Research Article

A community-based study on prevalence of hypertension in urban Shimoga, Karnataka

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ABSTRACT

Background: It is one of the major and independent risk factors for non-communicable diseases (NCD) such as cerebrovascular disease, coronary heart disease, and cardiac and renal failure. The recent WHO report states that considering the prevalence of any diseases, hypertension ranks fourth in the world. **Objectives:** To assess the prevalence of hypertension in an urban population of Shivamogga. **Materials and Methods:** A cross-sectional study was conducted in Urban Shivamogga Study was conducted during February 1st to July 30th 2016 for 6 months. Data were collected from household members aged 15-64 years. The calculated sample size was 2000. Subjects were interviewed using a prestructured and pretested questionnaire adopted from WHO Steps I and II, approaches for NCD risk factors surveillance, after modifying to suit the local requirements (questions about hypertension were considered for study). **Results:** The prevalence of high blood pressure in the present study was 26.5%, which was more prevalent in males (27.6%) compared females (25.3%). History of hypertension in the present study was 12.05%. This is finding is consonance with a study conducted by Nath et al. **Conclusion:** This community-based study demonstrated high prevalence of Hypertension among productive population of urban Shivamogga.

KEY WORDS: Hypertension; Pre-hypertension; Non-communicable Diseases; Risk Factors

INTRODUCTION

It is the most common cardiovascular disorder, posing a major public health problem of the world and especially to the population in socio-economic and epidemiological transition.[1] It is one of the major and independent risk factors for non-communicable diseases (NCD) such as cerebrovascular disease, coronary heart disease, and cardiac and renal failure.[2] The recent WHO report states that considering the prevalence of any diseases, hypertension ranks fourth in the world.[3] As it is hidden beneath an outwardly asymptomatic appearance, the disease does immense harm to the body in the form of "Target organ" damage hence the WHO is named it the "silent killer."[3] Hypertension affects approximately 1 billion people worldwide. Raised blood pressure is estimated to cause about 7 million premature deaths throughout the world and 4.5% of the disease burden (64 million disability-adjusted life years). The estimated number of Indians with hypertension was 120 million in the year 2000, which is likely to expand to 200 million by 2025, with equal numbers among men and women, presently the prevalence of hypertension in Urban India is 19.5%, that is in Urban India every 5th adult is hypertensive.[4]

Hence, a community-based study on prevalence hypertension in Shivamogga city among 15-64 years of population was undertaken, with the intention that the results of this study will provide necessary inputs for effective NCD control in this region.

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Objective

- To assess the prevalence of hypertension in urban population of Shivamogga.

MATERIALS AND METHODS

An observational community-based cross-sectional study was conducted in Urban Shivamogga. Kote and old Thirthahalli road area wards were selected by simple random sampling method. The study was conducted during February 1st to July 30th 2016 for 6 months, after getting clearance from Institutional Ethical Committee. Data were collected from household members aged 15-64 years, who are residents of the study area (study subjects). With 5% prevalence of NCD risk factors (according to previous nationwide study), the calculated sample size is 1900, for our convenience, we have made it 2000. There are around 429 households (with 4000 population) come under the study area, we were visit each and every household in the area and collect the information from people between age group of 15 and 64 years (as a part of intern training and family studies), among the collected data, 2000 (sample size) data were taken randomly and analyzed. Help of Interns and post graduates of the department were taken to collect the data (it is also a part of their urban field training). Permission of the required authority was taken.

All subjects in the sample were informed about the purpose of the study. After obtaining the written informed consent, they were interviewed using a prestructured and pretested questionnaire adopted from WHO Steps I and II, approaches for NCD risk factors surveillance, after modifying to suit the local requirements (questions about obesity and overweight were considered for study).[5]

Step 1: Information on sociodemographic variables and history of hypertension.
Step 2: Physical measurements - Blood pressure measured using standardized instruments and protocols.[6]

Data were analyzed by XL spreadsheet; results are documented in proportions and percentages with appropriate statistical tests.

RESULTS

Socio-demographic Factors

Total participants in the study were 2000, comprised of 1000 males and 1000 females (Table 1). The majority (78.5%) of the subjects were belonging to Hindu religion, followed by Muslims (20.6%) and Christians (0.9%) (Table 2). Majority of the participants were literate (83.3%), while few were illiterate (16.3%). Among the literates, more than a half of the participants were studied up to PUC and above (Table 3). Most of the participants were homemakers (32.5%), followed by unskilled workers (21.5%), and semi-skilled (1.8%) workers (Table 4).

Hypertension

The prevalence of hypertension was 26.4%; Stage-1 and Stage-2 hypertension was 22.8% and 3.6%, respectively. Hypertension prevalence was slightly high in males (27.6%) compared to females (25.3%). The prevalence of pre-hypertension was 15.9%; prevalence was more among males (21.2%) as compared to females (10.7%) (Table 3).

This gender wise difference in blood pressure level was found statistically highly significant ($P < 0.05$).

