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Original Article

Prevalence of Hypertension among Government School Teachers Working in Urban Area of Chamarajanagar Taluk: A Cross-Sectional Study

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ABSTRACT

Background: Hypertension (HTN) is emerging as one of the most important non-communicable diseases and it is predominant in India. Teachers are subjected to stress at the workplace due to demanding curriculum, parents, school authority and supervision. School teachers in urban areas are experiencing a sedentary lifestyle due to the use of vehicles for transportation, lack of physical exercise and intake of a high-calorie diet increasing the risk for onset of hypertension.
Objective: To estimate the prevalence of hypertension and to determine factors associated with HTN among Government school teachers working in urban areas of Chamarajanagar taluk.
Materials and methods: This cross-sectional study was carried out from July to October 2024 among 107 school teachers in all the schools in the urban area of Chamarajanagar taluk, enrolled using a convenience sampling method. Data on socio-demographic profile, behavioural risk factors, co-morbidities, anthropometry and blood pressure were recorded. Data were entered in Microsoft Excel and analyzed using Epi Info™. Data were represented as frequencies and percentages, mean and standard deviation. Factors associated with HTN were analysed by the Chi-square test, and a p-value < 0.05 was considered statistically significant. Logistic regression was done to find out the factors associated with Hypertension independently.
Results: Among 107 school teachers, the prevalence of HTN was found to be 33.6%. The majority of the participants were female (66.4%), belonged to class I socio-economic status (77.6%), and about 58.9% had service duration >15 years. Development of HTN was significantly associated with age, marital status and service duration ($p < 0.05$). On binary logistic regression, marital status was statistically significant with AOR 3.938.
Conclusion: The prevalence of HTN was high among the study participants. Increasing awareness regarding risk factors, symptoms, and complications through health education has to be done. The screening and early diagnosis of HTN has to be stepped up, and promoting a healthy lifestyle for the prevention and control of HTN is necessary. Addressing contributing factors of hypertension among school teachers can improve the health and well- being of teachers, which will enhance positivity in the classroom with effective knowledge transfer and student performance.

Keywords: *Hypertension, School teachers, Government, Urban area, Chamarajanagar.*

INTRODUCTION

Non-communicable diseases (NCDs) are the predominant cause of premature morbidity and mortality and also lead to an economic burden across the world.[1] Globally, we are encountering an epidemiological shift from communicable diseases to NCDs.[2] Hypertension is emerging as one of the most important NCDs, and it is predominant in India.[3] Hypertension is a silent killer, as people who have hypertension are free from symptoms or not aware of the disease. Hypertension is the prime cause for NCDs such as circulatory diseases, cardiac failure, stroke, etc.[2] According to the World Health Organisation (WHO), NCDs are the leading cause of death worldwide; Globally, 41 million deaths (71%) were due to NCDs, of which around 17.9 million deaths per year were due to cardiovascular diseases.[4] As per National Family Health Survey (NFHS -5) data, mildly elevated blood pressure was 12.4% (urban- 13.6% and rural- 11.9%), moderately or severely elevated blood pressure was 5.2% and elevated blood pressure or taking medicine to control blood pressure was 21.3% (urban- 23.6% and rural 20.2%).[5] In Karnataka, mild elevated blood pressure was 14.8% (urban- 16.3% and rural- 13.8%), moderately or severely elevated blood pressure were 6.2% (urban- 6.1% and rural 6.2%) and elevated blood pressure or taking medicine to control blood pressure were 25% (urban- 29.2% and rural 25.5%).[6] In Chamarajanagar District, mild elevated blood pressure was 16.9% (women) and 18.9% (Men), moderately or severely elevated blood pressure was9.3% (Women) and 9.1% (Men), and elevated blood pressure or taking medicine to control blood pressure was 28.8% (Women) and 29.9% (Men).[7]

One of the most stressful occupations is the teaching profession. It is common knowledge that teachers face a significant risk of stress and "burnout" in their line of work.[8] The stress among teachers has increased rapidly as a result of the changes and advances in curriculum. Stress in the teaching profession can be attributed to several factors such as workload, managing students' behaviour, and the pursuit of professional advancement opportunities that are integrated into a competitive and intricate setting. In addition to their work, teachers must effectively manage their personal and family obligations. The high occupational stress and other common risk factors may predispose teachers to develop hypertension.[9] Teachers' well-being has been connected to their ability to teach effectively and have a positive effect on students' academic performance. Teachers can only impart knowledge and wisdom to children if they are in good physical and mental health.

Hypertension is one of the strongest modifiable risk factors of cardiovascular disease; therefore, morbidity and mortality can be minimized, and the longevity of the individual can be prolonged by early detection, adequate treatment and by implementing preventive and control measures. Most of the studies conducted on hypertension prevalence and related risk factors are in the general population, but very limited studies have been conducted on Government school teachers. In this study, an attempt was made to fill the information gap regarding the prevalence of hypertension and associated factors of hypertension among government school teachers in Chamarajanagar Taluk.

