

PREVALENCE AND RISK FACTORS FOR HYPERTENSION AMONG YOUNG ADULTS LIVING IN URBAN COMMUNITY

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ABSTRACT

BACKGROUND: Hypertension, a major public health problem, globally 17.8 million deaths caused by cardiovascular disease in 2017. due to non-communicable diseases (NCDs) 42% and 58% due to hypertension. The prevalence of hypertension is increasing rapidly in developing countries like India especially urban areas due to changing life style and increasing longevity.

AIM: To estimate the prevalence of hypertension in young adults living in urban community, aged 18 to 39 years and to identify the risk factors associated with hypertension.

METHODS: A cross-sectional study was carried over a period of six months, comprising 378 subjects (18 to 39) in Chennai, India. Joint National Committee on prevention 7 guidelines (JNC7) was used for diagnosis of HT.

RESULTS: The hypertension prevalence was 31.1%. Pre hypertension was present in 39.1% (SBP 120-139 and/or DBP 80-89 mmHg). The prevalence increased with male 35.6% compared with female 24.2%. Almost 43.7% has family history of HT. 50.9% of the hypertensive subjects are smokers and 26.7% are nonsmokers.

CONCLUSION: Based on the study results prevalence of hypertension among young adults living in urban community is 31.1%. There is significant association of hypertension with age, family history, smoking, stress, increased Body Mass Index and Waist Hip Ratio.

KEY WORDS: Hypertension, Prevalence, Risk factors, Metropolitan city.

I. INTRODUCTION

Hypertension is one of the important risk factors for cardio-vascular mortality accounting for 25-30% of all deaths. In this situation with highly developed medical services to be provided in developing countries are comparatively less¹. HT is a "silent killer" because it remains silent without any symptoms but it may cause cardiovascular disease, chronic renal disease and stroke². Hypertension is a global problem affecting nearly 26% of adult population worldwide. The prevalence of hypertension is increasing rapidly in developing countries more in urban areas due to changing life style and increasing longevity. Studies in the urban Indian population suggest that up to 35 percent of the patients have high blood pressure³. About 33% urban and 25% rural Indians are hypertensive⁴. Overall, only one tenth rural and one fifth urban Indian hypertensive population has their blood pressure under control. The community-based screening can improve the detection of this silent killer.

Hypertension can be classified as primary or essential that is defined as a sustained elevation of blood pressure for which no specific cause can be identified. It accounts for 95% of all cases of hypertension. The exact etiology is unknown; however, evidences support that it has complex multifactorial origin. It results because of the close interplay between genetic and environmental factors and mechanisms for blood pressure control operating in the body. The Secondary hypertension is a term used when the causative agent/factor is responsible for high blood pressure. Secondary forms of hypertension are rare in the general hypertensive population; their incidence usually being estimated around 5%. In India, around 93-95% of persons have primary hypertension and 4-5% constitutes secondary hypertension. Among them renal causes constitute the largest group, followed by endocrinal causes and oral contraceptives.

The World Health Organization (WHO) for years have been promoting a STEP wise approach (STEPS) to chronic disease risk factor surveillance⁵. The prevalence of PT is very high among adults and rural adults are more affected than urban, probably due to higher awareness and control of HT among the urban population (6). The prevalence of Hypertension has been reported to range from 20% to 40% in urban adults and 12% to 17% among rural adults. The number of people with hypertension is expected to increase from 118.2 million in 2000 to 213.5 million in 2025, with nearly equal number of men and women⁷. There is a strong correlation between life style factors and increase in hypertension. The nature of genetic contribution and gene environment interaction in accelerating the hypertension epidemic in India needs more studies. Pooling of epidemiological studies shows that hypertension is present in 25% of urban and 10% of rural Indian population. At an underestimate there are 31.5 million hypertensives in rural and 34 million in urban population⁷.

So, this study is aimed at to estimate the prevalence of hypertension among young adults living in metropolitan city, Chennai, India and to identify the risk factors associated withhypertension.

II. METHODS

The study was conducted in the physiotherapy department of teaching hospital in Chennai, India. The study population comprised of people aged 18 to 39years residing in the urban community, Chennai, India. The study design was selected as community based cross-sectional study. The pregnant women, those not willing for the study and severely morbid patients were excluded for this study. All the participants were given proper orientation and advised to participate voluntarily after obtaining informed consent. The study was approved by institutional review board.

