Section: Community Medicine

Original Research Article

A STUDY ON PREVALENCE OF HYPERTENSION AMONG THE ADULT MALE POPULATION IN URBAN SLUMS OF NAGAON TOWN, ASSAM

Shaheen Rahman[1], Madhurjya Baruah[2], Arpan Mazumder[3], Mousumi Krishnatreya[4]

[1]Associate Professor, Department of Community Medicine, Nagaon Medical College and Hospital, Nagaon, Assam, India
[2]Assistant Professor, Department of Community Medicine, Nagaon Medical College and Hospital, Nagaon, Assam, India
[3]Associate Professor, Department of Forensic Medicine, Nagaon Medical College and Hospital, Nagaon, Assam, India
[4]Professor & HOD, Department of Community Medicine, Nagaon Medical College and Hospital, Nagaon, Assam, India

Received : 20/11/2024
Received in revised form : 08/01/2025
Accepted : 24/01/2025

Keywords:
Hypertension, Adult male, Urban slum, Assam.

Corresponding Author:
Dr. Arpan Mazumder,
Email: drarpan07@gmail.com

DOI: 10.47009/jamp.2025.7.1.95

Source of Support: Nil,
Conflict of Interest: None declared

Int J Acad Med Pharm
2025; 7 (1); 494-497

Abstract

Background: Very few studies have been conducted regarding hypertension in the urban slum dwellers in this part of the country. Hypertension is highly prevalent in India. In the phase of epidemiological transition, cardiovascular diseases especially hypertension is also emerging transition as a major health problem in Assam. Moreover, studies conducted in different parts of the country have shown an increase in the prevalence of hypertension. Therefore, there is a wide scope to study the epidemiological parameter of hypertension in the urban slums of Nagaon Town among the adult male population of slum dwellers. The study is also expected to highlight the various strategies for prevention and control of hypertension in slum areas. The objective is to study the prevalence of hypertension among the adult male population aged 18 years and above residing in urban slums of Nagaon Town and their associated risk factors. **Materials and Methods:** The present community based cross-sectional study on male adult population 18 years and above was carried out from 1st June,2024 to 31st August,2024 based on simple random sampling with the sample size of 363 adult males of Nagaon Town. **Result:** The overall prevalence of hypertension was highest in the age group 58 years and above (91.7%), among graduates and above (78.9%), in the per capita income group of Rs 8822 and above (43.5%) and among daily wage earners (43.5%) followed by businessman (25.8%) and skilled workers (22.6%). Prevalence of hypertension was significantly higher among tobacco users (smoking tobacco 58.1%, smokeless tobacco 82.3%). Again, physical activity and hypertension were significantly associated. Hypertension among those males who do not do physical activity was 66.13%. But alcohol and per capita salt consumption were not significantly associated with hypertension. Chi-square tests were done to evaluate the result. **Conclusion:** The prevalence of hypertension among adult males are significantly associated with age group, education, per capita income, occupation, tobacco uses and physical activity whereas it is insignificantly associated with alcohol and per capita salt consumption.

INTRODUCTION

Hypertension the commonest cardiovascular disorder, has become an important public health problem worldwide. It is considered to be the result of genetic predisposition and environmental factors and usually occurs in conjunction with other metabolically linked risk factors. Overall, 26.4% (972 million) of the global adult population was estimated to have hypertension in the year 2000 based on a pooled analysis of available national and regional data by Kearney et al.[1] The report by Kearney et al,[1] also stated that the estimated number of hypertensives in developing countries out weighted that of developed countries by almost two-fold (639 million in developing countries versus 333 million in developed countries. In a meta-analysis of 34 epidemiological studies,[2] from rural and urban population of India, it was observed that hypertension is emerging as a major public health problem in India and is more prevalent among urban population compared to rural area.

