottabad International Medical & Dental College.

Corresponding Author: Ishrat Khurshid

Received: 2025-07-20 **Accepted**: 2025-09-18 **Published**: 2025-11-30

Abstract-

Background: Hypertension is a major public health concern worldwide and is increasingly being diagnosed among young adults. Poor lifestyle habits, obesity, stress, and physical inactivity contribute significantly to elevated blood pressure in this population. Early identification and effective control of hypertension are essential to prevent future cardiovascular complications. ***Objectives:*** To assess the prevalence of hypertension control among young adults and identify factors associated with adequate blood pressure control. ***Materials and Methods:*** A cross-sectional study was conducted among 200 young adults aged 18–35 years attending an urban primary healthcare center. Data regarding sociodemographic characteristics, lifestyle behaviors, medication adherence, and blood pressure measurements were collected using a structured questionnaire. Blood pressure was measured according to standard guidelines. Hypertension control was defined as blood pressure <140/90 mmHg among diagnosed hypertensive individuals. ***Results***: Among the participants, 55% were male and 45% were female. Adequate hypertension control was observed in 62% of participants. Higher rates of blood pressure control were associated with medication adherence, regular physical activity, and normal body mass index (BMI). Poor control was significantly associated with obesity, smoking, and irregular follow-up visits. ***Conclusion***: Hypertension control among young adults remains suboptimal. Lifestyle modification, improved medication adherence, and regular monitoring are essential strategies for achieving better blood pressure control in this age group.

Keywords: *Hypertension, Young Adults, Blood Pressure Control, Lifestyle Factors, Cardiovascular Risk.*

INTRODUCTION

Hypertension is one of the most important modifiable risk factors for cardiovascular diseases, stroke, chronic kidney disease, and premature mortality worldwide. According to the World Health Organization (WHO), approximately 1.28 billion adults aged 30–79 years are living with hypertension globally, and nearly half are unaware of their condition (1). Although hypertension has traditionally been considered a disease of older adults, recent evidence suggests an increasing prevalence among younger populations due to urbanization, sedentary lifestyles, unhealthy dietary habits, obesity, and psychological stress (2).

Young adulthood is a critical period for the development of cardiovascular risk factors. Elevated blood pressure during early adulthood has been associated with increased risk of future cardiovascular events and target organ damage (3). Studies have demonstrated that hypertension beginning at a younger age contributes to a longer cumulative exposure to elevated blood pressure, thereby increasing the likelihood of adverse cardiovascular outcomes later in life (4).

The prevalence of hypertension among young adults has risen significantly in recent decades. In many developing countries, rapid economic growth and lifestyle transitions have resulted in increased consumption of high-sodium diets, reduced physical activity, and greater levels of obesity, all of which contribute to elevated blood pressure (5). Furthermore, tobacco use, alcohol consumption, inadequate sleep, and occupational stress are recognized risk factors for hypertension among young adults (6).

Despite the growing burden of hypertension, control rates remain unsatisfactory. Hypertension control refers to achieving blood pressure levels within recommended targets through lifestyle modification and pharmacological treatment. Effective control significantly reduces the risk of cardiovascular complications, including myocardial infarction, stroke, and heart failure (7). However, young adults often exhibit poor treatment adherence due to asymptomatic disease, lack of awareness, misconceptions regarding medication use, and irregular healthcare utilization (8).

The American College of Cardiology and the American Heart Association emphasize the importance of early detection and intervention to prevent long-term complications associated with hypertension (9). Lifestyle modifications such as weight management, reduced salt intake, increased physical activity, smoking cessation, and stress reduction have demonstrated substantial benefits in blood pressure control (10).

In India and other low- and middle-income countries, awareness, treatment, and control of hypertension remain inadequate among young adults. Identifying factors associated with successful blood pressure control is essential for designing effective prevention and management strategies. Therefore, this study was undertaken to assess hypertension control among young adults and determine the factors influencing adequate blood pressure management.

MATERIALS AND METHODS

A cross-sectional descriptive study was conducted to assess hypertension control among young adults.

Study Setting

The study was carried out in an urban primary healthcare center over a period of six months from January 2025 to June 2025.

Study Population

Young adults aged 18–35 years who had been diagnosed with hypertension for at least six months and attended the healthcare center during the study period were included.

Inclusion Criteria

- Age between 18 and 35 years.
- Diagnosed hypertension for at least six months.
- Willingness to participate in the study.

Exclusion Criteria

- Pregnant women.
- Individuals with severe cardiovascular complications.
- Patients with secondary hypertension.
- Critically ill individuals unable to participate.

Sample Size

A total of 200 participants were included using convenience sampling.

Data Collection Tool

A pretested structured questionnaire was used to collect information regarding:

- Sociodemographic characteristics
- Smoking and alcohol consumption
- Physical activity
- Dietary habits
- Medication adherence
- Frequency of healthcare visits

Blood Pressure Measurement

Blood pressure was measured using a calibrated digital sphygmomanometer. Two readings were taken five minutes apart, and the average value was recorded. Hypertension control was defined as blood pressure less than 140/90 mmHg.

