



## PREVALENCE OF HYPERTENSION AMONG ADULT POPULATION ATTENDING OUTPATIENT DEPARTMENTS (OPD) OF TERTIARY CARE HOSPITAL AT TRIVANDRUM DISTRICT, SOUTH INDIA

### KEYWORDS

hypertension, prevalence, adult population, body mass index, non-communicable diseases.

#### Hebsiba Ponnayyan

Asst.Professor, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

#### Manisha G L

Lecturer, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

#### Misha A

Lecturer, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

#### Anupriya S S

PG Student, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

#### Bessy M C

PG Student, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

#### Sarika S R

PG Student, Medical Surgical Nursing Department, Sree Gokulam Nursing College Venjaramoodu, Trivandrum-695607, Kerala

### ABSTRACT

**BACKGROUND AND OBJECTIVES** Hypertension is recognized as a major contributor to the disease burden globally. Hypertension and its complications account for an estimated 9.4 million deaths every year. The prevalence of hypertension in the late nineties and early twentieth century varied among different studies in India, ranging from 2-15% in Urban India and 2-8% in Rural India. Thereby, the present study was aimed to find out prevalence of hypertension and to identify the risk factors associated amongst rural population aged 18 years and above who attended the Out Patients Department of Tertiary Care Hospital of Trivandrum district Kerala. **METHODS** The study was carried out among adult patients attending outpatient departments (OPD). Simple random sampling was used to select the study subjects. Adults aged 18 years and above were included in the present study. A structured pretested and predesigned questionnaire was used to assess study subjects' self-reported behavioral and lifestyle risk factors (Smoking, tobacco use, alcohol consumption, diabetes mellitus, dyslipidemia and known hypertension), for hypertension, the measurement of subject's blood pressure and BMI was estimated by anthropometrical parameters. **RESULTS** The study findings reveals that majority 398 (36.5%) belongs to 46-60yrs. Majority 641 (58.9%) were females. Among the subjects 78 (7.2%) have the habit of betel chewing and 80 (7.3%) were reported as smokers. The findings shows that 217 (19.9%) are known diabetes mellitus, 183 (16.8%) have hyperlipidemia, 240 (22%) are known hypertensive and 32 (2.9%) have cardiac disease. Data shows that 147 (13.5%) are obese and 385 (35.4%) were overweight. Prevalence of hypertension shows that majority 526 (48.3%) are normotensive, 252 (23%) belongs prehypertensives, 240 (22%) are stage I hypertensive and least 71 (6.5%) are stage II hypertensive (fig.1). Prevalence of hypertension is highest among females ie.641 (58.9%). Prevalence of hypertension shows highly significant ( $p < 0.05$ ) association with age, gender, diabetes mellitus, dyslipidemia, known hypertension and body mass index. **CONCLUSION** The prevalence rate of hypertension was 28.5%. The prevalence rate was higher (58.9%) among females. Increase in age, smoking, chewing tobacco, obesity, and diabetes mellitus have been found to have association.

### 1. INTRODUCTION

Hypertension is recognized as a major contributor to the disease burden globally. Hypertension and its complications account for an estimated 9.4 million deaths every year. It has become a significant problem in many developing countries undergoing epidemiological transition. The higher the blood pressure, the greater the chances of heart attack, heart failure, stroke and kidney disease. The World Health Organization (WHO) attributes hypertension, or high blood pressure, to be the leading cause of cardiovascular mortality.

As per the World Health Statistics 2012, of the estimated 57 million global deaths in 2008, 36 million (63%) were due to non-communicable diseases (NCDs). The largest proportion of NCD deaths is caused by cardiovascular diseases (48%). In terms of attributable deaths, raised blood pressure is one of the leading behavioral and physiological risk factor to which 13% of global

deaths are attributed. Hypertension is reported to be the fourth contributor to premature death in developed countries and the seventh in developing countries. Recent reports indicate that nearly 1 billion adults (more than a quarter of the world's population) had hypertension in 2000, and this is predicted to increase to 1.56 billion by 2025.

The prevalence of hypertension in the late nineties and early twentieth century varied among different studies in India, ranging from 2-15% in Urban India and 2-8% in Rural India. Earlier reports also suggest that the prevalence of hypertension is rapidly increasing in developing countries and is one of the leading causes of death and disability. Thereby, the present study was undertaken to find out prevalence of hypertension and to identify the risk factors associated amongst rural population aged 18 years and above who attended the Out Patients Department of Tertiary Care Hospital of Trivandrum

district Kerala.