OBJECTIVE

- To estimate the prevalence of hypertension among Government school teachers working in the urban area of Chamarajanagar taluk.
- To determine factors associated with Hypertension among school teachers.

METHODOLOGY

A cross-sectional study was conducted among government school teachers working in urban areas of Chamarajanagar taluk from July to September 2024. All teachers employed in the 35 government schools located within the urban area were included in the study. Teachers who were unwilling to provide informed consent, those who were unavailable despite three consecutive visits, and those who submitted incomplete proforma were excluded. The sample size was calculated using the single population proportion formula, considering a prevalence of hypertension of 52% reported among school teachers by Barua et al. (2017)2, with a 95% confidence interval (Z = 1.96) and an absolute precision of 5%. The required sample size was estimated using the formula $\mathbf{n = Z^2P(1-P)/d^2}$, where $P = 0.52$ and $d = 0.05$, yielding a minimum sample size of 95 participants. After accounting for a 10% non-response rate, the final minimum required sample size was 105 participants.

After obtaining approval and clearance from the Institutional Ethics Committee and necessary permission from the Deputy Director of Public Instruction (DDPI), the teachers fulfilling the inclusion criteria were enrolled for the study. A pretested semi-structured questionnaire was used to collect data from the school teachers. The questionnaire had two sections. Section one included socio demographic details such as age, gender, religion, education, socio economic status and place of stay. The interview included questions related to personal and family history of hypertension, sleep duration, smoking, diet, physical exercise and salt intake habits. Section two included anthropometric measurements and systemic examination. Anthropometric measurements such as body weight, height, BMI (Body mass Index), Waist and Hip circumference were recorded following the WHO guidelines.[10] Blood pressure of each individual was recorded on site using an Omron digital sphygmomanometer in the sitting position on the non- dominant hand. 3 readings with an interval of 3 minutes between each reading was taken and least recorded BP was taken as final reading.[11]

Statistical analysis: The data collected were entered in Microsoft Excel Version 2019, and were analysed using Epi Info™Build7.2.6 2023 by CDC. Quantitative data were represented as frequencies and percentages, mean and standard deviation. Qualitative /Categorical data were represented in the form of median and proportion. Chi-square test was used to find the association between hypertension and various associated factors. P-value < 0.05 was considered statistically significant. Logistic regression (Binary) was done to find out the factors associated with Hypertension independently.

RESULTS: Among the 107 participants, 71(66.3%) were normotensive, and 36(33.6%) were hypertensive. Among the 36 study participants who were hypertensive, 14.3% were below 40 years of age, 43.8% of them were 41-50 years, and 48.5% of the participants were in the age group of 51-60 years. As age increases, there is an increase in the prevalence of Hypertension, which was statistically significant. Among the hypertensives, 44.4% were male and 28.2% were female. Hypertensive status was higher among participants living in urban areas (34.8%) compared to those who were residing in rural areas (27.8%). Prevalence was higher among the participants who were married (40.2%) compared to those who were unmarried (12%), and it was statistically significant. Hypertension was higher among class I (37.3%) and class III (33.3%) socio-economic status compared to class II (19%). (Table 1)

Table-1 Distribution of study participants based on Socio-demographic profile and its association with Hypertension.

Variables		Normotensive (n=71) (%)	Hypertensive(n=36) (%)	χ^2	P-Value
Age (years)	< 40 41-50 51-60	36(85.7%) 18(56.2%) 17(51.5%)	6(14.3%) 14(43.8%) 16(48.5%)	11.770	0.003*
Gender	Female Male	51(71.8%) 20(55.6%)	20(28.2%) 16(44.4%)	2.834	0.092
Religion	Hindu Muslim Christian	46(63.0%) 21(77.8%) 4(57.1%)	27(37.0%) 6(22.2%) 3(42.9%)	2.209	0.331
Place of living	Urban Rural	58(65.2%) 13(72.2%)	31(34.8%) 5(27.8%)	0.334	0.564
Education	PUC Degree PG Degree	13(72.3%) 23(63.8%) 35(66.0%)	5(27.7%) 13(36.1%) 18(34.0%)	0.378	0.828
Marital Status	Unmarried Married	22(88%) 49(59.8%)	3(12%) 33(40.2%)	5.639	0.018*
SES (BG Prasad)	Class I Class II Class III	52(62.7%) 17(81.0%) 2(66.7%)	31(37.3%) 4(19.0%) 1(33.3%)	2.515	0.284

