

Original Research Article

A Comparative study of prevalence of hypertension among Urban, and rural population of south Indian city, Hyderabad

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Abstract

Introduction:-Hypertension (HTN or HT), also known as high blood pressure (HBP), is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure usually does not cause symptoms. Long-term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease, and dementia. **Aims and Objectives:**-To estimate the prevalence of Hypertension among the study population above 15 years age group. To compare the study results between urban and rural area population. **Methodology:** - The present study was a cross sectional study carried out at field practice area of Osmania Medical College, Hyderabad. It is a community based cross-sectional study, total of 1409 persons in the age group of above 15 years were interviewed at their residence and anthropometric measurements were taken. **Results:**-The prevalence of hypertension was more in females in both in urban and rural areas (22.6% and 26.4%), The prevalence of hypertension was more among lower class 45.4% in urban area where as prevalence is more among upper middle class 29.7% in rural area. The prevalence of hypertension was more in widow/widowers in both urban and rural areas. The prevalence of hypertension was more among Hindus 20.2% in urban area, when compared to rural area prevalence of hypertension was more among Muslims 40%. The prevalence of hypertension was more in widow/widowers in both urban and rural population 34.7% and 52.5% respectively.

Keywords: Hypertension, Urban, Rural.

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Introduction

Hypertension (HTN or HT), also known as high blood pressure (HBP), is a long-term medical condition in which the blood pressure in the arteries is persistently elevated. High blood pressure usually does not cause symptoms. [1] Long-term high blood pressure, however, is a major risk factor for coronary artery disease, stroke, heart failure, atrial fibrillation, peripheral vascular disease, vision loss, chronic kidney disease, and dementia. [2,3,4,5] High blood pressure is classified as either primary (essential) high blood pressure or secondary high blood pressure. [6] About 90–95% of cases are primary, defined as high blood pressure due to nonspecific lifestyle and genetic factors. [6,7] Lifestyle factors that increase the risk include excess salt in the diet, excess body weight, smoking, and alcohol use. [1,6] The remaining 5–10% of cases are categorized as secondary high blood pressure, defined as high blood pressure due to an identifiable cause, such as chronic kidney disease, narrowing of the kidney arteries, an endocrine disorder, or the use of birth control pills. [6] Blood pressure is expressed by two measurements, the systolic and diastolic pressures, which are the maximum and minimum pressures, respectively. [1] For most adults, normal blood pressure at rest is within the range of 100–130 millimeters mercury (mmHg) systolic and 60–80 mmHg diastolic. [8,9] For most adults, high blood pressure is present if the resting blood pressure is persistently at or above 130/80 or 140/90

mmHg. [6,8] Different numbers apply to children. [13] Ambulatory blood pressure monitoring over a 24-hour period appears more accurate than office-based blood pressure measurement. [6,10]. Lifestyle changes and medications can lower blood pressure and decrease the risk of health complications. [11] Lifestyle changes include weight loss, physical exercise, decreased salt intake, reducing alcohol intake and a healthy diet. [6] If lifestyle changes are not sufficient then blood pressure medications are used. [11] Up to three medications can control blood pressure in 90% of people. [6] The treatment of moderately high arterial blood pressure (defined as >160/100 mmHg) with medications is associated with an improved life expectancy. [12] The effect of treatment of blood pressure between 130/80 mmHg and 160/100 mmHg is less clear, with some reviews finding benefit [8] and others finding unclear benefit. High blood pressure affects between 16 and 37% of the population globally. [6] In 2010 hypertension was believed to have been a factor in 18% of all deaths (9.4 million globally). [13]

Aims and Objectives

1. To estimate the prevalence of Hypertension among the study population above 15 years age group.
2. To compare the study results between urban and rural area population.

Methodology

The present study was a cross sectional study carried out in the Urban Health Center area Harazpenta, Hyderabad and Rural Health Center area, Patancheruvu, Medak district. A Proforma was designed and pretested with pilot study at the Harazpenta and the actual study was started after making necessary corrections.

A total of 1400 persons in the age group of above 15 years were interviewed at their residence and anthropometric measurements were taken.

Study Design: Community Based Cross-Sectional Study.**Study Setting:** Urban Health Centre, Harazpenta and Rural Health Centre, Patancheruvu**Correspondence***Dr. Syam Sundar Junapudi**

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Study Population: Adults above 15 years of age in Harazpenta and Patancheru

Sample Size: 700 urban, 700 rural population.