Hypertension is a leading risk factor for cardiovascular disease, which accounted for 23% of total deaths and 32% of adult deaths in 2010-2013.[1] An alarming rise in hypertension projected by the Global Burden of Hypertension 2005 study and GBD 2010 study portrays a grim picture for the Indian population.[1] Hypertension is a major cause of premature death worldwide. One of the global targets is to reduce the prevalence of hypertension by 33% between 2010 and 2030.[3]

The study by Kishore et al,[4] shows that the prevalence of hypertension was significantly higher in individuals more than 35 years as compared to those less than 35 years. Important modifiable risk factors [i.e. low physical activity, obesity {body mass index (BMI) >23.00)}], and abdominal obesity [waist circumference >90 cm for males and > 80 cm for females], having diabetes mellitus (DM), addition to tobacco and alcohol, additional salt intake, mental stress, and family history of hypertension) were taken into consideration. Proportion of hypertensives increased gradually with increase in member of risk factors. The least number of hypertensives was observed with no risk factors present, while proportion was maximum (34.7%) among those having four modifiable risk factors (P<0.05). There is a strong correlation between changing life style factors and increase in hypertension in India. It has been seen that migration of rural population to cities and their settlement in urban slums exposes them to several adverse environmental influences and lifestyle alterations like decreased physical activity, changes in eating habits, exposure to stress, increases in smoking, tobacco chewing, alcohol intake, etc. As the slum population has less exposure to health services target population are the adult males in slums to know the disease problem. Thus, keeping in view of all these facts and realizing the need for such a community-based data, the present study has been undertaken in urban slums of Nagaon Town, Assam.

MATERIALS AND METHODS

Study Design: Community based cross-sectional study

Study Area: Urban slums of Nagaon Town, Assam

Study Period: 1st June, 2024 to 31st August,2024

Study Population: Adult males 18 years and above

Sample Size: The sample size was calculated out to be 363 by taking the prevalence of hypertension among men (21.6%) as per NFHS 5, relative error of 20% with 95% confidence interval by using the formula (n=4pq/L2). Out of 22 slums in Nagaon town, 3 slums (Islampatty slum, Chakitup slum and Bhuyyanpatty slum) were chosen randomly and accordingly, 121 adult males were selected from each slum for the study.

Inclusion Criteria

All adult males 18 years and above residing in the 3 urban slums of Nagaon Town for more than 6 months and who will give consent.

Exclusion Criteria

1. Adult males who do not give their consent and volunteer for the interview even after adequate briefing and rapport building.
2. Adult males, who are living with some known psychiatric morbidity or critical illness.

Data Collection Tools: Data was collected by using pre-designed, pre-tested interview schedule followed by physical examination (Using mercury sphygmomanometer, stethoscope, weighing machine and measuring tape)

Method of Data Collection: The respondents were carefully briefed prior to the commencement of the field work regarding purpose of the study so as to get their full co-operation during the study period, so that the information could be obtained by the investigator in optimum time. The interview was conducted by house-to-house visit.

Blood pressure was measured in the right upper arm in the sitting position with a mercury sphygmomanometer by auscultatory method after being asked to be relaxed for at least 10 minutes. Two readings were taken at an interval of 5 minutes and the mean was considered to be the individual's blood pressure. Hypertension was assessed as per JNC 8 classification. The socioeconomic status was assessed using Modified BG Prasad classification. The findings of the study were tabulated and presented as percentages and Chi-square test was also applied. Few operational definitions were taken which are:

- Tobacco & Alcohol user: respondents who has been currently using any tobacco (smoking or smoke-less) or alcohol products.
- Physical activity: was assessed by their involvement in heavy work, sports, gym, running or cycling for at least 30 minutes during the day in the last 7 days.

RESULTS

Table 1: Prevalence of Hypertension according to socio demographic variables

Variables	Hypertension		Total (N=363)	P value
	Yes	No		
Age Group (years)	Frequency (Percentage)	Frequency (Percentage)		
18-27	0	69	69	<0.001
28-37	3	113	116	
38-47	11	106	117	
48-57	15	10	25	
58 & above	33	3	36	
Education				

ISSN (O): 2687-5365; ISSN (P): 2753-6556

Illiterate	8	160	168	<0.001
Primary	10	86	96	
High	29	34	54	
Intermediate	0	17	17	
Graduate & above	15	04	19	
Occupation				
Unemployed	1	6	7	<0.001
Unskilled	27	195	222	
Skilled	14	32	46	
Business	16	64	80	
Employed	4	4	8	
Socioeconomic status				
Upper	10	13	23	<0.001
Upper Middle	26	212	238	
Middle	11	47	58	
Lower Middle	8	15	23	
Lower	7	14	21	

Table 2: Prevalence of Hypertension according to Behavioral risk factors

Parameters	**Hypertension**		**Total**	**P value**
	Yes	**No**		
Smoking Tobacco	36	26	62	<0.01
Smoke-less Tobacco	51	11	62	
Alcohol intake				
Yes	24	76	100	>0.01
No	38	225	263	
Physical activity				
Yes	21	175	196	<0.001
No	41	126	167	
Salt Intake (in gram/day)				
<5	7	34	41	>0.01
5-10	39	227	266	
>10	16	40	56	

DISCUSSION

Among 363 adult males (18 years and above), 62 (17.08%) were hypertensive males and 301(82.92%) were non-hypertensive.

