Prevalence And Awareness Of Hypertension Among Adult Population In Madurai District

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ABSTRACT

Introduction: Hypertension is a major public health problem as it is the leading cause of cardiovascular disease and premature death worldwide.

Aim: To assess the prevalence and awareness of hypertension among adult population at selected areas, Madurai District.

Methods and Materials: A community based cross-sectional survey design was adopted among 3662 individuals based on the convenience sampling technique from the adopted villages of Madurai Apollo College of Nursing, Tamil Nadu. The tool comprised back ground variables and Self-Structured Knowledge questionnaire. Prevalence and awareness of Hypertension was assessed through back ground variablesproforma and Self-Structured

Knowledge questionnaire. Tool was valid and reliable (0.90). The data were analyzed through descriptive and inferential statistics.

Results: Samples has been reported highest among the group of 50-55 years; with regard to gender most of them were females 60% and males 40%. Majority 87% of the adult population had blood pressure more than 130 - 140 / 80 - 90 mm Hg. Among 2894 (79%) of them had moderately adequate knowledge regarding basic information regarding hypertension. There was a significant association between the level of knowledge of adult population regarding hypertension and the background variables namely residence, family history, occupation, life style habits, other illness (P<0.0001).

Conclusion: Almost three-fourth of populations were pre-hypertensive in the selected villages. The knowledge, management, prevention and control of high blood pressure were also very low.The study concluded the impact of disease burden is creating awareness in prevention and management of hypertension among people.

Key words: Knowledge, Occurrence, Older people, Blood Pressure.

1. Introduction

Cardiovascular diseases remain the foremost reason for the worldwide mortality, with an estimated 20.9 million deaths in 2019, 39% of International deaths[1].Hypertension is a common medical condition worldwide. It is an important public health challenge because of the associated morbidity, mortality, and the cost to the society[2]. In 2010, over 30% of the world's adults had hypertension[3]and the estimated annual death rate associated with hypertension is increasing[4].

The prevalence of hypertension was more than a billion across the Globe and may get increased to 1.5 billion in the decade ahead. World Health Statistics 2018 revealed that there were 57 million global deaths in 2016, in which 41 million (71%) were due to non-communicable diseases (NCDs). Of these, 44 % was due to cardiovascular diseases and 12.8% (7.5 million deaths per year) was due to hypertension exclusively. Hypertension was reported as the 4th leading cause of premature death in developed countries and 7th in developing countries[5].

According to the Joint National Committee 7 (2004), normal blood pressure is a systolic BP < 120 mm Hg and diastolic BP < 80 mm Hg[6].Hypertension is defined as systolic BP level

of ≥140 mm Hg and/or diastolic BP level ≥ 90 mm Hg. The mild increase falling between 120–139 mm Hg systolic BP and 80–89 mm Hg diastolic BP is defined as "prehypertension". Though prehypertension is not a disease condition in itself, prehypertensive individuals are more prone to develop hypertension. So, they fall into high-risk group[7].

It is a silent killer as the symptoms are noticed rarely in its early stages, until a severe medical crisis takes place like heart attack, stroke, or chronic kidney disease[8].Since people are not familiar with blood pressure and its increase, it is only by regular checking of the blood pressure will help to detect any changes. Although majority of patients with hypertension remain asymptomatic, very few people with hypertension reports headaches, lightheadedness, vertigo, blurred vision, or fainting episodes[9].

In a recent nationally representative study among 1.3 million adults in India, it was noted that 25% of young and older adults had raised blood pressure (BP)[10].The younger adults aged 20–40 years having prevalence of hypertension among 1 to 8 adults.Prevalence may get increased with lifestyle behaviors and lowering of hypertension diagnostic thresholds[11].

Antihypertensive medications are less expensive and effective but still only a very limited people approach the hospital, diagnosed and on recommended treatment for hypertension. The negligent approach for care, by the people with hypertension, combined with the rapid rise of cardio vascular diseases in India, requires concerted attention if the Sustainable Development Goal 3 target of reducing premature mortality from NCDs by 30% by 2030 is to be achieved. An initial attempt in improving care for people with hypertension is to collect a detailed information and data about existing health care facilities for managing hypertension[12].