Study Period: April 2008 to May 2009 (1year)

Study Variables: Age, Sex, Hypertension, Diabetes-Mellitus, Family History, Smoking, Alcohol, Physical inactivity, Blood cholesterol, Blood glucose, Anthropometric measures (Ht, Wt), Obesity and overweight, Life style, Dietary habits.

Data Collection: By using pre-designed, pretested questionnaire

Data Analysis: By Using MS office 2003. epiinfo2007

Statistical Test: Rates, Ratios, Proportions and Chi-square tests.

Inclusion Criteria: above 15 years age group of study population.

Exclusion Criteria: pregnant women, who are already having cardiovascular disease, seriously ill persons and persons who are not willing to give consent. Calculation of sample size: A study done by Shanthi Rani et al[14] showed that the overall crude prevalence of

hypertension was 21.1% , Hence this prevalence was used to calculate the sample size.Using this prevalence of Hypertension was calculated the sample size with the following formula: $4 PQ / L^2$ (L = 20%, P= 21.1% & Q= 1-P), Where L = allowable error, P = prevalence, Calculated sample size = $4 \times 21.1 \times 78.9 / 4.22 \times 4.22 = 374$. Estimated Sample size is 374. This was rounded to 700. The total study subjects in the urban area were 708 and in the rural area 701.

Tools used in the study: A pre-tested questionnaire was used to interview the subjects. Blood pressure was measured using sphygmomanometer standardization was assured after every 10 interviews. Analysis was done with the help of the MS excel 2016 and Epi-info 7 statistical packages.

Results

Table 1: Area wise distribution of hypertension in the study population

Hypertension	Urban(n=708)		Rural(n=701)		Total(n=1409)	
	N	%	N	%	N	%
Present	134	18.7	143	20	277	19.6
Not present	574	81.3	558	80	1132	80.4
Total	708	100	701	100	1409	100

Prevalence of hypertension in urban area 18.7% and rural area 20% the difference was statistically not significant ($X^2=0.48, p>0.051, CI=95\%$).

Table2: Sex wise distribution of hypertension in the study population

Sex	Urban			Rural		
	Hypertensive	Non Hypertensive	Total	Hypertensive	Non Hypertensive	Total
Male	70(16.6)	356(83.6)	426(100)	40(12.8)	271 (87.2)	311(100)
Female	64(22.6)	218(77.4)	282(100)	103(26.4)	287 (73.6)	390(100)
Total	134(18.7)	574(81.3)	708(100)	143(20)	558 (80)	701(100)

The prevalence of hypertension was more in females in both the areas and it was 22.6% in urban area and 26.4% in rural area.

The observed difference between male and female in both the urban ($x^2=4.34, p<0.03, CI=95\%$), rural area was found to be significant ($x^2=19.56, p<0.0001, CI=95\%$).

Table 3: Distribution of hypertension according to socio economic status

Socio economic status	Urban			Rural		
	Hypertension	non hypertension	Total	Hypertension	non hypertension	Total
Upper class	42(17.3)	200(82.7)	242(100)	16(26.6)	44(73.4)	60(100)
Upper middle class	30(18.5)	132(81.5)	162(100)	56 (29.7)	132(70.3)	188(100)
Middle class	26(16.8)	128(83.2)	154(100)	41(14.3)	245(85.7)	286(100)
Upper lower class	26(20.3)	102(79.7)	128(100)	30(18.7)	130(81.3)	160(100)
Lower class	10(45.4)	12(54.6)	22(100)	0(0)	7(100)	7(100)
Total	134(18.7)	574(81.3)	708(100)	143(20.0)	558(80.0)	701(100)

The prevalence of hypertension was more among lower class 45.4% in urban area and prevalence is more among upper middle class 29.7% in rural area.

The observed difference of hypertension between upper class and other classes in both areas was found to be not significant ($x^2=p<0.4, p<0.20$ respectively at 95% C.I.)

Table 4: Distribution of hypertension according to religion

Religion	Urban			Rural		
	Hypertension	Non hypertension	Total	Hypertension	Non hypertension	Total
Hindu	116(20.2)	456(79.8)	572(100)	86(16.9)	422(83.1)	508(100)
Muslim	8(11.1)	64(88.9)	72(100)	20(40)	30(16)	50(100)
Christian	10(16.6)	50(83.4)	60(100)	37(25.8)	106(74.2)	143(100)
Other	0(0)	4(100)	4(100)	0(0)	0(0)	0(100)
Total	134(18.7)	574(81.3)	708(100)	143(20.0)	558(80.0)	701(100)

The prevalence of hypertension was more among Hindus 20.2% in urban area, when compared to rural area prevalence of hypertension was more among Muslims 40%.

