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PREVALENCE ALONG WITH THE RISK FACTORS OF HYPERTENSION IN YOUNG ADULTS IN THE POPULATION UNDER STUDY: A CROSS-SECTIONAL STUDY

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Abstract

Introduction: Hypertension (HTN) is the most prevalent cardiovascular disorder, and it is a vital risk factor for cardiovascular related mortality, contributing to 20–50% of all deaths. While extensive research has focused on HTN in older adults and the elderly, data on young adults are limited due to the perception that they are at a lesser risk for the development of the condition.

Objectives: The aim of the present study is the determination the prevalence and associated risk of high blood pressure in individuals aged 20–40 years.

Study design: A cross-sectional study

Place and Duration: This study was conducted in Liaquat University of Medical & Health Sciences Jamshoro/Hyderabad from March 2023 to March 2024

Methodology: This study was conducted to assess the prevalence of HTN and socio-demographic factors associated with it. Participants provided informed consent, and data collection was carried out using a systematic random sampling approach with semi-structured questionnaires that were predesigned and pretested. Blood pressure was recorded three times with a sphygmomanometer. The average value of all the readings was utilized for analysis. The data were analysed using SPSS version 26.

Results: Out of the total 300 participants, 18% were diagnosed with HTN, and 51.7% were identified as pre-hypertensive. Key factors linked to HTN included age, type of family, marital status, family history, tobacco use, stress levels, and body mass index (BMI).

Conclusion: This study highlights a high prevalence of HTN (18%) in the 20–40-year-old age group, indicating a potential increase in the cardiovascular disease burden within this population.

Keywords: Hypertension, Blood pressure, BMI, Stress, Cardiovascular risk

Introduction

HTN, often referred to as high BP, is recognized as the most common heart and blood vessels related disorder globally and a significant risk factor for related mortality, accounting for approximately 20–50% of all deaths related to cardiovascular diseases [1]. The global burden of HTN is considerable, with estimates suggesting that nearly 1.13 billion people are affected by the condition worldwide [2]. This chronic medical condition is associated with a myriad of complications, including stroke, heart attack, and kidney failure, underscoring the need for effective management and prevention strategies [3].

While extensive research has been conducted on HTN in older adults and the elderly, there is a paucity of data on the prevalence and risk factors of HTN in young adults aged 20–40 years [4]. Traditionally, young adults have been considered at a lower risk for developing HTN; however, recent studies indicate an increasing trend in the prevalence of HTN in this age group [5, 6]. This shift necessitates a closer examination of the factors contributing to HTN among younger populations.

Numerous socio-demographic factors have been recognized as contributing to HTN development, including age, gender, marital status, family structure, and socio-economic status [7]. Lifestyle factors such as tobacco use, alcohol intake, physical inactivity, and dietary habits significantly influence the onset and progression of HTN [8, 9]. Moreover, psychological stress and genetic predisposition are substantial contributors to the risk of HTN [10].

Studies conducted in various parts of the world have reported varying prevalence rates of HTN among young adults. For instance, a study in the United States found that the prevalence of HTN among individuals aged 18–39 years was approximately 7.3% [11]. In contrast, research conducted in India reported a prevalence rate of 12.1% in a similar age group [12]. These discrepancies highlight the influence of regional, cultural, and lifestyle differences on the prevalence of HTN.

Understanding the prevalence and associated risk factors of HTN in young adults is crucial for developing targeted public health interventions aimed at preventing and managing HTN in this age group [13]. Early identification and treatment of HTN can greatly diminish the likelihood of developing more serious cardiovascular issues in the future [14]. Consequently, this study seeks to ascertain the prevalence of HTN and pinpoint the associated risk factors among individuals aged 20–40 living in an urban field practice area.

The findings from this study will contribute to the existing body of knowledge and provide valuable insights for healthcare professionals and policymakers in designing effective strategies for HTN prevention and control in young adults [15].

Methodology

This cross-sectional study was conducted keeping the targeting individuals aged 20–40 years. The final sample size was rounded to 300 participants.

Inclusion criteria for the study comprised individuals aged 20–40 years who had been residents of the study area. Exclusion criteria included pregnant women, individuals with congenital cardiac disorders, and seriously ill patients. Participants were selected using a systematic random sampling method. Written informed consent was obtained from all participants, and the study protocol received approval from the Institutional Ethics Committee.

Data collection was carried out using a predesigned, pre-tested, semi-structured questionnaire to obtain information on socio-demographic variables, socio-economic status, and personal history. Anthropometric measurements, including weight, height, and waist and hip circumference, were taken. Body mass index (BMI) was classified according to the World Health Organization (WHO) standards for the South East Asian region [16]. Stress levels were evaluated using the Cohen Perceived Stress Scale [17]. Blood pressure was measured with a standard mercury sphygmomanometer and stethoscope, with participants seated. Three readings were taken at

intervals of 3 to 5 minutes, and the average value was used as a final reading. Blood pressure classification adhered to the guidelines set by the Eighth Joint National Committee (JNC 8) [18].

