



KNOWLEDGE AND AWARENESS ON HYPERTENSION AMONG THE ADULT RURAL POPULATION OF CHITTOOR DISTRICT, ANDHRA PRADESH

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ABSTRACT

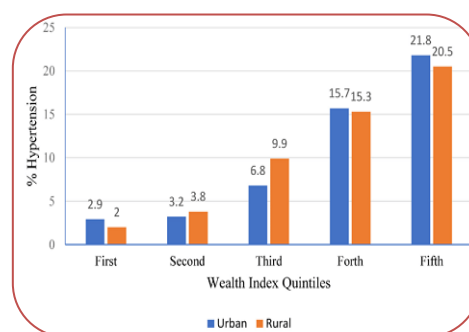
An attempt has been made in the present study to assess the knowledge and awareness regarding hypertension among the adults of Chittoor District, Andhra Pradesh. A total of 4850 healthy adults of both genders >20 years of age were screened by administering open ended standardized questionnaire in a cross sectional design. Self reported prevalence of hypertension was 14% percent, and 18 percent having family history of hypertension. Average score assessed through visual analogue scale on knowledge and awareness in hypertension was 6.40 out of 12 (53.33%). Subjects with higher education were 1.357 times (95%CI: 1.307, 1.410; $p < 0.05$) better when compared with illiterates in terms of knowledge and awareness on hypertension. Similarly subjects involved in business were 1.214 times better towards the knowledge and awareness compared to agriculturists and skilled workers. Knowledge on blood pressure monitoring was recorded to an extent of 82 percent. 83 percent of the subjects considered eating lot of salt may increase the blood pressure. 72 percent of the subjects felt that high blood pressure causes health problems. In conclusion, this study reflects the poor knowledge and awareness about hypertension in rural India, hence policy measures are warranted to take the message at gross root level.

KEYWORDS: hypertension, knowledge and awareness, adults, rural population, Andhra Pradesh.

INTRODUCTION

Hypertension is a serious medical condition and a risk factor towards heart diseases, renal failures and other diseases (D'Agostino et al., 2008; WHO, 2019). Worldwide the number of adults with hypertension increased from 594 million in 1975 to 1.13 billion, majority from low-and middle-income countries. According to WHO (2019), 1 in 4 men and 1 in 5 women had hypertension in 2015. The increase is mainly attributed to rise in hypertension risk factors. India also experiencing an increase in the prevalence of hypertension (Busingye et al., 2019).

In India, hypertension considered as a growing problem causes significant burden on health systems (Jose and Prabhakaran, 2019). In India, according to Global Burden of Disease study in 2016, around 1.63 million deaths were



attributed to hypertension (GBD, 2019). The data revealed that high systolic blood pressure was major factor for ischaemic heart disease (54.2%), stroke (56.2%) and chronic kidney disease (54.5%). A large population based study revealed that the crude prevalence of hypertension in India was 25.3% (Gupta and Ram, 2019). Recent studies have highlighted that high blood pressure was more common even among younger age groups (Sudhakar et al., 2014; Geldsetzer et al., 2018).

Rapid urbanization and industrialization brought several changes in the life styles of Indians, which resulted in the escalating figures of non-communicable diseases including high blood pressure (Nethan et al., 2017). The hypertension epidemic in India is further complicated by the fact that a large proportion of individuals is unaware of their hypertension status. In 2010, Government of India, launched a National Programme for prevention and control of cancer, diabetes, cardiovascular diseases and stroke, and as 2017, NCD cells have been established 55% percent of the districts only, leaving half of the country still remains uncovered. The theme of this year's World Hypertension Day is 'Know your numbers' and focuses on the importance of screening for early detection and treatment of hypertension (Jose and Prabhakaran, 2019).

Data on the level of awareness about hypertension in developing countries like India is extremely important for implementation strategies to curb the epidemic. India being multiethnic and multilingual, there is every need to understand the current level of knowledge and awareness on Hypertension. In the light of this back ground, an attempt has been in the present investigation to assess the community wide knowledge and awareness regarding hypertension among the adults of Chittoor District, Andhra Pradesh.

METHODOLOGY

The present study was a cross sectional in its nature. The sample for the present study was healthy adults of both genders > 20 years of age in the rural areas of Chittoor District of Andhra Pradesh. A total of 4850 subjects were screened randomly covering the entire rural areas of the district. Departmental ethical clearance was procured and individual consent was taken before subject participation. A structured questionnaire has been devised by going through similar studies published in elsewhere Indian populations (Karmakar et al., 2018; Busingye et al., 2019). A pilot study has been undertaken to validate the questionnaire and final one as mentioned below was exercised in the field area for the data collection. Data collection took place during January 2019 to February 2020. The exclusion criteria was subjects with gross abnormality and bedridden.