[Table 1] shows the association between hypertension and sociodemographic factors. In this study, it is found that age and hypertension are significantly associated. Highest group of hypertensive males were in the age group 58 years and above (91.7%) followed by 48-58 years age group (60%) and 38-48 years age group (9.4%). Mandal et al,[5] (2010) reported prevalence of hypertension 19.8% in population, 20 years and above in an urban area in Kolkata. Ray Suresh et al,[6] (December 2019) reported prevalence of hypertension highest in age group 40-50 years (45.2%) in urban slums of Ambedkar nagar and Chaitraban Vashat of Pune city. Bidha Kinley et al,[7] (2020) reported age group 36-77 years has higher odds than 18-24 years age group. They are 15.8 times at higher risk of hypertension with a p-value <0.01.

Significant association is seen between education and hypertension. Greater number of hypertensive males were among graduates and above (78.9%) followed by high school (46.6%) and least among illiterates (4.8%). Kar S.S et al,[8] (2010) in their study in rural communities of Chandigarh and Hyderabad reported a higher prevalence of hypertension among illiterates (36.2%) compared to literates (34.1%). However, the difference was statistically insignificant.

Per capita income per month as hypertension are significantly associated. Highest hypertensive males were in the income group Rs 8822 and above (43.5%) and least were in income group Rs (4411-8821) (10.9%). Singh Sikha et al,[9] (December, 2017) in their study on prevalence and associated risk factors of hypertension in urban Varanasi reported a higher prevalence of hypertension among lower class (31.6%) and least among upper middle class (14.2)%. Occupation and hypertension are also significantly associated. Highest hypertensive males were daily wage earners (43.5%) followed by businessman (16%) and skilled workers (14%) and least among unemployed. Kishore et al,[4] (2018) reported highest prevalence of hypertension among subjects who were retired (47.1%) followed by semi professions (21.1%) and least among clerical, shop owners, farm owners. The differences were statistically significantly.[10-14]

[Table 2] shows that the association of hypertension to different behavioural risk factors. In this study, smoking tobacco and smokeless tobacco with hypertensive is highly significant. From the table, among 62 hypertensive males, 58.1% had smoking tobacco and 82.3% had smokeless tobacco. Hazarika NE et al,[15] (2004) in their study in the age group 30 years and above reported a prevalence of hypertension as 34.84% among smokers and 29.2% among chewers.

[Table 2] shows that alcohol consumption and hypertensive are not significantly associated. Among the 62 male hypertensive, 38.71% were alcohol users

ISSN (O): 2687-5365; ISSN (P): 2753-6556

and 61.29 % were nonusers. Kishore et al,[4] (2018) has reported significantly higher prevalence of hypertension among those consuming alcohol (21.3%) compared to 13.6% among non-consumers. Mandal et al,[5] (2010) reported a significantly higher prevalence of hypertension among alcohol users (60.7%) compared to non-users (5.0%)

The per capita daily salt consumption and hypertension are not significantly associated. Highest number of hypertensive males were found among those whose per capita daily salt consumption (in grams) where 5-10 grams (62.9%) followed by 11-15 grams (25.8%) and least among those whose per capita daily salt consumption (in grams) is less than 5 grams (11.29%). Agarwal V.K et al,[10] (2008) in their study in a rural community in Pune in population 30 years and above reported daily intake of >= 5 g/ day was significantly higher in hypertensives compared to normotensives.

