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### **Original Research Article**

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# Prevalence of hypertension and selected factors associated to hypertension in a rural area of South Karnataka: a cross sectional study

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#### **ABSTRACT**

**Background:** Hypertension is one of the major risk factors for CVDs and its complications which account for 9.4 million deaths worldwide every year. Hypertension itself responsible for about 45% and 51% deaths due to heart disease and stroke respectively. It is a major public health problem in India both in urban and rural areas and is increasing at an alarming rate in rural population now days. Because of lack of access to health care facilities at rural areas, the early screening and treatment of hypertension is not done regularly, so we conducted this study. The objective of the study was to determine the prevalence and associated factors of hypertension in a rural community of South Karnataka.

**Methods:** A community based cross sectional study was conducted at rural field practice area of a private medical college in Bengaluru. Sample size was 380 and convenient sampling method used. Data was collected by visiting homes and blood pressure measured with mercury sphygmomanometer. Descriptive statistics were used to analyse the data

**Results:** Among 380 participants, 58.4% and 41.6% were males and females respectively. The overall prevalence of hypertension among them was 22.6%, newly diagnosed cases were 7.1% and the proportion of hypertension was more among the age group of 50-59 years (40.7%).

**Conclusions:** Our study shows that hypertension has creeped into the rural areas also and creating a huge health problem for the community. Newly diagnosed cases are also high which shows that most of the people are not aware of their blood pressure and importance of regular monitoring of blood pressure. Since screening helps in early detection, so strengthening of health facilities and creation of awareness at rural levels will reduce the morbidity and mortality due to hypertension and its complications.

Keywords: Hypertension, Rural, Prevalence, South Karnataka

#### INTRODUCTION

Cardiovascular disease (CVDs) accounts for nearly about 17 million deaths a year globally which accounts to one third of the total deaths. Hypertension (HTN) is one of the important risk factors for CVDs and its complications account for 9.4 million deaths worldwide every year. Hypertension itself is responsible for about 45% deaths due to heart disease and 51% of deaths due to stroke.<sup>1</sup>

The 2015 statistics of World Health Organisation (WHO) shows that the prevalence of hypertension among adults (≥18 years) in India is 25.35% (25.9% males and 24.8% females).² A large number of CVD deaths are occurring in low and middle income countries (LMIC) because of lack of access and unequitable distribution of health care facilities which are very much necessary for early diagnosis and treatment of the hypertension and prevention of its complications. As a result of this many

in LMIC will be detected late in the course of disease and die in younger age from CVD.<sup>3</sup>

Hypertension is a major public health concern in India both in urban and rural areas. The systemic reviews epidemiological studies of India shows HTN prevalence of 29.8%, whereas it was 27.6% in rural areas and 33.8% in urban areas of India.<sup>4</sup> The prevalence of HTN among the rural population is increasing at an alarming rate due to their change in lifestyle, accepting western diet, life style and ignoring the traditional diets of the rural India.

Because of inadequate access to health care facilities at rural areas due to non-availability of primary health care centres, the early screening and treatment of HTN is not done regularly, with this background, we conducted this study with an objective to determine the prevalence and factors associated for hypertension in a rural community of South Karnataka

#### **METHODS**

#### Study design

It was a community based cross sectional study.

#### Study setting

Study was conducted in a rural field practice area of Department of Community Medicine, private medical college in Bengaluru.

#### Study population

The people those who aged 18 years and above in the rural field practice area were included in the study.

#### Inclusion criteria

The people who were aged 18 years and above and those who were willing to participate were included in the study.

#### Exclusion criteria

The people with pregnancy, primary hypertension and those who were not willing to participate were excluded.

#### Study duration

4 Months (January – April 2018).

#### Sample size

The prevalence of hypertension in rural community of North Kerala, according study done by Satheesh et al was 18.5% and this was taken for calculating sample size with the absolute precision at 4%, the sample size derived was 362 which was calculated using the OpenEpi (Version

3.03) and considering the non-response rate of 5%, sample of 380 was collected.<sup>5</sup>

#### Sampling method

A convenient sampling method was used to collect data. The data was collected by house to house visit with the help of health workers of the department.

#### Data collection

The study was conducted after taking ethical clearance from the Institutional Ethics Committee, data was collected after explaining the purpose of the study and taking informed written consent from those who were willing to participate in the study. The data was collected by using a proforma and measurement of blood pressure (BP). BP was measured twice with mercury sphygmomanometer after following all the standard protocol of Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure (JNC VII) and used the cut of SBP≥ 140 mm Hg or DBP≥90 mm Hg as hypertensive as per JNC VII guidelines.<sup>6</sup>

#### Data analysis

Data was entered in Microsoft Excel, descriptive statistics were analysed and presented in the form of frequencies and proportions using SPSS16.