The questionnaire was divided into two sections. The first part of the questionnaire addressed the respondent's demographic information which included: age, sex, level of education, occupation and income etc. Age of the subject was ascertained through birth certificates if available or through cross check with kith and kin. Educational status was classified as illiterates, primary, secondary and higher. Income of the subjects was classified as per Indian criteria.

Knowledge, risk factors and complications and awareness of blood pressure was measured using 9 item questionnaire. Answers were graded with two categorical responses "Yes" and "No". The survey instrument is as mentions below.

- | | | |
|---|------------------|-------|
| 1. Have you ever been told you have or had High blood pressure? | 1. Yes | 2. No |
| 2. Do you think it is important that your blood pressure to be checked? | 1. Yes | 2. No |
| 3. Can eating food with a lot of salt affect blood pressure? | 1. Yes | 2. No |
| 4. Does high blood pressure can cause health problems? | 1. Yes | 2. No |
| 5. Does high blood pressure affect the Brain | 1. Yes | 2. No |
| 6. Does high blood pressure damage the Kidneys | 1. Yes | 2. No |
| 7. Does high blood pressure affect the Heart | 1. Yes | 2. No |
| 8. Has anyone in your family ever had hypertension? | 1. Yes | 2. No |
| 9. Approximately, how regularly do you check your blood pressure? | | |
| 1. More often than once a year | 2. Once a year | |
| 3. Every 2 years | 4. Every 5 years | |
| 5. It is not needed to check regularly | | |

For closed questions, 1 to 8 correct answers were graded as 1 and incorrect answers as 0. For question No. 9 which was on how regularly do you check your blood pressure, highest score of 4 was awarded for subjects who ticked more often than once a year, 3 was given for once a year, 2 was given for every 2 years, 1 for every 5 years and 0 score was awarded for who opted as it is not needed to check regularly.

STATISTICAL ANALYSIS

Statistical analysis was carried out via SPSS 16 and alpha levels were set at $p < 0.05$. Continuous variables were provided with average values and discontinuous variables with percentages. Analysis of variance and t-test was carried out to assess the significance in average values between groups. Further, multivariate logistic regression was fitted to investigate the relationship of independent variables on individuals' average score towards knowledge and awareness on hypertension.

RESULTS

In the study population based on self-reported data, the prevalence of hypertension was around 14 percent, and 18 percent of the subjects have family history of hypertension (Table 1). Around half of the subjects belonging to middle income group, 34 percent were low income group and a minimum of 14 percent were from high income group. A majority of the subjects (44%) were illiterates and a maximum of 70 percent were skilled workers or agriculturalists.

Knowledge on blood pressure monitoring was recorded to an extent of 82 percent only (Fig. 1). Around 66 percent of the subjects use to monitor their blood pressure frequently i.e., yearly once or more. Rest of 16 percent of them use to monitor blood pressure for every two years or five years once.

The average score assessed through visual analogue scale on knowledge and awareness in hypertension was 6.40 out of 12 (53.33%) in both genders (Table 2). The average score was significantly higher in subjects with self-reported hypertension and family history of hypertension ($p < 0.05$). The average score failed to increase with income levels. On the other hand, the average score tends to decrease with advancement of age. Illiterates were found to have less knowledge and awareness on hypertension and the average score increases as educational status increases ($p < 0.05$). Professionals or Business people possess higher score than agriculture/skilled workers/House wife.

In order to assess the effect of demographic factors on knowledge and awareness on hypertension, sex-adjusted multinomial logistic regression model was fitted by considering demographic variables as dependent variables and average score on knowledge and awareness on hypertension as covariate and sex as factor and the results with odds ratio and 95% confidence intervals were shown in Table 3. Subjects with higher education were 1.357 times (95% CI: 1.307, 1.410; $p < 0.05$) better when compared with illiterates in terms of possessing knowledge and awareness on hypertension. Similarly, subjects involved in business were 1.214 times better towards the knowledge and awareness on hypertension compared to agriculturists and skilled workers. Age of the subject failed to show any variation in odds of awareness and knowledge on hypertension.

In the study population, 83 percent of the people considered that eating a lot of salt may increase the blood pressure. Further, high blood pressure causes health problems as opined by 72 percent of the people. Around half of them expressed that high blood pressure leads to impair heart and brain functioning. A maximum of 73 percent expressed that high blood pressure leads to damage kidneys (Fig. 2).

