

Original article

A study on prevalence of hypertension in urban slum field practice area of osmania medical college – Hyderabad

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Abstract

Background: Hypertension is now one of the most common non-communicable diseases globally. It is one of the most leading causes of death due to cardiovascular diseases and stroke. More alarming, conservative estimates indicate that the global burden of hypertension will increase to more than 1.56 billion by 2025. Its prevalence is increasing in countries undergoing economical transition.

Objective : To assess the prevalence of hypertension in Urban field practice area of Osmania Medical College.

Methods: Data was collected using a pre-tested, structured questionnaire from a total of 250 people.

Results: Out of 250 sample, 195 are females and 55 are males. Prevalence of Hypertension was found to be 30.42% among males it is 34.54% and females it is 29.34%. Statistical significance was observed between Hypertension and increasing age, severity, illiteracy, sedentary group and non-smokers.

Conclusion: There is still need for increase in IEC and BCC activities in terms of awareness regarding risk factors of hypertension, complications and adherence to treatment.

Key words: Prevalence, Information Education Communication, Behaviour Change Communication, Economical Transition.

Introduction

Hypertension is a leading public health challenge globally due to its high prevalence and related morbidity and mortality. An estimated 978 million adults, or 28% of the world's adult population, had uncontrolled hypertension in 2008¹. More alarming, conservative estimates indicate that the global burden of hypertension will increase to more than 1.56 billion by 2025. As the most important modifiable risk factor for cardiovascular disease and all-cause mortality, high blood pressure was responsible for approximately 7.6 million deaths globally, or 13.5% of all deaths, in 2001.¹

Although the prevalence of hypertension is generally higher in economically developed countries, due to larger population sizes, the absolute number of individuals with hypertension is higher in developing regions of the world. Kearney *et al.* estimated that 639 million hypertensive patients reside in economically developing countries compared with only 333 million in economically developed regions of the world. Hypertension has also emerged as a leading risk factor for morbidity and mortality in developing regions, responsible for over 6 million deaths in low and middle-income nations in 2001.²

However, very few studies have been conducted to estimate the national and regional prevalence of hypertension in India, the second largest country in the world¹. Kearney *et al.* estimated a national prevalence of approximately 20% among Indian adults in 2000.²

Furthermore, since this time, India has experienced rapid economic development and urbanization. The dietary pattern and lifestyles in India have dramatically changed. Specifically, Indians consume more fat, meat products and salt, less complex carbohydrates, fruits and vegetables, and engage in lower amounts of physical activity.³

Given the rapid epidemiologic transition that India is undergoing, updated estimates of hypertension prevalence are needed to understand the country's quickly changing cardiovascular risk profile.

In this month's *Journal of Hypertension*, Anchala *et al.* report findings from their meta-analysis of population-based studies on the prevalence, awareness, treatment and control of hypertension in India. They reported an overall hypertension prevalence of 29.8%, indicating that as many as 378.5 million Indian adults may suffer from hypertension. Although not directly comparable, these data suggest a substantial increase in hypertension prevalence since the year 2000 estimates of 20%. These estimates are very similar to the current hypertension prevalence estimates from high middle-income countries such as China (33.7%) and high-income countries such as the United States (29.0%), but higher than other low middle-income nations such as Vietnam (25.1%). Anchala *et al.* are also the first to provide hypertension prevalence estimates according to urbanization status and region in India. In this report, the prevalence of hypertension was 21.1 and 31.8% in rural and urban South India,

respectively. Overall, the prevalence of hypertension was significantly higher in urban than in rural region. These findings indicate that better strategies for the detection and control of hypertension are urgently needed in India. Anchala *et al.* also reported that age, alcohol consumption, smoking and chewing tobacco, BMI, central obesity, low intakes of dietary fruits and vegetables, high intakes of dietary fat and salt, and sedentary activity were significant risk factors for hypertension in India. These risk factors are consistent with findings from etiologic and interventional studies reported extensively worldwide. Lifestyle intervention strategies, such as sodium reduction and weight loss, could aid in the primary prevention of hypertension in this population.⁵

The theme for World Health Day (WHD) 2013 is "high blood pressure".⁶ The goal of WHD 2013 is to reduce heart attacks and strokes. Keeping in line with the WHO-Government of India Country Cooperation Strategy, the WHD 2013 events in India are aimed at raising the awareness amongst national policymakers, program managers and other stakeholders on the need to strengthen the Indian health system to make it competent enough to respond to hypertension and related co morbidities⁶.