Reliable information about the prevalence of hypertension is essential to estimate disease burden. Data captured at the rural and semi urban community level for prevalence of hypertension and its risk factors is scarce throughout India. This South Indiarural based study intends to generate information on prevalence of hypertension among the public. In addition, the study assessed the awareness about hypertension among the rural population.

2. Aim

The aim of this studywas to assess prevalence and awareness of hypertension among the adult population at selected areas, Madurai districts.

3. Methodology

3.1. Study Design & Settings

A community based cross-sectional survey was adopted as a research design.The study was conducted from the adopted villages of Apollo College of Nursing, Madurai. Apollo Hospitals Ent Ltd pioneering hospital owns schools and colleges of nursing around India. There are two school of nursing in Chennai and Delhi and eleven colleges of nursing located in Chennai, Madurai, Aragonda, Hydrabad, Chittor, Bilaspur, Ahamadbad. Each institution has adopted a rural and urban area to focus on the community reach out programs and community field experience. All the institution conducts Governmental and non-Governmental program regularly and actively. As a part of community awareness this project has been done at Madurai.

3.2. Sampling Technique & Sample

The research was carried out among the people aged above 50 years residing in the adopted villages of Apollo College of Nursing, Madurai. The non-probability convenience sampling technique was adopted to collect the data from the samples. The researcher visited individual houses and measured the blood pressure of the adult above 50 yrs in each house were the inclusion criteria. Totally 3662 samples were selected. The exclusion appealed were individuals who are unable to give response due to serious physical or mental illness and who were not willing to participate in the study.

3.3. Study Instruments

The tool comprised of two parts, Part I consisted of back ground variables proforma consisted of age, sex, residence, marital status, family history of hypertension, educational status, occupation, diet pattern, life style habits, any associated co morbid illness, blood pressure reading, height, weight, BMI. Part II comprised of Self-Structured Knowledge questionnaire with multiple choice which included various aspects of hypertension. Totally 10 questions were developed. All the study participants a structured interview was conducted for 10 minutes to collect demographic data and questions related to hypertension.

3.4. Data collection

After assessing the eligible criteria, participants were selected in the study and complete details about the study were explained to them. General consent obtained from the patients and privacy maintained throughout the study. The back ground variables and Self-Structured Knowledge questionnaire were collected by interview technique for about 10 minutes. Institutional in-house ethical clearance was obtained by the researcher before conducting the study.

3.5. Statistical Analysis

The data analysis was done by descriptive and inferential statistics. The frequency and percentage were done in descriptive statistics, and association was used in inferential statistic to interpret the study findings. The interpretation of the study findings was tabulated.

4. Results

A total of 3662 samples were enrolled in this study; majority 39% of the adult participants were in the age group of 50-55 years and (60%) of them were females. Most (74%) of the adult population belonged to Urban area. Majority of the adult population (86%) were married. With regard to life style habits majority of the adult population (73%) did not have any specific life style habits. The majority (75%) of the adult population did not have any specific illness. Many of the study participants (24%) were diagnosed to have heart diseases for which they were on treatment. Demographic variables of adult population are presented in Table 1. There was a significant association between the level of knowledge of adult population regarding hypertension and the back ground variables namely residence, family history, occupation, life style habits, other illness ($p<0.0001$).

Table 1 : Frequency and Percentage of the Demographic Variables of the People

N= 3662

Sl. No	Variables	Frequency	Percentage	Chi-square value
1	**Age in yrs**			
	50 – 55	1424	39	
	56 – 60	1001	27	**16.351**
	61 – 65	525	14	**0.090**
	66 – 70	320	9	
	>70	402	11	