III. PROCEDURE

Measurement of Blood Pressure:

All the participants were explained about the procedure completely and make them understand that the recording of blood pressure is part of the research study. The proper sized cuff was selected for the participants to give an accurate reading. The test was performed when the participants were advised to take rest for at least five minutes to avoid false outcome of the reading.

A manual sphygmomanometer was used in this study a stethoscopewas placed over the artery then the cuff connected with the sphygmomanometer was inflated until the artery gets occluded and no sound was heard through the stethoscope than the valve of the hand bulb pump was slowly opened not more than 5 mm Hg / second to deflate the pressure until the point where a tapping sound was heard over the artery. This point was noted as the systolic pressure. The pressure in the cuff was released continuously until the point which the noise no longer heard this point was noted as diastolic blood pressure. The score was recorded as mm hg pressure. The reading at which korotkoff sound was first heard was considered as systolic blood pressure and at which the korotkoff sound disappears was taken as diastolic blood pressure. We used the average of two readings of SBP and DBP to describe the blood pressure of the participant. In cases where the two readings differed by over 10 mm of Hg, a third reading was taken and average of the three measurements wastaken.

Measurement of weight:

Body weight of the subject was measured without any footwear and with minimal clothing to the nearest of 0.5 Kilograms using a standard portable weighing machine

Measurement of height:

Height was measured (to the nearest 0.5 cm) with the subject in an erect position against a wall.

BMI=Weight in kilograms/height in square meters.

Measurement of waist and hip circumference:

The subjects were made to relax and take a few deep, natural breaths before the actual measurement is made, to minimize the inward pull of the abdominal contents during the waist measurement. Subjects were made to stand erect with arms at the sides, feet positioned close together. **Waist circumference** was measured at the level of the umbilicus. **Hip circumference** measurement was taken around the widest portion of the buttocks and **Waist Hip Ratio (WHR)** was calculated and central obesity was assessed according to ICMR standards.

IV. RESULTS

The data collected for this study were edited, classified systematically tabulated, analyzed and interpreted. Analysis and interpretation of data is the major step in the process of research. Analysis of data involves breaking down existing complex factors into simpler parts put together in new arrangements for the purpose of interpretation.

TABLE 1: Distribution of study subjects according to age and gender

Age (in years)	Gender		Total (N=378)	Percentage
	Female	Male		
<20	11	21	32	8.4%
20-29	85	119	204	53.96%
30-39	77	65	142	37.5%
Total	173	205	378	100%

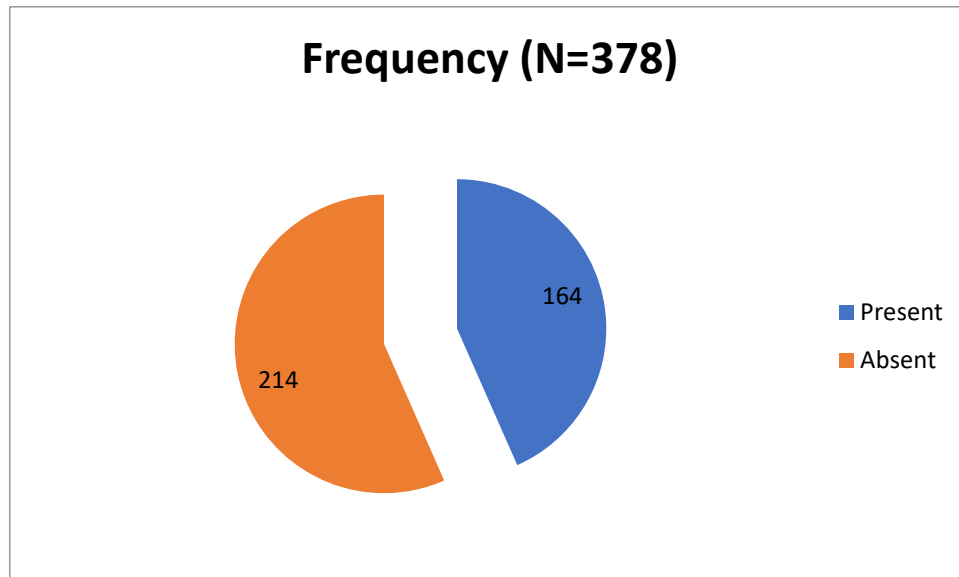
Table 1 indicates the mean age of the subjects is 29.3±10 years. Nearly 54% of the subjects were in the age group 20-29 years and 37.5% of the subjects were in the age group ≥ 30 years. 54.2% of the subjects were males and 45.7% were females.

