

Original Research Article

PREVALENCE AND ASSOCIATED RISK FACTORS OF HYPERTENSION AMONG ADULTS

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ABSTRACT

Background: Hypertension is a major public health problem among non communicable diseases in India. It is an important area of research due to its high prevalence and being major risk factor for cardiovascular diseases and other complications.

Objectives: Aim of this study to determine the prevalence of hypertension and its associated risk factors among adult population living in study area.

Material & Methods: This was a cross sectional observational study conducted in department of medicine, in a tertiary care hospital, India. Participants > 18 years of age with both sexes were enrolled in the study. A socio-demographics data was collected; family history of hypertension, clinical examination, blood pressure measurement and all relevant investigation was done.

Results The prevalence of hypertension among study participants was 24.35%. Prevalence of hypertension was found more in male subjects as compared to females' subjects. The risk factors found to be significantly associated with HTN in this study were increasing age, male gender, family history of hypertension, obesity (high BMI), diabetes, smoking, alcohol, sedentary lifestyle and hyperlipidemia

Conclusion: There is significant association of hypertension was found in obesity, smoking, alcohol consumption, physical inactivity, stress and diabetes mellitus. Strong public health measures need to be seriously implemented to combat hypertension and its consequences.

Keywords: Prevalence, Hypertension, Risk factors, obesity, Diabetes

1. INTRODUCTION

Hypertension is one of the major public health problems around the globe and its prevalence is rapidly increasing among developing countries [1]. According to standard guidelines hypertension is defined as systolic Blood pressure (BP) ≥ 140 mmHg and /or diastolic BP ≥ 90 mmHg. The grey area falling between 120–139mmHg systolic BP and 80–89mmHg diastolic BP is defined as “prehypertension [2-3]. Hypertension is a major risk factor for chronic heart disease, stroke, and coronary heart disease. Elevated BP is positively correlated to the risk of stroke and coronary heart disease. Other complications include heart failure, peripheral vascular disease, renal impairment, retinal hemorrhage, and visual impairment [4] According to the WHO NCD country profile (2021), the prevalence of raised blood pressure among Indian adults aged 18+ was 24%. It was almost the same in both the sexes, with 24% men and 23% women having hypertension [5].

Modifiable risk factors for hypertension are stress, tobacco use, unhealthy diet, physical inactivity, high alcohol consumption, obesity, hyperglycemia and hyperlipidemia.. Non-modifiable risk factors are family history of hypertension, age above 65 years, and coexisting comorbid conditions [6-7].

In low- and middle-income countries, many people with hypertension are not aware of their disease and the necessity for regular blood pressure checks People may simply be unaware of the health consequences or indifferent to the risks of untreated hypertension [8].

Low healthcare literacy, poor patient self-care, high self-medication rate, inconsistent hypertension management guidelines, and non adherence to treatment plans and medical regimens leads to poor blood pressure control and high healthcare costs, thus intensifying the problem in India [9].

Hypertension is easily diagnosable and controllable with effective medicines. Unfavorable health outcomes associated with hypertension could be lessened through strategies that include early identification, treatment, and control by providing timely access to primary healthcare providers to expedite the process to alleviate the expense of medications for those in treatment through insurance coverage, cost sharing, and benefit designs, and finally to support hypertension control by expanding worksite wellbeing and quality control measures [10]

Hypertension remains a challenge in various portions of the world after lots of programs for the prevention of hypertension. Observing at the prevailing load of hypertension, the Government of India has launched many programs for the prevention and control of diabetes, cancer, and cardiovascular diseases control of disease at the community level [11].

There by the present study was conducted to find out the prevalence of hypertension and to identify the risk factors in study population in India.

2. MATERIALS AND METHODS

This cross sectional study was carried out in the Department of Medicine, in a tertiary care hospital India. All patients attending medicine OPD during the study period were enrolled in our study.

Inclusion criteria

- Adult's ≥ 18 years of age with both genders
- Participants provide consent to the study

Exclusion criteria

- Subjects <18 years of age
- Pregnant women
- People who not give consent for the study

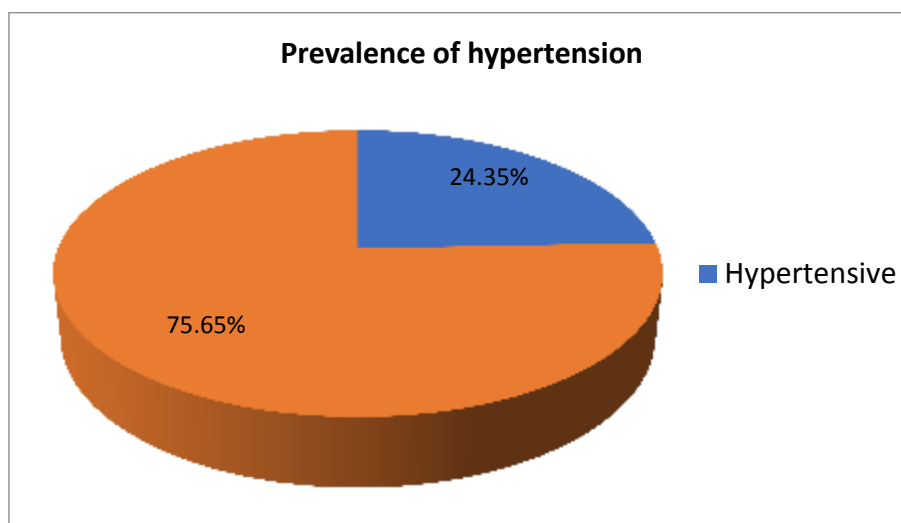
A thorough demographic detail was collected from all the patients and complete physical and medical examination was done on all of them. A history of hypertension in the family was also enquired and noted. Body mass index was calculated based on the height and weight of the patient.

