

Socio-Demographic Determinants of Hypertension

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INTRODUCTION

According to World Health Organisation (WHO), hypertension is the commonest cardiovascular disorder affecting 2% of adult population in many countries. It is linked with coronary heart disease, stroke, congestive heart failure, renal dysfunction and is one of the major risk factors for cardiovascular mortality which accounts for 20% to 50% of all deaths. Increased awareness of the public health and economic implications of hypertension is now directing attention to the need for long term control programmes that focus on primary prevention, early detection and adequate treatment.

A community based descriptive study was therefore carried out in Chittoor district of Andhra Pradesh with the following twin objectives - (a) to find out the prevalence of hypertension among adults (age group of ≥ 40 years) (b) to study the socio-demographic factors affecting hypertension.

SUBJECTS AND METHODS

The Study Area: The Primary Health Centre (PHC), Chinnagottigallu (Chittoor district) was selected for the survey. The PHC is attached to Sri Venkateswara Medical College, Tirupati under the Reorientation of Medical Education Programme. This PHC serves a population of 1,07,756 and is divided into 22 sub-centres under multipurpose health workers scheme. It was planned to conduct the survey in the sub-centre headquarter villages in order to have the assistance of the local multipurpose health workers.

Sample Size and Study Population: The principle of cluster sampling was followed and taking the sub-centre headquarter villages as clusters, the villages were selected randomly from the list of such villages. The following villages (with population figures in parentheses) were selected: Bhakarapet (958), Yerravaripalem (696), Maddipatlavaripalle (171), Nerabylu (600) and Chinnagottigallu (2100). Thus the size

of the population was 4525. All the persons aged 40 years and above who were available at the household formed our study population which was 729.

Data Collection: The study was conducted by house to house approach in the selected villages and persons aged 40 and above were interviewed and examined in their houses. WHO criteria were taken into account to take blood pressure measurements among study subjects. The pressure at which sounds are first heard is taken as systolic blood pressure (SBP). The diastolic blood pressure (DBP) is taken as pressure at the point when the sounds disappear (Phase V). Data regarding socio-demographic factors were collected using pre-tested structured interview schedules.

Variables: This report deals with socio-demographic characteristics like age, sex, religion, caste, income, literacy and occupation which have a bearing on prevalence of hypertension. Hypertension is defined in adults as "a systolic pressure equal to or greater than 160 mm Hg and/or a diastolic pressure (Phase V) equal to or greater than 95 mm Hg" based on Expert Committee Report, WHO, 1978.

Data Analysis: Data were analysed using EP info version 5 statistical software. Percentages in different categories, Chi-square test for association, odds ratio and its 95% CI were calculated.

RESULTS AND DISCUSSION

A total of 729 adults (≥ 40 years age group) were examined and interviewed to study socio-demographic factors that influence hypertension. table 1 shows the socio-demographic factors affecting hypertension. Prevalence of hypertension was found to be 16.5% in this study.

Age-wise distribution of hypertensives suggest that the prevalence of hypertension was highest (28.1%) in the age group of ≥ 60 years, followed by age group of 50-59 years (13.3%) and 40-49 (8.57%) years, respectively. The

Table 1: Socio-Demographic factors affecting hypertension

Factor	n	Hypertensives	Normotensives	Statistical Significance	Odds ratios (95% CI)
Age group (years)					
40-49	245	21 (8.57)	224 (91.43)	$\chi^2=36.04$ df=2 p<0.01	1.00
50-59	249	33 (13.30)	216 (86.70)		1.63 (0.88-3.02)
> 60	235	66 (28.10)	169 (71.90)		4.16 (2.38-7.34)
Total	729	120 (16.50)	609 (83.50)		
Sex					
Female	349	51 (14.60)	298 (85.40)	$\chi^2=1.66$ df=1 p>0.05	1.00
Male	380	69 (18.20)	311 (81.80)		1.30 (0.86-1.96)
Total	729	120 (16.50)	609 (83.50)		
Religion					
Hindu	655	103 (15.70)	552 (84.30)	$\chi^2=4.76$ df=2 p>0.05	1.00
Muslim	67	14 (20.90)	53 (79.10)		1.42 (0.72-2.74)
Christian	7	3 (42.90)	4 (57.10)		4.02 (0.70-21.59)
Total	729	120 (16.50)	609 (83.50)		
Caste					
SC/ST	94	12 (12.80)	82 (87.20)	$\chi^2=1.96$ df=2 p>0.05	1.00
BC	112	22 (19.60)	90 (80.40)		1.67 (0.73-3.85)
OC	449	69 (15.40)	380 (84.60)		1.24 (0.62-2.53)
Total	655	103 (15.70)	552 (84.30)		
Income Group					
Below Poverty Line	418	57 (13.60)	361 (86.40)	$\chi^2=5.62$ df=1 p<0.055	1.00
Above Poverty Line	311	63 (20.30)	248 (79.70)		1.62 (1.09-2.42)
Total	729	120 (16.50)	609 (83.50)		
Literacy					
Illiterate	380	55 (14.50)	325 (85.50)	$\chi^2=2.28$ df=1 p>0.05	1.00
Literate	349	65 (18.60)	284 (81.40)		1.61 (1.09-2.42)
Total	729	120 (16.50)	609 (83.50)		
Occupation					
Farmers/ Labourers	322	42 (13.00)	280 (87.00)	$\chi^2=21.28$ df=2 p<0.01	1.00
House wife	268	37 (13.80)	231 (86.20)		1.07 (0.65-1.76)
White Collar	139	41 (29.50)	98 (70.50)		2.79 (1.66-4.68)
Total	729	120 (16.50)	609 (83.50)		

