



## Study on Human Hypertension in Urban and Rural Areas of Karnataka, India

**Shambhavi. M. P**

Research student, Post-graduate Department of Applied Zoology, Maharani's Science College for Women, J.L.B. Road, Mysore-570005, Karnataka, India

**Padmanabha. B**

Associate professor & Head, Post-graduate Department of Applied Zoology, Maharani's Science College for Women, J.L.B. Road, Mysore-570005, Karnataka, India

### ABSTRACT

*The objective of this research paper is to study the human hypertension in urban and rural areas and also in males and females of Karnataka. Four areas in two districts of Karnataka selected for this study. The study revealed that the urban people are more prone to hypertension than rural areas. The results also suggested that the females are having more prevalence of hypertension than males.*

**KEYWORDS :** Hypertension, blood pressure, Urban, Rural, Karnataka

### INTRODUCTION

Although blood pressure is easily measurable it has taken several decades to realize that hypertension is a frequent worldwide health disorder (Kannan et al, 2009). The main factors responsible for this rising trend are changing life styles, obesity, and behavior pattern of people etc. High blood pressure is often referred to as 'silent killer' because there is no proper symptoms. Cardiovascular disease will be the largest cause of death and disability in India by 2020. Hypertension is emerging as a major health problem. The prevalence of hypertension has increased in urban communities as well as in rural people (Chobanian et al, 2003, Shanthirani et al., 2003, Midha et al., 2013, Anchala et al, 2014). The literature survey revealed that many studies have not been carried out to determine the prevalence of hypertension in rural and urban people and male and females of intended areas of our study. So the present investigation has been carried out.

### MATERIALS AND METHODS

The present study has been carried out at 4 different areas of Mysore and Shivamogga districts of Karnataka during 2016. In Mysore Gokulam and Chikkalli and in Shivamogga Vinobhanagara and malali areas are chosen for the present study. Gokulam and Vinobhanagara are the urban areas. Chikkalli and Malali are the rural areas. From each study area 60 individuals comprising 30 males and females are picked randomly to record data. So altogether 240 individuals are subjected for blood pressure screening. The data related to human subjects collected by Questionnaires (EHRM, 2002) and Blood Pressure Monitor. Joint National Committee VI (JNC VI, 1997) criteria have also been followed for measurement of blood pressure and Classification of hypertension followed by Joint National Committee VII (JNC VII, 2003) guidelines. Collected data are statistically analyzed using MS-EXCEL and SPSS software (Ver. 14.0).

### RESULTS AND DISCUSSIONS

The data for blood pressure collected in the four areas of Karnataka depicted in the table 1. In Gokulam of Mysore district 30 males and 30 females screened for blood pressure. Out of 60 individuals, 43 are non hypertensive (71.6%) and 17 are hypertensive (28.3%). Out of 17 hypertensive individuals, 8 are males (13.3%) 9 are females (15%). In Chikkalli of Mysore district, out of 60 individuals 51(85%) are non hypertensive. 9 (15%) are hypertensive. Among 9 hypertensive individuals 3 (5%) are males and 6 (10%) are females. The result suggests that in Gokulam and Chikkalli of Mysore has higher percentage of hypertension in females than males In the Vinobhanagara of Shivamogga district, 60 individuals are subjected to blood pressure measurement. Among them 45 (75%) individuals are non hypertensive and 15 (25%) are hypertensive. Out of 15 hypertensive individuals, 7 (11.6%) are males and 8 (13.3%) are females. In malali of Shivamogga district, out of 60 individuals 52(86.6%) individuals are non hypertensive and 8(13.3%) are hypertensive. Out of 8 hypertensive individuals 4 (6.6%) are males and 4 (6.6%) are females. The data revealed that in the Vin-

obhanagara and Malai areas of Shivamogga has higher incidence of hypertension in females than males.

In the four areas of Karnataka, 240 (120 females and 120 males) individuals screened for Blood pressure, 191 (79.6%) are non hypertensive and 49 (20.4%) hypertensive individuals. Among 120 males 98 (81.6%) are non hypertensive and 22 (18.3%) are hypertensive. Among 120 females, 93 (77.5%) are non hypertensive and 27 (22.5%) are hypertensive. (Table 1).

Gokulam and Vinobhanagara are urban areas and Chikkalli and Malali are rural areas in Mysore and Shivamogga districts respectively. In Gokulam and Vinobhanagar documented 88 individuals (73.3%) are non hypertensive and 32 (26.6%) hypertensive among 120 urban individuals and in Chikkalli and Malali 103 persons (85.5%) are non hypertensive and 17 (14.4%) are hypertensive among 120 rural individuals. These results suggest that urban people are more prone to hypertension than rural area individuals. In both urban and rural areas the females are more susceptible to hypertension (Table 1). Kannan et al., 2009, revealed that female are more prone to hypertension than males.