DISCUSSION

The current level of knowledge and awareness on hypertension and management was 53.33 percent, which is found to be a worrying phenomenon. Several studies have expressed this as a sound impediment in elsewhere population groups of India (Karmakar et al., 2018; Busingye et al., 2019). The findings also highlight that illiteracy and occupational status are significantly associated with lower scores of knowledge and awareness on hypertension. Karmakar et al. (2018) study highlighted that a combination of socioeconomic factors and a low level of overall education possibly contributed to the

low level of awareness, treatment, and control of hypertension in their study sample. In Manipur population also the level of hypertension awareness was found to be 42.50% (Satish Kumar et al., 2015). Gupta et al (2012) showed that middle-aged Asian Indian women had very low awareness, treatment, and control of hypertension.

The self-reported prevalence of hypertension in the present study was 14 percent, which is lower than the Indian national average as reported by Gupta and Ram (2019). A cross-examination of results on knowledge and awareness on hypertension in different population groups of India shows regional variation. In the present study socioeconomic status especially education found to be a significant factor in creating awareness about hypertension. Subjects with higher education found to have higher scores than illiterates, which is in agreement with other studies (Mittal and Singh, 2010). Education on hypertension is needed to make individuals better informed about the ill effects and preventive measures (Zaman et al., 2012).

The observed discrepancy in the subjects' perception on hypertension and its associated complications and management warrants to have continuing medical education programmes on hypertension in order that better hypertension education is imparted to subjects. Our results clearly indicate lack of awareness on hypertension and its risk factors. Unless the public knows that hypertension can be prevented and are aware of risk factors, primary prevention of hypertension is unlikely to become feasible in India. In a densely populated country like India, where unplanned urbanization is rapid, a significant decrease in physical activity witnessed with increased overweight and obesity not only in adults but also in adolescents (Anuradha et al., 2015). Substantial measures to teach the population about the ill effects of obesity, decreased physical activity and life styles will have a sizeable effect in the mitigation of the burden of hypertension. In conclusion, this study reflects the poor knowledge and awareness about hypertension in rural India, hence policy measures are warranted to take the message at the grassroots level.

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Table 1. Demographic characteristic of the study population

Variables	N	%
Sex		
Male	3007	62.0
Female	1843	38.0
Self reported blood pressure		
No	4185	86.3
Yes	665	13.7
Family history of blood pressure		
No	3999	82.5
Yes	851	17.5
Income in INR		
Less than 49999	1626	33.5
50000-99999	2556	52.7
100000 and above	668	13.8
Age Groups		
<39 years	2096	43.2
40 to 59 years	2310	47.6
>60 years	444	9.2
Education		
Illiterate	2113	43.6
Primary	881	18.2
Secondary	1023	21.1
Higher	833	17.2
Occupation		
Agriculture/Skilled Workers/House wife	3341	68.9
Business	545	11.2
Professional/Job	964	19.9

Table 2. Data on the average score on knowledge and awareness about blood pressure in the study population

Variables	Mean ± SD	F	P
Sex			
Male	6.48± 2.38	2.307	0.021
Female	6.32± 2.41		
Self reportedblood pressure			
No	6.17± 2.33	18.889	0.000
Yes	7.99± 2.17		
Family history of blood pressure			
No	6.07± 2.31	21.542	0.000
Yes	7.96± 2.20		
Income			
Less than 49999	6.36± 2.25	0.767	0.465
50000-99999	6.44± 2.43		
100000 and above	6.47± 2.60		
Age Groups			
<39 years	6.58± 2.27	8.899	0.000
40 to 59 years	6.28± 2.46		
>60 years	6.38± 2.55		
Education			
Illiterate	5.82± 2.44	105.963	0.000
Primary	6.52± 2.23		
Secondary	6.74± 2.35		
Higher	7.43± 2.04		
Occupation			
Agriculture/Skilled Workers/House wife	6.13± 2.44	79.394	0.000
Business	7.20± 2.17		
Professional/Job	6.96± 2.16		

Table 3. Multinomial logistic regression model to assess the odds ratios

Variables	OR	P value	CI
Income			
Less than 49999	Reference		
50000-99999	1.012	0.388	0.986, 1.038
100000 and above	1.015	0.453	0.977, 1.054
Age Groups			
Age > 39	Reference		
40 to 59	0.947	0.000	0.924, 0.971
60 and Above	0.966	0.110	0.925, 1.008
Education			
Illiterate	Reference		
Primary	1.132	0.000	1.094, 1.170
Secondary	1.179	0.000	1.141, 1.219
Higher	1.357	0.000	1.307, 1.410
Occupation			
Agriculture/Skilled Workers/House wife	Reference		
Business	1.214	0.000	1.166, 1.265
Professional/Job	1.199	0.000	1.159, 1.241

Fig. 1: Knowledge on blood pressure monitoring



Fig. 2: Knowledge and awareness on blood pressure