Table 1: Distribution of participants by sex

Participants	*n* (%)
Men	1000 (50)
Women	1000 (50)
Total	2000 (100)

Table 2: Occupation of participants

Occupation	*n* (%)
Professional	38 (1.9)
Semi-professional	80 (4)
Clerical/shop/farm	281 (14.1)
Skilled worker	195 (9.8)
Semi-skilled worker	37 (1.8)
unskilled worker	430 (21.5)
Homemaker	650 (32.5)
Students	289 (14.4)
Total	2000 (100)

Table 3: Blood pressure risk categories

Blood pressure	Men number (%)	Women number (%)	Total number (%)
Normal	512 (51.2)	640 (64)	1152 (57.6)
Pre-Hypertension	212 (21.2)	107 (10.7)	319 (15.9)
Stage-1	239 (23.9)	218 (21.8)	457 (22.8)
Stage-2	37 (3.7)	35 (3.5)	72 (3.6)
Total	1000 (100)	1000 (100)	2000 (100)

χ^2=49.8, P<0.001, highly significant

Table 4: Prevalence of hypertension (self-reported) in men and women

Hypertension	Men number (%)	Women number (%)	Total number (%)
Yes	109 (10.9)	132 (13.2)	241 (12.05)
No	891 (89.1)	868 (86.8)	1759 (87.95)
Total	1000 (100)	1000 (100)	2000 (100)

χ^2=2.964, P=0.114, not-significant

History of hypertension (self-reported) was 12%. There were more females (13.2%) with a history of hypertension as compared with males (10.9%) (Table 4).

The study revealed that the prevalence of hypertension increased with age and declined only in the 55-64 years age group. More than fifty percent (50.8%) of subjects and nearly fifty percent (43.8%) of subjects were hypertensive in the age group of 45-54 years and 55-64 years, respectively (Figure 1).

DISCUSSION

The risk factors of today are the diseases of tomorrow. Identifying these risk factors in populations occupies a central place in the surveillance system because of the importance of lag time between exposure and disease. Therefore, public health strategies have to be driven by the motive of identifying risk factors in populations, and countries need to know the profile of risk factors of populations in different settings. The prevalence of hypertension was 26.4%, it was slightly high in males (27.6%) as compared to females (25.3%). Hypertension was more prevalent among participants belonging to lower educational group.

The prevalence of high blood pressure in the present study was 26.5%, which was more prevalent in males (27.6%) compared females (25.3%). These findings are in accordance with the study of Singh et al.[7] Similarly, studies conducted by Thankappan in Kerala reported that prevalence was more in males but overall prevalence of hypertension (30%) reported in the study is slightly more compared to our study.[8] The prevalence of hypertension in our study is within the range of estimated prevalence of hypertension in urban, India.[9] The history of hypertension in the present study was 12.05%. This is finding is consonance with a study conducted by Anitha et al.[9] This low-level prevalence of hypertension compare to estimated prevalence, could be because it is uncommon in India to go for regular checkups. Studies conducted in the past have demonstrated that on screening for hypertension a two time's increase in prevalence is seen as compared to the reported history.[10]

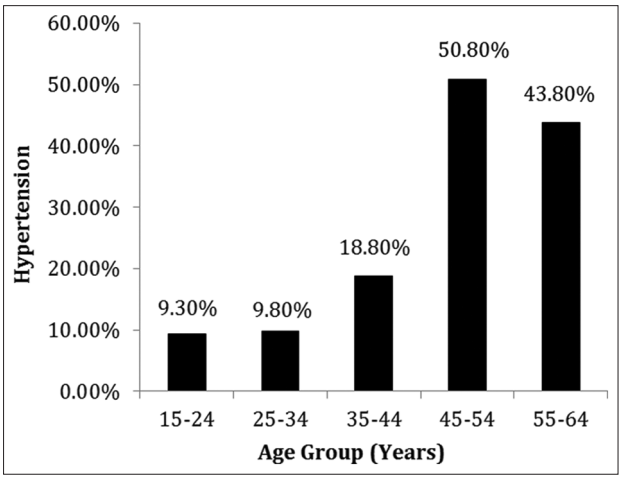

Figure 1: Age-wise distribution of hypertension

Strength of our study is, it is a community-based study and comprehensive survey of risk factors of NCD using WHO stepwise approach - Step 1 and 2 questionnaire was used to collect data after modifying to suit the local requirements. The WHO recommended standard procedures were used for physical measurements. Only limitation of our study is, even though the households are randomly selected after collecting data from all the households in the selected areas, in each households subjects are selected according to need (to match age group), i.e. purposive sampling was done.

CONCLUSION

The present cross-sectional study (community-based) clearly demonstrates high prevalence of hypertension among productive population of urban Shivamogga. Strengthening the evidence for NCD prevention and control by assessing its burden and burden of risk factors, through NCD risk factors surveillance is necessary presently. A nationwide initiative has to be started to create awareness among the people regarding the harmful effects of high blood pressure, with main focus on adolescents and adults.

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