The Gokulam area of Mysore recorded highest hypertensive individuals (28.3%) followed by Vinobhanagara (25%), Chikkalli (15%) and least in the Malali (13.3%) village of Shivamogga district. These results suggest that the hypertensive individuals are more in urban area (26.6%) than rural area (14.1%). Similar type of results observed by Anchala et al., (2014). It has been observed from table 1 that the prevalence rate of hypertension in urban areas shows more in both males as well as females. The difference is found to be statistically significant ( $p < 0.001$ ), which indicates that sex and regions have some influence in the association of hypertension.

**GRAPH 1- HYPERTENSIVE INDIVIDUALS IN DIFFERENT AREAS**

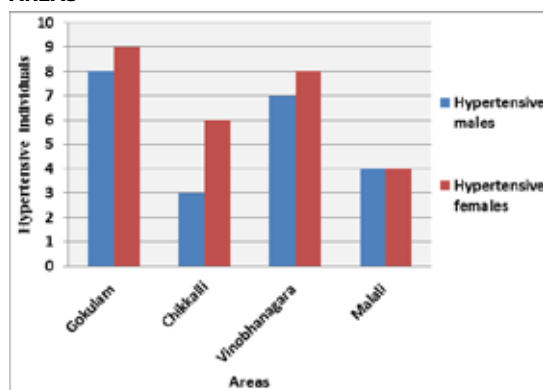


TABLE 1 – HYPERTENSIVE INDIVIDUALS IN DIFFERENT AREAS

SL NO.	AREAS	MALE INDIVIDUALS		FEMALE INDIVIDUALS		TOTAL NO. INDIVIDUALS		p-value
		Non Hypertensive	Hypertensive	Non Hypertensive	Hypertensive	Non Hypertensive (%)	Hypertensive (%)	
1	Gokulam	22	8	21	9	43 (71.6%)	17 (28.3%)	p<0.001
2	Chikkalli	27	3	24	6	51 (85%)	9 (15%)	
3	Vinobhanagara	23	7	22	8	45 (75%)	15 (25%)	
4	Malali	26	4	26	4	52 (86.6%)	8 (13.3%)	
TOTAL	240	98	22	93	27	191 (79.6 %)	49 (20.4%)	

ACKNOWLEDGEMEN

Authors thankful to the Head, Post-graduate Department of Applied Zoology, Maharani’s Science College for Women, Mysuru for facilities and encouragements.

REFERENCES

1. Kannan L, Satyamoorthy T S. 2009. An epidemiological study of hypertension in a rural household community. Sri Ramachandra Journal of Medicine, june, 2 (2) 9-13.

2. Chobanian A V, Bakris G L, Black HR, Cushman W C, Green L A, Izzo J L Jr., Jones D W, Materson B J, Oparil S, Wright J T Jr., Roccella E J. Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. National Heart, Lung, and Blood Institute; National High Blood Pressure Education Program Coordinating Committee. Seventh report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Hypertension. 2003; 42:1206–1252.

3. Shanthirani C S, Pradeepa R, Deepa R, Premalatha G, Saroja R, Mohan V. Prevalence and risk factors of hypertension in a selected South Indian Population- the Chennai Urban Population study. Journal of Associated Physician of India.2003;51:20-27

4. Midha T, Nath B, Kumari R, Rao YK, Pandey U. Prevalence of hypertension in India: A meta-analysis. World Journal of Meta-Analysis. 2013;1(2): 83-89 Available from: URL: <http://www.wjgnet>.

5. Anchala R, Kannuri N K, Pant H, Khan H, Franco O H, Angelantonio E D, Prabhakaran D. Hypertension in India: a systemic review and Meta analysis f prevalence, awareness, and control of hypertension. Journal of Hypertension. June. 2014; 32(6):1170-1177.

6. Kearney P M, Whelton M, Reynolds K, Muntner P, Whelton P K, He J. Global burden of hypertension: analysis of worldwide data. Lancet.2005; 365:217–223.

7. Tolonen H, Kuulasmaa K, Laatikainen T, Wolf H, EHRMP. Recommendation for indicators, international collaboration, protocol and manual of operations for chronic disease risk factor surveys.2002. EHRM

8. National High Blood Pressure Education Program. The sixth report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure. Archives Internal Medicine. 1997; 157:2413-46.

9. The Seventh Report of the Joint National Committee on prevention, Detection, Evaluation, and Treatment of high blood pressure.2003. JAMA, 21:289