Hypertension is a controllable disease and it has been reported that targeted reductions in people with hypertension are expected to produce large reductions in the burden of cardiovascular disease^[4]. According to the seventh report of the Joint National Committee (JNC-7) on prevention, detection, evaluation and treatment of high blood pressure, adoption of healthy lifestyles by all individuals is critical for the prevention of high blood pressure. Accurate estimates of hypertension are therefore necessary to plan effective control measures⁶.

Challenge ahead

The high prevalence of hypertension in the urban and rural population in India presents a formidable challenge to the Indian health system. In countries like India, the out-of-pocket expenditures incurred for non-communicable diseases (NCDs) like hypertension are high, which hits the impoverished households the most. Medicines for these chronic diseases account for a large portion of expenditure. Therefore, population based prevention strategies have a high impact and are cost-effective as these target lifestyle change. Interventions utilizing the power of public policies for reducing salt, fat, sugar and alcohol intake through regulatory and consumer education approaches; increasing physical activity through sound urban planning and creation of activity-promoting environments; increasing fruit and vegetable intake through appropriate agricultural and pricing mechanisms; and implementing comprehensive tobacco control have the potential to prevent a large proportion of disease events in the whole population.⁷

Furthermore, hypertension control provides an entry point to deal with other NCDs as any intervention will help to concomitantly address other NCDs as well. This has been taken into cognizance in the newly launched National Programme for Prevention and Control of Cancer, Diabetes, Cardiovascular Diseases and Stroke (NPCDCS), which has hypertension and diabetes as the main focus areas. National strategies will focus on prevention and health promotion as the key to reduce disease burden. Health education programs that promote exercise, weight reduction, early diagnosis and screening are some of the key interventions that will be promoted at various levels of health facilities. Under the NPCDCS, the strategy for early diagnosis of chronic

NCDs will consist of opportunistic screening of persons above the age of 30 years at the point of primary contact with any health care facility. The NCD clinics mandated under NPCDCS could be leveraged to facilitate guidelines based hypertension management.⁸

Aims and objectives

- 1.To study the prevalence of hypertension in urban field practice area of Osmania medical college.
- 2..To study the socio-demographic profile of adults in the age group above 20 yrs of age.
- 3.To study the risk factors of Hypertension in the sample .

Material and methods

STUDY DESIGN-Cross-sectional study

INCLUSION CRITERIA: All persons above 20yrs of age with known hypertension taking treatment or no measurement. Cut-Off point is taken as 140/90mm of Hg.

EXCLUSION CRITERIA: All persons below 20yrs of age and those who are not willing to participate are excluded.

STUDY SAMPLE: Calculated by taking prevalence as 30% according to the study by Anchela et al by formula $4pq/L^2$, and relative error taken as 20% so sample size is 250.

STUDY SETTING: Urban Slum field practice area of Osmania medical College –Hyderabad.

DATA COLLECTION: Through house to house survey and Predesigned, Pretested Structured Questionnaire, after taking informed consent.

STUDY DURATION: Three Months.

STUDY VARIABLES: Socio-Demographic profile and Risk Factors of Hypertension.

This is a community based cross-sectional study done for a period of three months from October 2014 to January 2015.This study was planned in the urban

field practice area of Osmania Medical College-Hyderabad .House to house survey was done .

Urban area was selected because prevalence of hypertension is on the rise in urban South India.

Door to door survey was done and houses were selected by using simple random sampling by lottery method .Informed consent was obtained from each of the subject .A thorough clinical exam was performed,

and data was collected through predesigned pretested questionnaire and blood pressure was recorded using Omron sphygmomanometer .Three readings were taken with a gap of 5 min and average reading was recorded. All people above 20 yrs of age in the house were examined and data collected.

Initially a pilot study was done on 30 subjects to test the questionnaire.

Results:

Socio-Demographic profile:

AGE	NUMBER	PERCENTAGE
20-30	64	25.46
31-40	62	24.89
41-50	50	19.81
51-60	37	14.99
61-70	34	13.72
>70	3	1.13
GENDER		
Male	55	22
Female	195	78
OCCUPATION		
Professional	3	1.2
Semi-professional	1	0.4
Clerical	25	10
Manual Skilled	52	20.8
Unskilled	169	67.6

MARITAL STATUS		
Married	217	86.8
Others	33	13.2
RELIGION		
Hindu	230	92
Muslim	13	5.2
Christian	4	1.6

Others	3	1.2
EDUCATION		
Illiterate	120	48
Literate	130	52
TYPE OF FAMILY		
Nuclear	140	56
Joint	74	29.6
Three generation	36	14.4
SOCIO-ECONOMIC STATUS		
Upper	7	2.8
Upper middle	17	6.8
Lower middle	123	49.2
Upper lower	81	32.4
Lower	22	8.8