**1.1 Problem Statement**

An epidemiological study on prevalence of hypertension among adult patients attending outpatient departments (OPD) of Tertiary Care Hospital at Trivandrum district, South India.

**1.2 Objectives**

1. to find out prevalence of hypertension among adult patients attending outpatient departments
2. to identify associated risk factors among adult patients attending outpatient departments

**2. MATERIALS AND METHODS**

The study was carried out among adult patients attending outpatient departments (OPD) of Tertiary Care Hospital at Trivandrum district Kerala. Simple random sampling was used to select the study subjects. Adults aged 18 years and above were included in the present study. A total of 1089 individuals participated in the study. Those adults who were non cooperative or refused to provide the necessary information were not included in the study.

A structured pretested and predesigned questionnaire was used to assess study subjects' self-reported behavioral and lifestyle risk factors (Smoking, tobacco use, alcohol consumption, diabetes mellitus, dyslipidemia and known hypertension) , for hypertension, the measurement of subject's blood pressure and BMI was estimated by anthropometrical parameters.

Blood pressure was classified as normal (SBP <120 and DBP <80 mmHg), pre-hypertension (SBP = 120-139 and/or DBP = 80-89 mmHg), stage I hypertension (SBP = 140-159 and/or DBP = 90-99 mmHg), and stage II hypertension (SBP > 160 and/or DBP > 100 mmHg) as per US Seventh Joint National Committee on Detection, Evaluation and Treatment of Hypertension (JNC VII) criteria.<sup>(9)</sup>

Body Mass Index was calculated as weight in kilograms divided by weight in meters squared. Based on their BMI, individuals were classified into four groups: thin (BMI <18.5), normal (BMI=18.5-24.9), overweight (BMI = 25.0-29.9) and obese (BMI > 30.0) as per WHO.<sup>(4)</sup>

Data entry and statistical analysis were performed using the Microsoft Excel and SPSS windows version 20 software. Tests of significance like Pearson's Chi- square test and F-test were applied to find out the results. P values <0.05 were considered significant for the identified risk factors and outcome variables.

**3. RESULT**

**3.1. Baseline Characteristics of the Sample.**

The study findings reveals that majority 398 (36.5%) belongs to 46-60yrs and the least 179 (16.4%) were above 60yrs age group. Genders wise distribution shows majority 641 (58.9%) were females and the rest 448 (41.1%) were males. Among the subjects 78 (7.2%) have the habit of betel chewing and 80 (7.3%) were reported as smokers. The findings shows that 217 (19.9%) are known diabetes mellitus, 183 (16.8%) have hyperlipidemia, 240 (22%) are known hypertensive and 32 (2.9%) have cardiac disease. Distribution of subjects according to body mass index shows that 147 (13.5%) are obese and 385 (35.4%) were overweight.(table. 1)

**3.2 Prevalence of hypertension**

Among the study subjects 1089, of which 240(22%) were known hypertensive. And the findings shows that majority 526 (48.3%) are normotensive, 252 (23%) belongs prehypertensives, 240 (22%) are stage I hypertensive and least 71 (6.5%) are stage II hypertensive (fig.1). Prevalence of hypertension is highest among females ie.641 (58.9%).

**3.3 Association between hypertension and variables**

Prevalence of hypertension shows highly significant (p<0.05) association with age, gender, diabetes mellitus, dyslipidemia, known hypertension and body mass index (table.1).