#### **RESULTS**

#### Socio-demographic details

A total of 380 persons were participated in the study and mean age of the participants was 53.25±12.26 years. Among the study subjects, 58.4% (222) and 41.6% (158) were males and females respectively. Among the participants, most of them were Hindus (73.95%), 90.5% were married, 38.5% were illiterate, 32% (122) and 42.9% (163) were housewives and farmers respectively (Table 1).

#### Incidence and prevalence of hypertension

The mean systolic BP and diastolic BP of the participants was 128.1±12.4 mm of Hg and 79.1±8.2 mm of Hg respectively.

Among 380 participants, 7.1% (27) people were known cases of hypertension before the study itself, 15.5% (59) were newly diagnosed with hypertension after screening and the overall prevalence of hypertension in the study population was 22.6%. Among the hypertensives, the proportion of hypertension was more among males 60.5% and among the age group of 50-59 years (40.7%) (Table 2).

Table 1: Socio-demographic profile of the participants based on the gender distribution.

Socio-demographic profile	Frequency	Total (n=380)
Age group (in years)		
18-25	15	03.9
25-29	22	05.8
30-39	78	20.5
40-49	96	25.3
50-59	108	28.4
60-69	35	09.2
70 and above	26	06.9
Religion		
Hindus	281	73.9
Muslims	76	20.0
Christians	23	06.1
Marital status		
Married	344	90.5
Not Married	36	09.5
Education status		
Illiterate	146	38.5
Primary school	82	21.6
High school	102	26.8
Graduation	36	09.5
Post-graduation	14	03.7

Table 2: Distribution of the participants based on the hypertension.

	Hypertension		
	Yes	No	Total
	n=86	n=294	
Gender			
Male	52	170	222
Female	34	124	158
Age group (in years)			
18-25	0	15	15
25-29	0	22	22
30-39	04	74	78
40-49	18	78	96
50-59	35	73	108
60-69	19	16	35
70 and above	10	16	26

#### DISCUSSION

In our study, the overall prevalence of hypertension among the study population was 22.6% and newly diagnosed hypertension was 15.5%, this prevalence was slightly lesser than WHO statistics 2015 for India which was 25.35% and study done by Chow et al which showed prevalence of 30.7% for India (rural- 31.5%).<sup>2,7</sup> The systemic reviews of pooled epidemiological studies of India done by Anchala et al showed a prevalence 27.6% for rural areas of India for which were more than our

study and it is was similar to the prevalence of rural areas of South India 21.1%.

A study done by Satheesh et al in rural Kerala found the prevalence of HTN as 18.5 and it was lesser than our study.<sup>5</sup> A study conducted by Galav et al in rural areas of Rajasthan was found prevalence of hypertension as 18.7%, study done by Kokiwar et al in rural part of Central India showed a prevalence of 19.04% and a study done in rural areas of South India by Yuvraj et al found a prevalence of 18.3% which are lesser than the prevalence of hypertension found in our study.<sup>8-10</sup> A few other studies conducted in rural areas of Jaipur by Kumar et al and in Maharashtra by Todkar et al found a prevalence of hypertension as 13.17% and 7.24% which were very much lower compared to our study.<sup>11,12</sup>

The prevalence of HTN in our study was similar to the another study done by Satheesh et al and which was 21%. 13

The prevalence of hypertension among males and females was 23.4% and 21.5% respectively which was slightly higher for males in our study compared to other studies. 8-10

The prevalence of hypertension was more among the illiterates which indirectly shows the lack of awareness of the people about screening.

The prevalence of hypertension was more among the 50-59 years age group which was slightly higher compared to studies done by Yuvraj et al and Kumar et al and was similar to other studies. The alarming rise of prevalence of hypertension among the younger adults is of great concern for public health.

Limitations of the study was using of convenient sampling method.

#### **CONCLUSION**

In this study, the hypertension has creeped into the rural areas also and creating a huge health problem for the community. Newly diagnosed cases are also high which shows that most of the people are not aware of their blood pressure and importance of regular monitoring of blood pressure. Because, screening helps in early detection and treatment initiation which in turn decreases the morbidity and mortality associated with hypertension, so improving and strengthening of primary health care facilities along with creation of awareness among population at rural and tribal areas will immensely help in reducing the morbidity and mortality due to hypertension and its complications.

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Institutional Ethics Committee

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