Variables Studied

Independent variables:

- Age
- Gender
- BMI
- Physical activity
- Smoking status
- Alcohol consumption
- Medication adherence

Dependent variable:

- Hypertension control status

Statistical Analysis
Data were entered into Microsoft Excel and analyzed using SPSS version 25. Descriptive statistics were expressed as frequencies and percentages. Associations between variables and hypertension control were analyzed using the Chi-square test. A p-value <0.05 was considered statistically significant.

Ethical Considerations
Ethical approval was obtained from the Institutional Ethics Committee. Written informed consent was obtained from all participants before data collection. Confidentiality and anonymity were maintained throughout the study.

RESULTS

Table 1: Sociodemographic Characteristics of Participants (n=200)

Variable	Frequency	Percentage (%)
Male	110	55
Female	90	45
18–25 years	70	35
26–35 years	130	65
Graduate and above	120	60
Employed	140	70

Among the 200 participants, males constituted 55% and females 45%. Most participants (65%) belonged to the 26–35-year age group. The majority were employed and had completed graduation or higher education.

Table 2: Lifestyle Characteristics

Variable	Frequency	Percentage (%)
Regular physical activity	90	45
Smoking	50	25
Alcohol consumption	60	30
Obesity (BMI ≥30 kg/m²)	70	35
Medication adherence	140	70

Regular physical activity was reported by 45% of participants. Smoking and alcohol consumption were observed among 25% and 30% respectively. Obesity was present in 35% of participants, while 70% reported good medication adherence.

Table 3: Hypertension Control Status

Blood Pressure Control	Frequency	Percentage (%)
Controlled	124	62
Uncontrolled	76	38

Overall, 62% of participants achieved adequate blood pressure control, whereas 38% had uncontrolled hypertension.

Table 4: Factors Associated with Hypertension Control

Variable	Controlled n (%)	Uncontrolled n (%)	p-value
Medication adherence	100 (80.6)	40 (52.6)	<0.001
Regular exercise	70 (56.5)	20 (26.3)	0.002
Obesity	25 (20.2)	45 (59.2)	<0.001
Smoking	18 (14.5)	32 (42.1)	<0.001

Medication adherence and regular exercise were significantly associated with better hypertension control. Obesity and smoking were significantly associated with poor blood pressure control.

DISCUSSION

The present study assessed hypertension control among young adults and identified factors influencing successful blood pressure management. The findings revealed that 62% of participants achieved controlled blood pressure, while 38% remained uncontrolled. These results indicate that although a majority attained target blood pressure levels, a considerable proportion continues to be at risk for future cardiovascular complications.

The increasing prevalence of hypertension among young adults is consistent with global trends reported by the WHO and other epidemiological studies (1,2). Lifestyle changes, urbanization, unhealthy dietary patterns, and reduced physical activity have been identified as major contributors to hypertension in younger populations (5). The predominance of

participants in the 26–35-year age group may reflect the increasing recognition and diagnosis of hypertension during early adulthood.

Medication adherence emerged as one of the strongest determinants of blood pressure control. Participants who adhered to prescribed antihypertensive therapy demonstrated significantly better control rates than those with poor adherence. Similar findings have been reported by Burnier and Egan, who emphasized that medication non-adherence remains a major barrier to effective hypertension management worldwide (11).

Regular physical activity was significantly associated with controlled hypertension. Exercise contributes to reduced vascular resistance, improved endothelial function, and enhanced cardiovascular fitness, leading to lower blood pressure levels (12). Current international guidelines recommend at least 150 minutes of moderate-intensity physical activity per week for optimal cardiovascular health (9).

Obesity was strongly associated with uncontrolled hypertension in the present study. Excess body weight contributes to increased sympathetic nervous system activity, insulin resistance, and inflammation, all of which elevate blood pressure (13). Similar associations have been reported in several epidemiological studies examining cardiovascular risk factors among young adults (14).

Smoking was another significant predictor of poor blood pressure control. Tobacco use causes endothelial dysfunction and increased arterial stiffness, contributing to persistent hypertension and cardiovascular disease (15). Smoking cessation should therefore be an integral component of hypertension management programs.

The findings underscore the importance of comprehensive interventions targeting lifestyle modification, adherence counseling, and routine monitoring. Community-based screening programs and health education initiatives can improve awareness and encourage early treatment among young adults. Digital health technologies and mobile health applications may further enhance self-monitoring and treatment adherence in this population.

CONCLUSION

Hypertension control among young adults remains a significant public health challenge. Although more than half of the participants achieved controlled blood pressure, a substantial proportion continued to experience uncontrolled hypertension. Medication adherence, regular physical activity, and healthy body weight were positively associated with blood pressure control, while obesity and smoking were associated with poor outcomes. Strengthening lifestyle interventions, improving adherence to therapy, and promoting regular follow-up are essential strategies for enhancing hypertension control among young adults.

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