2. PREVALENCE AND RISK FACTORS OF HYPERTENSION:

Prevalence:

Hypertension	Males		Females		Total	
Hypertensives	19	34.54%	57	29.34%	76	30.42%
Normotensives	36	65.45%	138	70.66%	174	69.58%
Total	55		195		250	100

SEVERITY OF HYPERTENSION	NUMBER	PERCENTAGE
Mild	17	22.36
Moderate	28	36.84
Severe	31	40.78
DURATION OF HTN		
>10yrs	6	7.89
5-10yrs	28	36.84
<5yrs	42	55.26
FAMILY H/O HTN		
Yes	128	51.2
No	122	48.8

The present study was conducted at Harrazpenta which is an urban slum field practice area of Osmania

Medical college –Hyderabad. A total of 250 people in the age group above 20 yrs were studied out of whom

22% were males and 78% were females. Maximum number of them were in the age group 20-30yrs and lowest below 70yrs.

Majority of the people are Hindus 92%, followed by Muslims 5.2% and Christians 1.6%. 86.5% of them are married. 48% of them are illiterates and among the literates 24.62% studied till middle school. Occupation wise 68% of them are unskilled and housewives. Most of them live in nuclear families 56%. About socio-economic status 49.2% belong to lower middle class and 32.4% in upper lower.

Prevalence of hypertension in the present study is 30.42%, among males it is 34.54% and females 29.34%. 55.26% have hypertension since less than 5 yrs. Regarding family history of hypertension 51.2% said they have a family history in parents, siblings and first cousins.

Among the modifiable risk factors of hypertension Obesity was present in 6%. In females Truncal obesity is 37.5%. Sedentary activity is present in 35% of the subjects. 80% of them take mixed diet. 15% of the study subjects take more than one tablespoon of salt per day. Since these are Indian families and belonging to low socio-economic status consumption of pickles and pappads is more 68%. More fat intake 70% is present in the people. 49% of them use groundnut oil for cooking food. Seasonal fruits and vegetables are consumed by 70% of people.

Stress is present in 53% of the study subjects. 24.6% of the study subjects are smokers, 44% chew tobacco in many forms and 20% of males are alcoholics. Among females 30% have used oral contraceptive pills. 33% of the study subjects have a family history of cardiovascular disease. 27% of the study subjects are suffering from cardiovascular diseases.

Discussion

In the present study, majority of patients are in the age group of 20-30yrs (25.46%). Among the total study population of 250,195 (78%) are females and 55 (22%) are males. But in a study conducted among company employees in Italy 78% were males and 22% were females.¹⁵ This is almost in contrast to our study where 78% are females and 22% are males. The disparity between males and females in our study may be due to males going for work during day time and investigation was done.

Occupation wise 67.6% of the total population is unskilled and 36.77% of males are manually skilled and 72.46% of females are unskilled/housewives. This is more when compared to a study done by **Justin Zaman et al**⁹ in rural Andhra 6.7% of males are manually skilled and 52.2% of females are unskilled. The difference is because of the difference in study settings (Urban and Rural). Majority of males are autodrivors, welders, plumbers and car mechanics. And females are housewives.

In our study 86.8% of the population is married and 7.36% are widowed/widowers, 4% are unmarried and 2% are separated. This is almost similar to study conducted by **R.Gupta et al**¹⁰ 85.6% of the study subjects were married. Since marriage is a universal issue, majority of people are getting married by 20yrs of age, because the study setting is an urban slum

-Among the study subjects 92% are Hindus, Muslims, 5.2%, 1.6% are Christians and 1.2% are others (Sikhs, Jains). Since the areas come under old city of Hyderabad, and they are field practice areas of Osmania Medical College.

Out of the total study subjects 48% are illiterates, among males 41.29% are illiterates and 50% of females are illiterates. which is similar to a study

done by **Sowmya Deb et al**¹¹ 45% of the population was illiterate. In the present study 56% of study subjects belong to nuclear family .In this study 49.2 % of subjects belong to lower middle class followed by upper lower(32.4%)

In this study the prevalence of hypertension is 30.42% in the total population ,among males it is 34.54% and in females it is 29.34% . It is more when compared to studies done in **Tirupati**¹² (20.93%) ,**Kumbkarni et al**¹³ (16%) ,**Kutty et al**¹⁴ (17.8%) ,**Yajnik.C.**¹⁵ (14%) but less when compared to studies done by **Gupta .R .et al**¹⁶ (36.4% in males and 37.7% in females) ,**Lanas et al**¹⁷ (39.7% in males and 21.8% in females) ,but it is almost similar to study in **CHINA**¹⁸ (09% in men and 24.79% in women) ,**JNC-V criteria**¹⁹ (30% men and 33% women). This may be because of the evolving trend of hypertension as an epidemic even in urban slums