The observed difference of hypertension between Hindu and other religion of urban and rural was found to be significant ($x^2=3.55, p<0.05$ respectively at 95% C.I.)

Table 5: Distribution of hypertension according to marital status

Marital status	Urban			Rural		
	Hypertension	Non hypertension	Total	Hypertension	Non hypertension	Total
Married	118(23.9)	374(76.1)	492(100)	93(18.6)	395(81.4)	488(100)
Unmarried	0(0)	170(100)	170(100)	0(0)	118(100)	118(100)
Widow/widower	16(34.7)	30(65.3)	46(100)	50(52.5)	45(47.5)	95
Total	134(18.7)	574(81.3)	708(100)	143(20.0)	558(80.0)	701

The prevalence of hypertension was more in widow/widowers in both urban and rural population 34.7% and 52.5% respectively.

The observed difference between married and others was statistically significant ($\chi^2=26.88$, $p<0.0001$, $CI=95\%$) in urban area and also in rural area (1.78, $p<0.18$, $CI=95\%$).

Table 6: Distribution of hypertension according to type of family

Type of family	Urban			Rural		
	Hypertension	Non Hypertension	Total	Hypertension	Non Hypertension	Total
Nuclear	72(13.8)	448(86.2)	520(100)	100(20.2)	395(79.8)	495(100)
Joint	62(32.9)	126(67.1)	188(100)	43(20.6)	163(79.4)	206(100)
Total	134(18.7)	574(81.3)	708(100)	143(20.3)	558(79.7)	701(100)

In both urban and rural area prevalence of hypertension was more among joint family (32.9% and 20.6% respectively)

The observed difference between nuclear and joint families of urban area was found to be statistically significant ($\chi^2=32.94$, $p<0.0001$, $CI=95\%$).

Discussion

In the present study prevalence of hypertension in urban area 18.7% and rural area 20% .A study done by *N. Krishna Reddy et al[15]*(A.P's urban & rural population-2001) shows that the prevalence of hypertension was about 28%.In the present study prevalence was only 19.6%.Where as in a study done by *Shanthi Rani et al [14](2003)* showed that the overall crude prevalence of hypertension was 21.1% in this study results were nearer to present study prevalence of hypertension was 19.6%. A study by *Bela Shah, PrashantMathhr[16]*have noted that the mean systolic and diastolic blood pressure were higher in the urban and least in the rural population.where as in the present study hypertension was more prevalent in rural area.A study by *MeenakshiMehan, N Srivastava et al[17]*have note that history of hypertension was 15.5%. A study done by *Gupta SP, SiwachSB [18]* have noted that hypertension was found almost twice in the urban than rural group.In the present study prevalence of hypertension was more in females in both the areas and it was 22.6% in urban area and 26.4% in rural area. Below studies results were differs from present study results. In the study by *Clara Kayei Chow et al [19]*in rural Andhra Pradesh They noted that the prevalence of hypertension was 26.6% among males and 27.5% among females. According to a study by *Mehan Meenakshi Bakshi, SarabhiSomila et al[20]* have noted that 8.9% males and 4.6% females were hypertensives.The prevalence of hypertension was more among lower class 45.4% in urban area and prevalence is more among upper middle class 29.7% in rural area.In a study done by *Gilberts EC et al [21]*(1994) double the prevalence of hypertension was found in the upper class people than lower class people.

The prevalence of hypertension was more in widow/widowers in both urban and rural population 34.7% and 52.5% respectively.

The prevalence of hypertension was more among Hindus 20.2% in urban area, when compared to rural area prevalence of hypertension was more among Muslims 40%.

Conclusion

- The prevalence of hypertension was more in females in both in urban and rural areas (22.6% and 26.4%)
- The prevalence of hypertension was more among lower class 45.4% in urban area where as prevalence is more among upper middle class 29.7% in rural area.
- The prevalence of hypertension was more in widow/widowers in both urban and rural areas.
- The prevalence of hypertension was more among Hindus 20.2% in urban area, when compared to rural area prevalence of hypertension was more among Muslims 40%.
- The prevalence of hypertension was more in widow/widowers in both urban and rural population 34.7% and 52.5% respectively.
- In both urban and rural area prevalence of hypertension was more among joint family (32.9% and 20.6% respectively)

Recommendations

- IEC activity should be strengthened and health education should be given through health centers
- Awareness should be created for regular health checkups and monitoring of blood pressure through mass media.

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