Table 2: Distribution of the subjects according to the educational status

Education	Frequency (N=378)	Percent
High school	134	35.4%
Intermediate/post high school	95	25.1%
Diploma courses	63	16.6%
Bachelor degree	89	23.5%
Higher education	62	16.4%
Total	378	100%

Table 2 shows the education wise distribution of the subjects 134 (35.4%) are high school educated, 95 (25.1%) are intermediate/post high school educated, 63 (16.6%) are diploma holders, 89 (23.5%) are completed bachelor degree and 62 (16.4%) are graduated with higher education course.

Graph 1 Distribution of family history of hypertension



The inference of table 3 indicating that 164 (43.7%) have a family history of hypertension and 214 (56.6 %) did not had family history of hypertension.

Table 3: Distribution of study subjects according BMI

BMI	Frequency (N=378)	Percent
Underweight	21	5.5%
Normal	137	36.2%
Overweight	89	23.5%
Class I Obesity	72	19%
Class II Obesity	38	10%
Class III Obesity	21	5.5
Total	378	100%

Inferences of table 3 indicating that 34.6 % of the subjects are obese and 5.5 % are under weight. Also 23.5 % are classified as overweight among the total population.

Table 4: Distribution of study subjects according their central obesity (Weight Hip Ratio)

WHR	Frequency	Percent
Female >0.8	103	59.5%
Male >0.9	76	37%

In this study, 59.5% of females and 37% males were having central obesity (Table-4).

Table 5: distribution of subjects based on blood pressure

Classification of BP	Frequency (N=378)	Gender		Percentage
		Male	Female	
Normal	112	59	53	29.6%
Pre-hypertension	148	73	75	39.1%
Stage - I hypertension	85	52	33	22.4%
Stage - II hypertension	33	21	12	8.7%
Total	378	205	173	100

In this study, 29.6% were having normal BP. 39.1% were having pre hypertension (SBP 120-139 and/or DBP 80-89 mmHg). 22.4% were having stage I HTN (SBP 140-159 mmHg and/or DBP 90-99 mm Hg). 8.7% of the subjects were having stage II HTN (SBP >160 mmHg and/or DBP > 100 mm Hg) giving a prevalence of **31.1%** (22.4% stage I HTN and 8.7% Stage II HTN). The prevalence of hypertension was more in males 35.6% and 24.2% were females (Table-5).

V. DISCUSSION

The present study was undertaken with the aim of identifying the prevalence of hypertension and risk factors among younger adult aged between 18 to 39 years living in urban community. Further, the findings of the present study speculates that out of 378 adults screened for hypertension using JNCVII guidelines (SBP \geq 140mm Hg and / or DBP \geq 90mm Hg) 118 were found to have hypertension and giving a prevalence rate of 31.2%. The prevalence of hypertension was found more in male's adults 35.6% when compared with 24.2% of female adult population. Also, 39.1% total populations of this study group are identified with pre hypertension. In reference with BMI, 34.6 % of the subjects are obese and 5.5 % are under weight and 23.5 % are classified as overweight among the total population in this study. Majority of the study subjects 56.6% do not have family history of hypertension.

The gender differences in hypertension prevalence and control were identified among Korean adults. The females were more likely to have hypertension and less likely to maintain hypertension control than males of the same age range^{8, 9}. The prevalence of both prehypertension and hypertension is very high in urban community in Varanasi. This makes the people vulnerable to many chronic diseases and other serious health consequences. Specifically men are at more risk of being hypertensive than female. Increasing age is proved to be an independent risk factor for hypertension¹⁰. It was identified that there is a high prevalence of hypertension, with almost one in every three Indian adult affected¹¹. The age-adjusted prevalence of hypertension among persons aged 15–49 for the year 2015–2016. The prevalence of hypertension in India was 11.3% and the prevalence was four percentage points higher in men (13.8%) than in women (10.9%). Hypertension prevalence was 12.5% in urban, compared with 10.6% in rural location¹². Our group has conducted research relevant to physiotherapeutic intervention on various neurological and musculoskeletal ailments¹³⁻²², and warrants further experimental research by our group in signifying the results.

VI. CONCLUSION

Based on this study results prevalence of hypertension among young adults living in urban community is 31.1%. The prevalence of hypertension was found more in male adults 35.6% when compared with 24.2% of female adult population. Also, 39.1% total populations of this study group are identified with pre hypertensive. There is significant association of hypertension with age, family history, increased Body Mass Index and Waist Hip Ratio. Further, this study recommends providing necessary measures to improve the living conditions for 'life-style' changes.

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