In this study 40.78% of the total subjects have high hypertension , 36.84% have moderate and 22.36% have mild hypertension which is in coincidence with a study performed in Chile²⁰, on prevalence of risk factors of CVD in office employees observed that high BP in 39.7% men and 21.8% women

In the total study subjects 51.34% have a family history of hypertension in parents , siblings and first cousins .This shows the nonmodifiable risk factor like genetic predisposition is positive in more than half of the population. Among females truncal obesity is present in 37.5% which is more when compared to males (25.8%). In the present study , 61.81% consumes less than one table spoon of salt per day ,25.17% one table spoon of salt and 13.01% consume more than one table spoon .It was shown in **intersalt**²¹ study that extra salt intake is associated with hypertension ,which in turn is an important risk factor for CVD.

With regard to consumption of pickles/pappads 70% eat once a week .Since pickles and pappads contain more salt this could be a risk factor for hypertension .-Among the study subjects 63% consume more fat and 30.41% consume less fat. With regard to the usage of cooking media 42% use ground nut oil .- Among the study population 53.46% are suffering from stress which is a modifiable risk factor.- Smoking is present in 22.48% in total subjects .This shows the addiction of people to different things .Among the total study subjects 10% are alcoholics . In our study 29.34% of women have a history of taking oral contraceptive pills. According to **Health News**. Some formulations of oral contraceptives, which contain a mix of estrogen and progesterone, can double a woman's risk of having a heart attack or stroke .31.25% of the total study subjects have a family history of cvd.

Prevalence of Hypertension between different age groups is statistically Significant at Chi-square at $P < 0.05$. In higher age groups, prevalence of Hypertension is high when compared with lower side of the age groups. Severity of Hypertension is high in the people having more than 50 years which is statistically significant at $P < 0.05$.

Family History with respect to Hypertension is playing a major role in the present study which is statistically Significant at $P < 0.05$. In the present study prevalence of Hypertension is high in 'Illiterates' which is statistically Significant at $P < 0.05$. This could be due to less knowledge of illiterates about risk factors of hypertension and poor health seeking behavior.

Hypertension is high in 'Sedentary Group' which is statistically Significant at $P < 0.05$. In previously sedentary hypertensive subjects, clinically significant decreases in BP can be achieved with relatively

modest increases in physical activity above sedentary levels and that the volume of exercise required to reduce BP may be relatively small that should be reasonably attainable by a sedentary hypertensive population.

Limitations of the study were that since there was a time and manpower constrain the study was conducted in a small sample at field practice area.

Conclusions:

Prevalence and Severity of Hypertension is more in males compared to females because men have more associated risk factors like smoking ,alcohol and stress. Half of the population have family history of hypertension which shows a genetic predisposition to hypertension. Severity and prevalence of hypertension is increasing with age ,can be

References:

1. World Health Organization. Global Health Repository. Available from: http://www.who.int/gho/ncd/risk_factors/blood_pressure_prevalence_text/en/index.html. Last accessed April 24, 2013.
2. World Health Report-2002. Reducing Risks, Promoting Healthy Life. Chapter 4, p-12. Available from: http://www.who.int/whr/2002/en/whr02_ch4.pdf. Last accessed April 24, 2013.
3. Available from: <http://www.who.int/world-health-day/en/>. Last accessed April 24, 2013.
4. Rodgers A, Lawes C, MacMahon S. Reducing the global burden of blood pressure-related cardiovascular disease. *J Hypertens Suppl.* 2000;18:S3-S6.[PubMed]
5. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL, Jones DW, Materson BJ, Oparil S, Wright JT. The Seventh Report of the Joint National Committee on Prevention, Detection, Evaluation, and Treatment of High Blood Pressure: the JNC 7 report. *JAMA.* 2003;289:2560-2572.[PubMed]
6. Padmavati S. Prevention of heart disease in India in the 21st century: need for a concerted effort. *Indian Heart J.* 2002;54:99-102.[PubMed]
7. Equity and Development. A co-publication of the World Bank and Oxford University Press. .
8. Gupta R, Pandey RM, Misra A, Agrawal A, Misra P, Dey S, Rao S, Menon VU, Kamamma N, Vasantha Devi KP. High prevalence and low awareness, treatment and control of hypertension in Asian Indian women. *J Hum Hypertens.* 2012;26:585-593.[PubMed] [DOI]
9. Alberti KG, Zimmet PZ. Definition, diagnosis and classification of diabetes mellitus and its complications. Part I: Provisional report of a WHO consultation. *Diabet Med* 1998;15:539-53.

considered as an epidemic with long incubation period. Prevalence is more in illiterates and in urban areas because of less knowledge in illiterates and changing pattern of lifestyle in urban living. Predisposing factors noted are obesity ,stress and sedentary lifestyle, in urban areas. Increase in addictions like smoking and alcohol also lead to increase in hypertension.