It is seen that exercise and hypertension are significantly associated. More number of hypertensive males do not exercise (66.13%) whereas a smaller number of hypertensive males do exercise (33.48%). Yadav S et al,[11] (2008) reported prevalence of hypertension as 38.1% among secondary workers and 32.2% among active workers. The difference was statistically significant. Moreover, Ghadieh A.S et al,[12] (2015) reveals that the magnitude of post exercise hypotension correlates highly with long term BP reductions produced by aerobic exercise training in patients with prehypertension. Therefore, the magnitude of post exercise training.[16]

CONCLUSION

The prevalence of hypertension among adult males are significantly associated with age group, education, per capita income, occupation, tobacco uses and physical activity whereas it is insignificantly associated with alcohol and per capita salt consumption.

REFERENCES

1. Kearney PM, Whelton M, Reynolds K, et al. Global burden of hypertension: analysis of worldwide data. Lancet. 365(9455):217–23.
2. Gupta R. Meta-analysis of prevalence of hypertension in India. Indian Heart J 1997; 49:450
3. Hypertension- World Health Organization (WHO), 2023
4. Kishore J, Gupta N, Kohli C, Kumar N. Prevalence of Hypertension and Determination of Its Risk Factors in Rural Delhi. Int J Hypertens. 2016;2016:7962595. doi: 10.1155/2016/7962595. Epub 2016 Apr 3. PMID: 27127646; PMCID: PMC4834167.
5. Mandal, Palash, Anup Kumar Roy, Chitra Chatterjee, Sarmila Mallik, Nirmal Kumar Manna, Jadab C. Sardar, Debadatta Chakrabarty and Manabendra Sau. “Burden of hypertension and its risk factors in an urban community of India: are we aware and concerned?” (2010).
6. Ray Suresh, Jamdade Vinita (December, 2019); Knowledge regarding hypertension and its risk factors among people residing in urban slums.
7. Bidha, K., & Alam, N. (2020). Prevalence of hypertension and associated risk factors among Bhutanese Monks in Thimphu, Bhutan: A cross-sectional study. Recent Research in Science and Technology, 28–31. https://doi.org/10.25081/rrst.2020.12.6089
8. Kar SS, Thakur JS, Virdi NK, Jain S, Kumar R. Risk factors for cardiovascular diseases: is the social gradient reversing in northern India? Natl Med J India. 2010 Jul-Aug;23(4):206-9. PMID: 21192513.
9. Singh, Shikha, Shankar, Ravi, Singh, Gyan Prakash, Prevalence and Associated Risk Factors of Hypertension: A Cross-Sectional Study in Urban Varanasi, International Journal of Hypertension, 2017, 5491838, 10 pages, 2017.
10. Agrawal VK, Bhalwar R, Basannar DR. Prevalence and Determinants of Hypertension in a Rural Community. Med J Armed Forces India. 2008 Jan;64(1):21-5. doi: 10.1016/S0377-1237(08)80139-6. Epub 2011 Jul 21. PMID: 27408073; PMCID: PMC4921752.
11. Yadav S, Boddula R, Genitta G, Bhatia V, Bansal B, Kongara S, Julka S, Kumar A, Singh HK, Ramesh V, Bhatia E. Prevalence & risk factors of pre-hypertension & hypertension in an affluent north Indian population. Indian J Med Res. 2008 Dec;128(6):712-20. PMID: 19246794.
12. Ghadieh AS, Saab B. Evidence for exercise training in the management of hypertension in adults. Can Fam Physician. 2015 Mar;61(3):233-9. PMID: 25927108; PMCID: PMC4369613.
13. Hazarika NC, Biswas D, Narain K, Kalita HC, Mahanta J. Hypertension and its risk factors in tea garden workers of Assam. Natl Med J India 2002; 15:63–68
14. World Health Organization, Invisible members: the true extent of non-communicable diseases and what to do about them. Geneva. World Health Organization 2022
15. Saha I, Karmakar N, Sarkar T, Sinha R, Venkataraman RP, Chakraborty T. A community-based study on modifiable risk factors of hypertension among Adults of rural Bengal, India. CHRISMED J Health Res 2020;7:223-9
16. Wanghi GI, Mutombo PB, Sumaili EK. Prevalence and determinants of hypertension among students of the University of Kinshasa, Democratic Republic of Congo: a cross-sectional study. Afr Health Sci. 2019 Dec;19(4):2854-2862. doi: 10.4314/ahs.v19i4.7. PMID: 32127861; PMCID: PMC7040345.

ISSN (O): 2687-5365; ISSN (P): 2753-6556