2	**Gender**			
	Male	1464	40	**8.935**
	Female	2185	60	**0.348**
3	**Residence**			
	Rural	943	26	**67.383**
	Urban	2719	74	**0.000**
4	**Marital status**			
	Single	132	4	
	Married	3214	86	**27.792**
	Widow	302	8	**0.15**
	Divorced	14	2	
5.	**Life style habits**			
	Smoking	388	11	
	Alcoholic	419	11	**76.581**
	Tobacco – snuffing	85	2	**0.000**
	Chewing	90	3	
	none	2680	73	
6	**Other illness**			
	Yes	876	24	**36.821**
	No	2741	75	**0.001**
	May be	45	1	
7.	**Types of Illness**			
	Heart disease	862	24	
	Cancer	34	1	**146.970**
	Chronic kidney disease	94	3	**0.000**
	Stroke	42	1	
	Chronic Lung disease	210	6	
	Nil	2420	65	

Regarding the level of Blood Pressure, Majority of the adult population (77%) had 130 - 140 / 80 - 90 mm Hg, which proves that the blood pressure level of all the people have generally increased from 120 to 130/70 – 80 mm Hg. The data presented in Fig. 1.
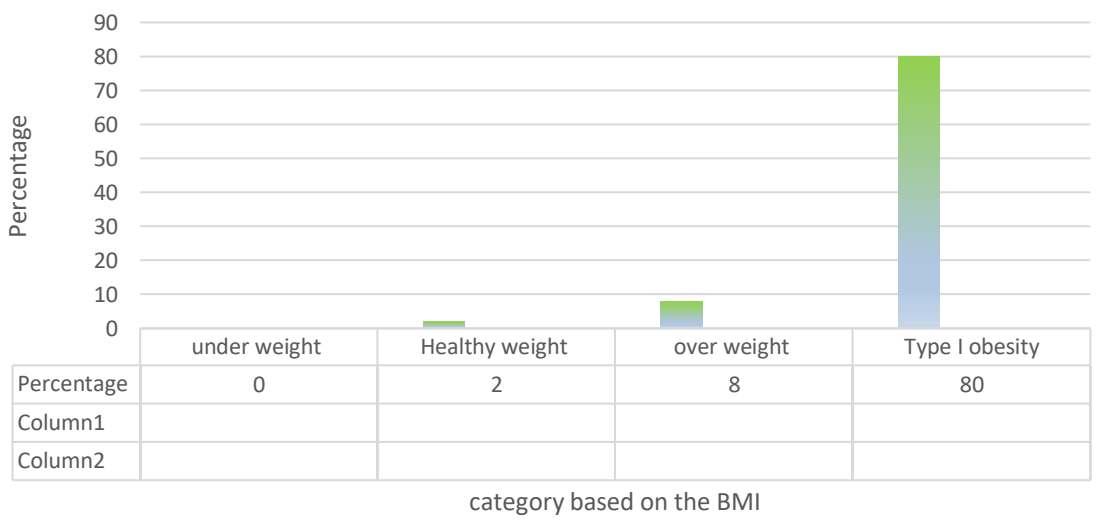
FIG 1 PERCENTAGE DISTRIBUTION OF ADULT POPULATION BASED ON THE BP RECORDING

■ < 120 / <70 mm Hg ■ 130 - 140 / 80 - 90 mm Hg ■ >140/>90 mm Hg ■

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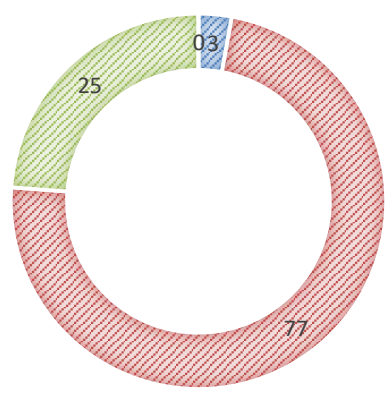
Regarding the level of BMI, majority of the adult population 80% belonged to the type I obesity based on their BMI. The BMI was 30 to 34.9. The data presented in Fig. 2.

FIG 2 PERCENTAGE DISTRIBUTION OF ADULT POPULATION BASED ON THE BMI

	under weight	Healthy weight	over weight	Type I obesity
Percentage	0	2	8	80
Column1				
Column2				

category based on the BMI

The frequency and percentage distribution of the overall knowledge of adult population regarding basic understanding about hypertension; majority of the adult population (79%) of them had moderately adequate knowledge regarding basic information regarding hypertension whereas inadequate and adequate knowledge regarding basic information regarding

hypertension score were (20%), 3(1%) respectively. Frequency and percentage of Knowledge data are presented in Table 2.