Recommendations :

There is need for increase in IEC and BCC activities regarding healthy lifestyle, diet etc. Hypertensives should be advised for regular health checkups ,diet and diagnostic tests, Strengthening of health services for hassle free checkups.

- 10 **Shyamal Kumar Das**,¹ **Kalyan Sanyal**,² and **Arindam Basu**. Study of urban community survey in India: growing trend of high prevalence of hypertension in a developing country. *Int J Med Sci.* 2005; 2(2): 70–78. Published online 2005 April 1. **PMCID:** PMC1145137²
11. Soumya Deb and Aprajita Das Gupta. A study on risk factors of cardiovascular diseases in an Urban Health Centre of Kolkata. *Indian journal of community medicine.* 2008 October; 33(4): 271-275.
12. Subramanyam G, Latheef SA. Epidemiological study of coronary heart disease and coronary risk factors in the urban population of Tirupati. *Indian Heart Journal* 2002; 54(5) :535-36.
13. Kumbkarni S, Mohan B, Aslam N, Midha KK, Sood NK, Wander GS. Prevalence of risk factors of coronary artery disease in a healthy urban population of Punjab. *Indian Heart Journal* 2002; 54(5):587-89.
14. Bhuri Panyo K, Mahananda N, Leowaltana W, Kangkagate C, Chaithriaphan S, Krittayapeng R, et al. A five year prospective study of conventional risk factors of coronary artery disease in Shinawatra Employees: a preliminary prevalence survey of 3,615 employees. *J Med Assoc Thai* 2000; 83(2):98-05
15. Yajnik CS. The lifecycle effects of nutrition and body size on adult adiposity, diabetes and cardiovascular disease. *Newer horizons in type 2 Diabetes* 2003. Micro labs limited, Bangalore. p175
16. Rajeev; Gupta, Soneil; Gupta, Vijay P.; Prakash, Hari. Prevalence and determinants of hypertension in the urban population of Jaipur in western India. Department of Medicine,.
17. Macanas E, Abellan J, Benages A. The detection of coronary risk factors in the working population at the university of Murcia. *An Med Interna* 1989; 6(8):402-6
18. Yang ZJ, Liu J, Ge JP, Chen L, Zhao ZG, Yang WY; Prevalence of cardiovascular disease risk factor in the Chinese population: the 2007-2008 China National Diabetes and Metabolic Disorders Study China National Diabetes and Metabolic Disorders Study Group. *Eur Heart J.* 2012 Jan; 33(2):213-20. doi: 10.1093/eurheartj/ehr205. Epub 2011 Jun 30.
19. Mohan V, Deepa M, Farooq Syed, Datta M, Deepa R. Prevalence, awareness and control of Hypertension in Chennai - The Chennai Urban Rural Epidemiology Study (CURES – 52). Madras Diabetes Research Foundation, Dr Mohan's Diabetes Specialities Center, Gopalapuram, Chennai, India. *J Assoc Physicians India.* 2007 May; 55:326-32. <http://www.ncbi.nlm.nih.gov/pubmed/17844691>
20. Lanas F, Delsolar J, Maldonado M, Guerrero MA, Espinoza F. Prevalence of risk factors to cardiovascular disease in group of Chilean employees. *Rev Med Chil* 2003; 131(2): 129-34
21. J J Carvalho, R G Baruzzi, P F Howard, N Poulter, M P Alpers, L F Marcopito, V J Spooner, A R Dyer, P Elliott. Blood pressure in four remote populations in the INTERSALT Study. Hypertension Ambulatory Unit, Central Navy Hospital, Rio de Janeiro, Brazil. *Hypertension.* 1989 Sep; 14(3):238-46. <http://www.ncbi.nlm.nih.gov/pubmed/2767757>. Accessed on 2013-july25
22. Chadha SL, Gopinath N, Shekhawat S. Urban-rural differences in the prevalence of coronary heart disease and its risk factors in Delhi. *Bulletin of the World Health Organization* 1997; 75(1):31-8.