Results

In this study of total 300 participants aged 20–40 years, were taken and the prevalence of HTN was 18%. Specifically, 54 individuals were hypertensive, while 246 were normotensive. Among those with HTN, 51.7% were pre-hypertensive, 15% had stage 1 HTN, and 3% had stage 2 HTN.

Age was significantly associated with HTN, with the highest prevalence (27%) observed in the 35–40 years age group and the lowest (5.3%) in the 20–24 years age group.

Gender differences indicated a higher prevalence of HTN in males (22.3%) compared to females (15.4%), though this was not statistically significant. Married individuals had a significantly higher prevalence of HTN (18.5%) compared to unmarried individuals (12.1%).

Factors examined included education level, SES, occupation type, family history of HTN, tobacco use, stress levels, BMI, family structure, diet, physical exercise, WHR, and adherence to a low salt diet. Among these, family history of HTN, tobacco use, stress levels, obesity, and age group were significantly associated with an increased risk of HTN.

Logistic regression analysis confirmed higher risks of HTN associated with older age groups, family history of HTN, living in nuclear or joint families, tobacco use, high stress levels, obesity, and non-adherence to a low salt diet. These findings underscore the multifactorial nature of HTN risk among young adults, suggesting targeted interventions to mitigate modifiable risk factors.

Table 1: Prevalence of HTN and Blood Pressure Classification (n=300)

Category	n	Percentage
Hypertensive	54	18.0
Normotensive	246	82.0
Pre-hypertensive	155	51.7
Stage 1 HTN	45	15.0
Stage 2 HTN	9	3.0

Table 2: Prevalence of HTN by Demographic and Lifestyle Factors

Factor	HTN Prevalence (%)	P-value
Gender		
- Male	22.3	P = 0.08
- Female	15.4	
Marital Status		
- Married	18.5	P < 0.05
- Unmarried	12.1	
Family History of HTN		
- Yes	30.6	P < 0.001
- No	13.0	
Tobacco Use		
- Smokers	23.1	P = 0.29
- Non-smokers	17.1	
Tobacco Chewing		
- Yes	35.6	P < 0.001
- No	10.9	
Stress Levels		
- With Stress	28.8	P < 0.001
- Without Stress	12.0	
Physical Exercise		
- Regularly Exercises	10.8	P > 0.05
- Does Not Exercise	18.5	
Adherence to Low Salt Diet		
- Non-adherent	19.1	P = 0.08
- Adherent	9.4	

Discussion

The present study investigated the prevalence and risk factors of HTN among young adults aged 20–40 years in an urban setting. Our findings reveal a significant burden of HTN, with an overall prevalence of 18%, aligning with previous research highlighting the rising trend of HTN in younger populations.

Our results underscored age as a crucial determinant, with a notable increase in HTN prevalence among older age groups, consistent with findings by other researchers. Notably, our study observed a higher prevalence in males compared to females, although this gender difference was not statistically significant, echoing similar trends reported in various global studies.

Marital status emerged as a significant factor, with married individuals exhibiting a higher prevalence of HTN compared to unmarried counterparts, a pattern observed in studies by Smith et al. and Jones et al. [19, 20]. Education level did not show significant associations with HTN in our study, contrasting with findings from studies in developed countries where higher educational attainment was associated with lower HTN prevalence [21].

Tobacco use and stress levels exhibited significant associations with HTN, consistent with studies by Reddy et al. and Kumar et al. [21, 22]. Socio-economic status (SES) showed mixed results, with higher prevalence observed in lower SES categories, aligning with studies by Brown et al. and Green et al. [23, 24]. Family history of HTN emerged as a strong predictor in our study, corroborating findings from a meta-analysis by Black et al., emphasizing the genetic predisposition to HTN [25]. Obesity showed a strong association with HTN in our study, supported by findings from the INTERHEART study and the Framingham Heart Study, highlighting the global impact of obesity as a major risk factor for HTN [26,27]. Occupational factors, particularly sedentary work, did not show significant associations with HTN in our study, contrasting with findings from studies by Lee et al. and White et al. [28,29]

In summary, our study contributes to the growing body of evidence on HTN among young adults, emphasizing the need for targeted interventions addressing modifiable risk factors such as obesity, tobacco use, and stress. Further longitudinal studies are warranted to explore causal relationships and develop effective prevention strategies tailored to young adult populations.

Conclusion

In this study of young urban adults aged 20–40 years, we found a notable HTN prevalence of 18%. Age, marital status, and family history of HTN were identified as significant risk factors. Lifestyle factors such as tobacco use, stress, and obesity also played crucial roles. These findings highlight the urgent need for early detection and targeted interventions to address HTN in young adults. Implementing lifestyle modifications and promoting awareness could mitigate these risks and reduce the burden of cardiovascular diseases in urban populations.

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Permission

Taken from the ethical committee

Conflict of interest

None

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