



Research Brief

Prevalence of hypertension and its associated risk factors in Dharwad population: A cross-sectional study

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ABSTRACT

The study aims to determine the prevalence of hypertension and associated risk factors. The study includes 9754 participants, out of which 6403 were found to be associated with hypertension. Among 6403 participants 27.75% were newly diagnosed with hypertension during examination. The present study showed, age as one of the significant risk factors for prevalence of hypertension. Further observations revealed that, the prevalence of hypertension was higher in alcohol-intake, tobacco-smoking/chewing participants and sedentary life style is also one of significant risk factor for hypertension. Overall increased rate of hypertension pose a biggest challenge for health sector in Dharwad district.

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1. Introduction

Hypertension is one of the major public health problems around the globe and its prevalence is rapidly increasing among developing countries.¹ It's important to note that increase in hypertension directly contribute on even more serious conditions like strokes, diabetes, heart diseases and renal impairment.² Therefore management of hypertension has become a biggest challenge in developing country like India.

Hypertension, commonly known as high blood pressure defined with standard criteria as systolic BP \geq 140 mmHg and diastolic BP \geq 90 mmHg. Prevalence of hypertension in India is at alarming level and is estimated to account for 10.8% of all the deaths in the country.³ Lack of awareness is one of the major factor leads to increased prevalence of hypertension in India. Many people are not aware about their hypertension condition, even in some cases the reason for death remains elusive as most of the time person suffering from hypertension do not show any visible symptoms, remains normal and diagnosed only after appearance of cardio vascular disease or stroke. According to the global burden of diseases estimate 2015, hypertension is a most important cause of mortality.⁴ It is estimated that, 57% and 24% of stroke and coronary

artery disease-related deaths respectively are due to hypertension.^{5,6}

Several studies on epidemiology have shown rapid increasing burden of hypertension in various states of India.^{7,8} Several predisposing factors have been studied in the survey of hypertension, however these factors vary from region to region. In the recent study, Gupta et al⁸ reported that according to National Family Health Survey, prevalence of hypertension in young population of Karnataka was 12.6%. Indeed, determination of risk factors associated with hypertension at particular region is not clear and generally study on prevalence of disease among population is derived from self-report data. However, studies based on self-reports might underestimate the actual prevalence of disease. Further, according to World Health Organisation prevalence of undiagnosed hypertension is generally high (WHO 2013) and it is evident from the previous studies that nearly 4/5th of the total burden of hypertension in India remains undetected.^{9,10} Thus in order to analyze the extent of negligence towards the hypertension in population studies, measure of blood pressure of the respondent is also important along with self-report data. Therefore in the present study, we aimed to determine the prevalence of hypertension and associated risk factors among the study population at Dharwad district.

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2. Methodology

2.1. Study design

A hospital based cross-sectional study was conducted over a period of 3 months during July–September 2019 at Karnataka Institute of Medical Sciences, Hubli and District Hospital Dharwad. The study was carried out to know the significant association of risk factors like age, smoking, tobacco chewing and consumption of alcohol with prevalence of hypertension was analyzed. Blood pressure of individual respondent was measured in a sitting position with the help of the standard sphygmomanometer. As per the JNC 8 guidelines individuals with BP ≥ 140 mmHg systolic and ≥90 mmHg diastolic were considered as hypertension.

2.2. Inclusion criteria

Patients visiting Non Communicable disease OPD at our hospital.

Age >18 years.

Exclusion criteria.

Patients with white coat hypertension.

Patients suffering from drug induced hypertension.

Method of Measuring BP.