Table-2 Association between Hypertension and various risk factors

Variables		Normotensive (n=71) (%)	Hypertensive (n=36) (%)	χ^2	P-value
Dietary Habit	Vegetarian Mixed	12(57.1%) 59(68.6%)	9(42.9%) 27(31.4%)	0.993	0.319
Daily intake of fruits	Yes No	21(65.6%) 50(66.7%)	11(34.4%) 25(33.3%)	0.011	0.917
Alcohol consumption	Occasionally Never consumed	9(52.9%) 62(68.9%)	8(47.1%) 28(31.1%)	1.629	0.202
Smoking History	Smoker Non-smoker	3(75%) 68(66%)	1(25%) 35(34%)	0.139	0.709
Sleep time/day (hours)	<8hours >8hours	40(59.7%) 31(77.5%)	27(40.3%) 9(22.5%)	3.554	0.05
Physical activity	Yes No	13(68.4%) 58(65.9%)	6(31.6%) 30(34.1%)	0.44	0.834
History of diabetes	Yes No	8(61.5%) 63(67.0%)	5(38.5%) 31(33.0%)	13(12.1%) 94(87.9%)	0.695
Experience of work	1-5 year 6-10 year 11-15 year >15 year	24(92.3%) 7(70%) 3(37.5%) 37(58.7%)	2(7.7%) 3(30%) 5(62.5%) 26(41.2)	12.585	0.013*

Among the study participants, 47.1% of the participants who consumed alcohol occasionally were hypertensive compared to participants who never consumed alcohol (31.1%). Prevalence of hypertension was higher among the participants with sleep duration of <8 hours (40.3%) compared to participants with duration of sleep >8 hours (22.5%). 34.1% of the participants with no physical activity were hypertensive compared to 31.6% of participants with a history of physical activity. Hypertension was high among the participants with duration of work of 11-15 years (62.5%) and >15 years (41.2%) compared to participants with duration of work of 1-5 years (7.7%) and 6-10 years (30%), and it was statistically significant. (Table 2)

Table 3- Association between Hypertension and anthropometry

Variables	Normotensive (n=71) (%)	Hypertensive (n=36) (%)	χ^2	P-value
Waist-Hip ratio				
Female				
<0.85	15(88.3%)	2(11.7%)	2.973	0.085
>0.85	36(66.7%)	18(33.3%)		
Male				
<0.90	2(50%)	2(50%)	0.055	0.815
>0.90	18(56.25%)	14(43.75%)		
BMI (kg/m2)				
Normal 18.5-24.9	23(79.3%)	6(20.7%)		
Overweight 25.0-29.9	31(66.0%)	16(34%)		
Obesity I 30.0-34.9	9(64.3%)	5(35.7%)	5.845	0.322
Obesity II 35.0-39.9	6(50%)	6(50%)		
Obesity III >40	2(40%)	3(60%)		

On anthropometric examination, female participants who had a waist-hip ratio of >0.85 (33.3%) showed a higher prevalence compared to females with a waist-hip ratio of <0.85 (11.7%), and on examination of male participants, the prevalence of hypertension was higher among participants with a waist-hip ratio <0.9 (50%) compared to >0.9 (43.75%). Hypertension was high among participants with higher Body mass index compared to Normal BMI (Table 3)

Table 4- Binary Logistic Regression analysis of factors associated with Hypertension among study participants.

	B	**P value**	**AOR**	**95% CI**	
				Lower	**Upper**
Age (>40years)	0.548	0.273	1.729	0.650	4.601
Marital status (Married)	1.371	**0.047***	3.938	1.016	15.267
Experience of work (>10 Years)	1.068	0.077	2.909	0.889	9.516
Model Fit	Nagelkerke R-squared	Hosmer Lemeshow test		Omnibus test	
	0.189	0.492		<0.001*	

*Significant, (Reference category- Age <40 years, Unmarried, Experience of work <10 years)

Using bivariate logistic regression, the odds of getting hypertension were 1.729 times higher among participants with age > 40 years when compared to participants with age < 40 years, but it was not statistically significant. The odds of getting hypertension were 3.938 times higher among participants who were married compared to participants who were not married, and it was statistically significant. The odds of getting hypertension were 2.9 times higher among participants who had work experience of >10 years compared to participants who had work experience of <10 years, and it was not statistically significant.