Figures in parentheses are %

SC/ST = Scheduled Castes / Scheduled Tribes

BC = Backward Castes

OC = Other Castes

difference of prevalence in hypertension between the age groups was found to be statistically significant $\chi^2=36.04$, df=2, p<0.01). Also as age is increasing, prevalence of hypertension is also increasing significantly χ^2 for linear trend = 27.077, df=2, p<0.01). Age group ≥ 60 years with the OR and 95% CI of 4.16 (2.38-7.34) was found to have strong influence on hypertension. Cross-sectional surveys as well as prospective observational co-

hort studies have consistently demonstrated a positive relation between age and blood pressure in most populations with diverse geographical, cultural and socio-economic characteristics (Expert Committee Report, WHO, 1996).

Prevalence of hypertension among males (18.2%) was found to be higher than females (14.6%) but this difference was not found to be significant $\chi^2=1.66$, df=1, p>0.05).

It was also observed that there was no significant difference in prevalence of hypertension between males and females in different age groups. Whelton (1994) observed that in young and middle aged adult age group men tend to display higher average level of blood pressure than women and late in life the pattern may be reversed. This reversal of blood pressure late in life was attributed to higher premature death rates of middle aged men with high blood pressure and post-menopausal changes in women.

The prevalence of hypertension was found to be highest among Christians (42.9%) followed by Muslims (20.9%) and Hindus (15.7%) but the difference was not found to be statistically significant ($\chi^2=4.76$, $df=1$, $p>0.05$). The Christian community had higher influence on the prevalence of hypertension, with OR and 95% CI of 4.02 (0.70-21.59) but not statistically significant. These findings may be possibly influenced by very small numbers of Christians in our study. Prevalence of hypertension was found to be highest among backward caste group (19.6%) and least among SC/ST group (12.8%) and again the difference was not found to be statistically significant ($\chi^2=1.96$, $df=2$, $p>0.05$).

The prevalence of hypertension was high (20.3%) in the study population group above poverty line and low (13.6%) in the group below poverty line and this difference between the two groups was statistically significant ($\chi^2=5.62$, $df=1$, $p<0.05$). Study population group above poverty line with OR and 95% CI of 1.62 (1.09-2.42) had significant association with hypertension. The poverty line used was based on Integrated Rural Development Programme (IRDP) classification. Similar findings have been observed by WHO Expert Committee (WHO, 1996) which reveal that in societies like India that are in transitional or pre-transitional stage of economic and epidemiological change, higher levels of blood pressure and higher prevalence of hypertension have been noted in upper socio-economic group. The WHO Expert Committee also reports that in countries that are in the post-transitional stage of economic and epidemiological change, consistently higher levels of blood pressure and higher prevalence of hypertension have been noted in lower socio-economic groups.

Literacy-wise distribution of cases of hypertension suggest that prevalence of hypertension was higher among literates (18.6%) than illiterates (14.5%) and the difference between the groups was not found to be statistically significant ($\chi^2=2.28$, $df=1$, $p>0.05$). Literacy with the OR and 95% CI of 1.61 (1.09-2.42) does not have strong influence on hypertension.

White collar occupation group had highest prevalence of hypertension of 29.5% followed by house wives (13.8%) and farmers/labourers (13%). The difference between different occupational groups was found to be statistically significant ($\chi^2=21.28$, $df=2$, $p<0.01$). White collar occupation group with OR and 95% CI of 2.79 (1.66-4.68) had strongest influence on hypertension.

There is a large body of literature estimating the prevalence of hypertension in various parts of the world (Expert Committee Report, WHO, 1996). These estimates can be compared only with the utmost caution because differences in the definition of hypertension, measurement methods used, observations and age structures of populations may not have been standardised. Despite these limitations, prevalence estimates from several parts of the world indicate that high blood pressure is an important health problem of global dimensions. According to the WHO Expert Committee reports, when threshold values are taken as 160 mm Hg SBP and 95 mm Hg DBP, the prevalence of hypertension is reported to be between 10% and 20% in several adult populations. The prevalence of hypertension of 16.5% in our study is comparable with the WHO figures.

Our study reveals that among the socio-demographic factors studied, age (age group ≥ 60 years), income (income group above poverty line) and occupation (white collar occupation group) had significant association with hypertension. Identification of socio-demographic factors affecting hypertension would help in targetting populations against hypertension in societies like India where socio-economic and demographic transition is occurring. Further in developing countries where major epidemics of cardiovascular diseases are projected to occur or accelerate, the prevention of hypertension through population based measures to improve

life style is strongly recommended.

KEY WORDS Socio-demographic Factors. Hypertension. Economy. Occupation.

ABSTRACT A community based descriptive study conducted in Chittoor district of Andhra Pradesh revealed 16.5% prevalence of hypertension among adults in the age group of 40 years and above. Among the socio-demographic factors studied, age, income and occupation were significantly related with hypertension. In societies where socio-economic and demographic transition is occurring, identification of socio-demographic factors influencing hypertension would help in targetting populations and individuals to achieve control of hypertension.

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