The blood pressure was collected twice from all the patients, while they were in the sitting position, with a 10 minute gap. An average of the two was taken and was considered to be the blood pressure of the patient. A full blood workup was done for all of them, such as complete blood picture, Hemoglobin estimation, Erythrocyte sedimentation rate, blood glucose test, biochemical tests for Urea and creatinine and lipid levels

Statistical analyses: The results were analyzed using Microsoft Excel in the form of graphs and tables. All p-values less than 0.05 were considered statistically significant

3. RESULTS:

A total of 780 suspected patients were enrolled in our study. The prevalence of hypertension was found 190 (24.35%).



In the present study prevalence of hypertension was slightly higher in male population. Age wise prevalence of hypertension showed that the highest prevalence was seen in the age group between 41- 50 years, followed by 31-40 years of age. Among socio-economic status, highest prevalence of hypertension was found in middle socio-economic group. Participants living status, education and residential status were significantly associated with hypertension {table: 1}.

Table 1: Socio-demographic Characteristics among total and hypertensive patients

Socio demographic Characteristics		Total patients (N=780)	Hypertensive patients (N=190)	P- value
Age (in years)	18-30	239	53	0.82
	31-40	265	66	
	41-50	276	71	
Gender	Male	406	99	0.505
	Female	374	91	
Residential status	Urban	714	172	0.006
	Rural	66	18	
Education	Illiterate	94	35	0.004
	Literate	686	155	
Socio-economic status	Low	300	70	0.008
	Middle	266	80	
	High	214	40	

The prevalence of hypertension was higher among smokers, chronic alcoholic and sedentary life style participants. Family history of hypertension was significantly associated with the hypertension ($p < 0.05$). Detailed statistical analysis for association of hypertension with risk factors is presented in table: 2.

Table 2: Prevalence of associated risk factors in hypertensive subjects and study subjects

Associated risk factors		Total patients (N=780)	Hypertensive patients (N=190)	P- value
Body Max Index (Kg/M ²)	Normal (<25)	258	77	0.001
	Over weight (25-30)	292	61	
	Obese (31-40)	190	40	
	> 40 (morbid obesity)	40	12	
Smoking habit	Yes	143	55	<0.001
	No	637	135	
Alcohol consumption	Yes	157	50	0.009
	No	623	140	

Types of diet	Vegetarian	462	132	0.004
	Non vegetarian	318	58	
Family history of hypertension	Yes	74	44	<0.001
	No	706	146	
Physical activity	Mild	313	93	0.008
	Moderate	274	68	
	Vigorous	193	29	

Diabetes mellitus, raised cholesterol level, raised triglyceride level, cardiovascular diseases and COPD was significantly associated with the hypertension {table: 4}

Table 3: Prevalence of co-morbidities in hypertensive subjects and study subjects

Co-morbid diseases		Total patients (N=780)	Hypertensive patients (N=190)	P- value
Diabetes mellitus	Yes	217	101	<0.001
	No	563	89	
Hypertriglyceremia	Yes	195	90	<0.001
	No	585	100	
hypercholesterolemia	Yes	202	98	<0.001
	No	578	102	
CVD	Yes	87	46	<0.001
	No	593	144	
COPD	Yes	83	40	<0.001
	No	697	150	

4. DISCUSSION

Prevalence of hypertension was found 24.35% in current study, similar to the other studies, like Geevar, et al [12], Asemu et al [13] and Singh S et al [14] reported hypertension prevalence were 26%, 29.2% and 32.5% respectively, whereas quite lower prevalence was reported by J. S. Tabrizi et al [15] and Prabakaran et al [16], in contrast to that quite higher prevalence (54.7%) was reported by M Saka et al [17]

Present study was observed that most of the hypertensive participants belong to 41-60 years age group, comparable with the other studies, M M Kurjogi et al [18].

In our study persons in the urban location had a significantly higher prevalence than persons in rural location, concordance finding also reported by Ghosh S et al [19].

Family history of hypertension was significantly associated with the hypertensive subjects, accordance to the Mahapatra R, et al [20].

Prevalence of hypertension was lower among persons who did regular vigorous intensity exercise versus those who did moderate intensity exercise, concordance with the M D Saju et al [21].

There existed a significant ($P < 0.05$) association of hypertension with educational status, socioeconomic class, tobacco / alcohol consumption, over weight and nutritional status, our finding was comparable with the Vijna et al [22].

In our study hypertension was significantly associated with the, physical inactivity, obesity, vegetable intake and family history of hypertension, similar finding also reported by Agrawal N et al [23], whereas Ahmed A et al [24] found no significant association between increasing systolic pressure with smoking habit, physical activity and vegetable intake and family history

A significantly higher proportion of hypertension was found in the illiterate category, correlate with the Mahmood SE et al [25].

Present study was observed significant association between the hypertension with the diabetes, dyslipidemia and atherosclerosis, concordance with the Mohanraj S, et al [26].

In our study 60.5% hypertensive participants was obese, accordance to the Babu, et al [27]. Prevalence of hypertension was marginally higher in male as compared to female in current study; similar finding also reported by Manandhar K et al [28] and Thapliyal et al [29].

5. CONCLUSION

We have concluded that higher prevalence of hypertension was found in the study population. Significant association was found between hypertension with family history, smoking habit, physical inactivity, obesity, CVD, DM, and COPD. therefore, it is necessary to perform regular periodical health check-up specially including blood pressure monitoring should be suggested to all the people of age more than 20 years. In addition .screening and identifying hazardous factors, promoting self-care behaviors and management, and controlling HTN.

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