Table 2: Frequency and Percentage of Overall Knowledge regarding Hypertension among Adult Population N = 3662

Level of Knowledge	Frequency	Percentage
Inadequate knowledge	765	20
Moderately adequate knowledge	2894	79
Adequate knowledge	3	1

Regarding item analysis, majority of the respondents (78%) responded that the hypertensive patients must take lifelong medicines, both sexes are had equal chance of developing hypertension (93%), dietary pattern need to be followed to prevent hypertension (78%). Only Less than half of the percentage of the respondents responded correctly for all other knowledge related questions (44%) normal blood pressure level, (55%) for meaning of hypertension, hypertension reading (21%), lifelong disease (26%), treatable if diagnosed on right time (16%), risk factors (15%), regular exercise, walking etc. Prevention of hypertension (34%), high blood pressure causes dangerous disease (16%). Item-wise analysis of knowledge is presented in Table 3.

Table 3: Item wise analysis of the knowledge of adult population regarding hypertension N=3662

Sl.No	Items	Frequency	Percentage
1.	If your blood pressure is about 120/70	1588	44
2.	Hypertension means	2003	55
3.	If your blood pressure measures as 160/100 in two consecutive reading it is	756	21
4.	If you develop hypertension, it lasts for	934	26
5.	Person diagnosed with hypertension must take medicines	2855	78
6.	Both sexes have equal chance of developing hypertension	3400	93
7.	Hypertension is treatable if identified on right time	568	16

8.	The risk factors of hypertension include	534	15
9.	Regular exercises like walking, physical activities prevent hypertension	1256	34
10.	High blood pressures cause dangerous diseases namely, you can mark multiple option if applicable	567	16
11.	Which of the following dietary pattern need to be followed to prevent hypertension	2872	78

5. Discussion

With increasing urbanization, improved standards of living due to economic growth, associated lifestyle changes and an increasingly ageing population as a result of increased life expectancy. India is fertile ground for an increasing prevalence of NCDs. In addition, a health transition both in terms of demographic and epidemiological transition is rapidly taking place in India, with a shift from a predominantly young population to an increasingly ageing population, and from high morbidity and mortality due to acute, infectious and communicable diseases in the younger population to chronic non-communicable diseases in the adult population.

The background variables of the present study among adult population showed that many (39%) adults population belonged to the age of 50 to 55 yrs. Nation-wide cohort study conducted between 2017 to 2019 revealed that the estimated age for developing hypertension in India was found to be above 55 yrs. (49.5%) [13]. Most (60%) of the adult population were females and were residing in urban sector (74%). Similar findings were found in a cross-sectional study on prevalence of hypertension at urban Varanasi in 2017 revealed that a total of 640 study subjects were interviewed for the survey. Out of them, 301 (47%) were males and 339 (53%) were females [7]. Another study indicates the prevalence of hypertension at 19.04%. It was higher in females (23.4%) than males (14.4%). It was seen that prevalence of hypertension increased with age [14].

This urban–rural convergence of hypertension in India is due to rapid urbanization of rural populations with consequent changes in lifestyles (sedentariness, high dietary salt, sugar and fat intake) and increase in overweight and obesity. Hypertension prevention, screening and control, policies and programs, need to be widely implemented in India, especially in rural populations [15]. It is clear that in urban area with increased urbanization, rise in adult

population, mechanical life style, sedentary life, and dietary changes function together as a network of risk factors which affect people in urban area to have these type of NCD's.

With regard to life style habits majority of the adult population (73%) did not have any specific life style habits. Most (75%) of the adult population does not have any illness. Many, (24%) of the diseased people were found to have heart diseases. These findings were similar to the cross-sectional study conducted by Joshi et.al., (2012) in 10 Indian states revealed that a higher proportion of those with hypertension than those without hypertension had a personal history of ischemic heart disease, myocardial infarction, and stroke and a familial history of diabetes and hypertension, and this difference was significant (P < 0.0001)[16].