**Table 1: prevalence of hypertension among study subjects (n=1089) and association with socio – personal variables**

VARIABLE	TOTAL		NORMAL		PREHYPER TENSION		STAGE I HYP ERTENSION		STAGE II HYP ERTENSION		Chi-Square (df), P-value	
	N	%	NN	%	N	%	N	%	N	%		
SOCIO-PERSONAL DETAILS	<b>AGE</b>											
	<30 YRS	180	16.5	147	27.9%	17	6.7%	12	5.0%	4	5.6%	140.298
	31-45 YRS	332	30.5	169	32.1%	86	34.1%	69	28.8%	8	11.3%	9
	46-60 YRS	398	36.5	154	29.3%	107	42.5%	104	43.3%	33	46.5%	.000
	>60 YRS	179	16.4	56	10.6%	42	16.7%	55	22.9%	26	36.6%	
	<b>GENDER</b>											
	male	448	41.1	182	34.6%	111	44.0%	117	48.8%	38	53.5%	20.403
	female	641	58.9	344	65.4%	141	56.0%	123	51.3%	33	46.5%	30.000
	<b>BETAL CHEWING</b>											
	NO	1011	92.8	497	94.5%	232	92.1%	217	90.4%	65	91.5%	4.671
	YES	78	7.2	29	5.5%	20	7.9%	23	9.6%	6	8.5%	30.197
	<b>SMOKING</b>											
	NO	1009	92.7	493	93.7%	234	92.9%	216	90.0%	66	93.0%	3.397

	YES	80	7.3	33	6.3%	18	7.1%	24	10.0%	5	7.0%	30.334	
RISK FACTORS/ COMORBIDITIES	<b>DIABETES MELLITUS</b>												
	NO	872	80.1	453	86.1%	195	77.4%	177	73.8%	47	66.2%	27.787	
	YES	217	19.9	73	13.9%	57	22.6%	63	26.3%	24	33.8%	30.000	
	<b>DISLIPIDEMIA</b>												
	NO	906	83.2	464	88.2%	201	79.8%	190	79.2%	51	71.8%	20.942	
	YES	183	16.8	62	11.8%	51	20.2%	50	20.8%	20	28.2%	30.000	
	<b>KNOWN HYPERTENSION</b>												
	NO	849	78.0	481	91.4%	186	73.8%	151	62.9%	31	43.7%	138.418	
	YES	240	22.0	45	8.6%	66	26.2%	89	37.1%	40	56.3%	30.000	
	<b>CARDIAC DISEASE</b>												
	NO	1057	97.1	516	98.1%	244	96.8%	231	96.3%	66	93.0%	6.780	
	YES	32	2.9	10	1.9%	8	3.2%	9	3.8%	5	7.0%	30.079	
	<b>BMI</b>												
	<18.5	59	5.4	42	8.0%	9	3.6%	5	2.1%	3	4.2%	50.389	
	18.5-24.9	498	45.7	275	52.3%	103	40.9%	92	38.3%	28	39.4%	9	
>30	147	13.5	43	8.2%	50	19.8%	42	17.5%	12	16.9%	25-29.9		

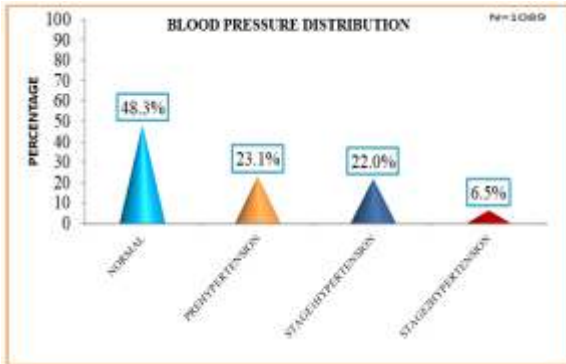


Fig.1: prevalence of hypertension

**REFERENCE**

1. Lim SS, Vos T, Flaxman AD, Danaei G, Shibuya K, Adair-Rohani H, et al. A comparative risk assessment of burden of disease and injury attributable to 67 risk factors and risk factor clusters in 21 regions, 1990–2010: a systematic analysis for the Global Burden of Disease Study 2010. *Lancet*. 2012; 380(9859):2224–2260.
2. World Health Organization. Cardiovascular diseases in developing countries. *World Health Stat Q*. 1993;46:90–150.
3. JNC VII Express: Prevention, detection, ev treatment of high blood pressure. In: <http://www.nhlbi.nih.gov/guidelines/hypertension/express.pdf>; 2003. Accessed on 15th November 2009.
4. Physical status: The use and interpretation of anthropometry. Technical report series. Geneva: World Health Organization; 1995. Report No.: 854.

**CONCLUSION**

The prevalence rate of hypertension was 28.5%. The prevalence rate was higher (58.9%) among females. Increase in age, smoking, chewing tobacco, obesity, and diabetes mellitus have been found to have association. Hence health care providers should take note and institute appropriate preventive measures.