Patients were seated comfortably in a quiet environment for at least 5 min before beginning BP measurements. Three BP measurements were recorded, 1–2 min apart, and repeated once more if there was difference of >10 mmHg between two measurements. Additional measurements were performed if we found unstable BP values due to arrhythmias, as in patients with Atrial Fibrillation. Standard bladder cuff (12–13 cm wide and 35 cm long) was used for most patients. The cuff was placed at the heart level, with back and arm being supported. When using auscultatory methods phase I and V (sudden reduction/disappearance) Korotkoff sounds were used to identify SBP and DBP, respectively. BP was measured in both arms at the first visit to detect possible differences between the arms. If there was difference, the arm with the higher value was considered as the reference.

2.3. Statistical analysis

The overall prevalence of hypertension was determined by using following formula.

Prevalence = No of hypertensive/Total no of participants X 100.

Chi-square test were used to know if statistically significant association exist between hypertension and their risk factors, for all the analysis performed with $P < 0.05$ was taken as statistically significant.

3. Results

A total of 9754 participants were included in the study, out of which 4333 were male and 5421 were females, participants were divided into 5 groups based on their age. In the present study out of 9754 participants, 3351 were healthy and 6403 were found to be associated with hypertension. In addition out of 6403 participants, 72.24% participants self-reported their hypertension conditions and 27.75% participants were unaware about their increased blood pressure and diagnosed only after examination during study period.

In the present study prevalence of hypertension was slightly higher in male population. Age wise prevalence of hypertension showed that the highest prevalence of hypertension was in age

Table 1
Association between hypertension and their risk factors.

Factors	Total Number (n = 9754)	Healthy	HTN	χ^2 values
Sex				
Male	4333	1387	2946	19.009*
Female	5421	1964	3457	
Age Group				
≤ 20	21	12	9	19.29*
21 to 40	1468	554	914	
41 to 60	5020	1644	3376	
61 to 80	3117	1099	2018	
≥ 81	128	42	86	
Alcohol Consumption				
Yes	519	42	477	167.64*
No	9235	3309	5926	
Smoking Tobacco				
Yes	62	17	45	1.33
No	9692	3334	6358	
Tobacco chewing				
Yes	2059	267	1792	529.37*
No	7695	3084	4611	
Sedentary				
No	552	506	46	852.17*
Yes	9202	2845	6357	

*Significant: $P < 0.05$; HTN- Hypertension.

group between 41 and 60 years and least prevalence was observed in age group of ≤20 years. Study also revealed that the prevalence of hypertension was high in the group of alcohol consuming participants. Similarly high prevalence of hypertension was observed with tobacco smoking/chewing group. It was also noted that prevalence of hypertension was higher in the participants with sedentary life style. Detailed statistical analysis for association of hypertension with risk factors is presented in Table 1.

4. Discussions

Hypertension is the most important and reversible risk factor for serious conditions like strokes, diabetes, heart diseases and renal impairment, which directly contribute to the increased incidence of morbidity and mortality. Hypertension is a multifactorial disease, therefore studies on associated risk factors plays a vital role in the management of hypertension. Hence it is important to know the prevalence of disease at particular region for proper planning of control measures. In the present investigation the prevalence of diagnosed and undiagnosed hypertension in the studied population is alarmingly high. Similarly study conducted by Tripathy et al observed that the overall prevalence of hypertension was 40.1% among the study population.¹¹ Whereas in another study 26% of population was observed to be suffering from undiagnosed hypertension.¹² The high prevalence of undiagnosed hypertension in the present study was probably due to lack of awareness about their increased blood pressure. Further in the present study age was found to be one of the significant risk factors for prevalence of hypertension. Alike a study conducted as part of cardiac prevent 2015 concluded that high prevalence of hypertension was observed in all age groups among Indian population.¹³ In the present study alcohol consumption and sedentary life style were recognized as significant risk factors of hypertension. Similarly increased number of hypertension cases was recorded among tobacco smoking/chewing population.

Overall the results of present study indicate that there is a significant burden of hypertension in Dharwad district. However, the present study does not reflect true prevalence of hypertension in Dharwad district, as only patient coming to hospital were analyzed this could be limitation of the study.

Declaration of competing interest

There are no competing interests to declare.

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