Regarding the level of blood pressure among adult population, majority of the adult population (77%) had 130 - 140 / 80 - 90 mm Hg, which proves that the blood pressure level of all the people have generally increased from 120 to 130/70 – 80 mm Hg. The grey area falling between 120–139 mmHg systolic BP and 80–89 mmHg diastolic BP is defined as "prehypertension" Though prehypertension is not a medical condition in itself, prehypertensive subjects are at more risk of developing HTN.

This showed that majority of the adult population are pre hypertensive based on the BP recording. Hypertension is a silent killer as majority of the adult population are most of the time symptomless during the pre-hypertensive stage but later, they land up with a severe medical crisis takes place like heart attack, stroke, or chronic kidney disease [8]. Since people are unaware of excessive blood pressure, it is only through measurements that detection can be done. The present findings were similar with the study conducted in Kerala where prehypertension was more prevalent among men in both young adults and older adults [17].

Majority of the adult population (80%) belonged to the type I obesity (BMI 30 to 34.9) based on their BMI. Among 3662 study participants, (86%) were married and (8%) were widows. This finding is contradicted in another study conducted by Schwandt (2010) when compared with married individuals, widowed individuals had higher BMI scores [18]. After adjusting for the effects of all other factors, people with higher body mass indices were at significantly higher risk of stage I and stage II hypertension. Compared to people whose BMI were at the lower quantiles (i.e. people with BMI 18.4 or lower), people whose BMI was in the highest quantile (BMI equal to or more than 25.6) were about 2.5 times at risk of stage I hypertension and nearly 3 times at risk for stage II hypertension [19].

There was a significant association between the area of residence (p= 0.000), life style habits (p=0.000), type of illness (p=0.000) and the level of knowledge of adult population at 0.0001 level. Similar findings were noted in the previous studies as majority of the study participants are from the urban area. Our study confirms the previous observations as the evidence point to urban residence, obesity, and alcohol use as some of the key drivers of the hypertension epidemic. In the urban population, with the help of bivariate analysis, increasing age, marital status (unmarried and widowed), educational status (middle school, high school, intermediate, and post high school diploma), joint family, history of hypertension in both parents, use of groundnut oil in cooking, high estimated per capita salt consumption, tobacco smoking, tobacco chewing, physical inactivity (sedentary and mild), being overweight (>23 kg/m^2), central obesity, high WC, diabetes, and hypercholesterolemia were found to be significantly associated with HTN[20].

The present study found that the majority 2894 (79%) of them had moderately adequate knowledge, 765(20%) of them had inadequate knowledge and 3 (1%) had adequate knowledge. The above findings were supported by a study of Sefah (2021) on Knowledge, Attitude and Lifestyle Practices Pertaining to Hypertension. The results revealed that more than half of the respondents (54.1%) had good knowledge regarding hypertension and they knew hypertension is a lifelong disease [21].

5.1. Strength and Limitation of the Study& Implications

Hypertension is one of the largest back up for the preventable deaths and diseases in India. It is a leading risk factor for cardiovascular disease. India has committed to take an array of actions to meet the Sustainable Development Goals (SDG) target of reducing premature mortality due to non-communicable diseases (NCDs) by one-third by 2030. However, vital part of the success in meeting this goal rest on its ability to check the rise of hypertension. The burden of hypertension in India is expected to rise considerably in the coming years due to rapid environmental and 'life-style changes.

Conclusion

To conclude, hypertension epidemic is spreading alarmingly in India across rural and urban populations. The hypertension is now becoming more prevalent among the poor in both urban and rural community. The rising hypertension prevalence among the least resourceful people has serious social and economic implications for the country and warrants immediate policy interventions to prevent the catastrophe. The district wise estimates on this condition should be used to plan for localized interventions so that the prevalence could be brought down significantly, which would help achieve the national target of 25% relative reduction in the prevalence of hypertension by 2025. The research study recommends screening of blood pressure through community home visits to track the changes in the blood pressure of the individuals above 40 yrs. This will help the community health nurse to emphasis on primary prevention of hypertension by educating and creating awareness on diet rich in fruits and vegetables, regular physical activity and weight control.

Conflict of Interest

There are no conflicts of interest to declare.

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