The variables were able to explain 18% of the variation in Hypertension (Nagelkerke R-squared = 0.189). The Hosmer-Lemeshow test was not significant, and the Omnibus test of model coefficients was significant, indicating that the model was suitable for predicting Hypertension. (Table 4)

DISCUSSION

The present cross-sectional study assessed the prevalence of Hypertension and associated risk factors among Government school teachers working in the urban area of Chamarajanagar taluk. In the present study, nearly one-third of the participants were hypertensive; these findings are in agreement with the study conducted by Girish B et al among school teachers in Tumkur, with the prevalence of Hypertension (28.75%).[1] Similar findings were found in a study done by Ghimire N et al among 309 secondary school government teachers in the urban area of Nepal, which showed that the prevalence of hypertension was 28.8%.[12] In contrast, a study conducted by Barua R et al among the school teachers in Bangladesh found that the prevalence of hypertension was comparatively high (52.3%).[2] Another study conducted by Chetia D et al among government high school teachers of Dibrugarh district showed a 54.6% prevalence of

Hypertension.[3] Similar findings were found in a study conducted among 392 study participants in Uttar Pradesh, Etawah district, with a prevalence of 69.4% by Prajapati K A et al.[4] One more study conducted by Kumar V et al among 1350 Government school teachers in Patna showed 14.1% of Hypertension prevalence.[8] The difference in prevalence of Hypertension among study participants in different studies might be due to sample size, lifestyle pattern or sociodemographic characteristics.

The present study showed that nearly half of the participants aged >40 years had a higher prevalence of Hypertension. Similar findings were found in a study conducted by Ghimire N et al among 309 school teachers in Nepal, which showed a prevalence of 41.3%.[12] In contrast, a study conducted by Kumar v et al in Patna showed a prevalence of 33.4% among study participants.[8] Another study conducted in Uttar Pradesh by Prajapati K A et al showed a prevalence of 72.4%.[4] AOR was higher among participants with age >40 years. Similar findings were found in a study in Nepal by Ghimire N et al which showed an AOR of 2.061 among study participants aged >40 years.[12]

The current study found that the prevalence of Hypertension was higher among male participants compared to females. A similar finding was found in a study conducted in Uttar Pradesh by Prajapati K A et al which was 33.8% among males.[4] Another study by Ghimire N et al conducted in Nepal showed a 32.6% prevalence among male participants.[12] In contrast, the study conducted in Patan by Kumar V et alshowed 15.5% prevalence among male participants.[8]

The present study showed that nearly half of the participants who were married had a higher prevalence of hypertension. A study by Prajapati K A et al conducted in Uttar Pradesh showed 98.9% of married participants were hypertensive.[4]
In the present study, more than one-third of the participants with sleep duration of < 8 hours showed higher prevalence of hypertension; similar findings were found in a study conducted in Tumkur by Girish B et al with prevalence of 71.4% among participants with reduced sleep duration.[1]

In the present study, nearly half of the participants who had work experience of >10 years had a higher prevalence of hypertension compared to others. Similar findings were found in a study conducted in Hyderabad, Telangana by Devi R et al showed that prevalence was higher among participants with work experience of 11-15 years (36.7%) and >15 years (31.8%).[13]

CONCLUSION

Based on study findings, it was concluded that one-third of the Government school teachers in the urban area of Chamarajanagar taluk were Hypertensive. The study found that age, marital status and experience of work were the factors associated with hypertension. Marital Status was an independent risk factor for the development of Hypertension. These findings hold implications beyond the realm of health, suggesting that addressing the determinants of Hypertension could have a positive ripple effect on the quality of education. By recognising and ameliorating the lifestyle factors that contribute to Hypertension, educational institutions can pave the way for improved teacher well-being, subsequently fostering an environment conducive to effective teaching and enhanced student learning outcomes. Hence Periodic health examination for teachers is needed for screening and increasing awareness regarding risk factors, symptoms and complications through health education among school teachers. Promoting healthy lifestyle for prevention and control of HTN.

REFERENCES

1. Girish B, Majgi M S. A study of hypertension and its risk factors among primary school teachers of Tumkur, Karnataka. Indian J Forensic Community Med, 2017;4(1):54-8.
2. Barua R, Alam M, Parvin N, Chowdhury R. Prevalence of hypertension and its risk factors among school teachers in Dhaka, Bangladesh. Int J Res Med Sci. 2018; 6(9):2902-10.
3. Chetia D, Gogoi G, Baruah R. Hypertension and occupational stress among high school teachers of Dibrugarh district. Int J Community Med Public Health. 2018;5(1):206-9.
4. Prajapati K A, Jain S, Kumar S, Bano T, Gautam S N, Singh G, etal. Prevalence of hypertension, screening, awareness, and associated risk factors in teaching institution of Etawah District, Uttar Pradesh: A cross-sectional study. J Family Med Prim Care. 2024; 13(5):2037-43.
5. Ministry of health and Family Welfare. Government of India. National family health survey (NFHS-5) 2019-21 Key Indicators India and 14 states/Uts (Phase-II). New Delhi. India;2021 p.05.
6. Ministry of health and Family Welfare. Government of India. National family health survey (NFHS-5) 2019-20 State fact sheet Karnataka Key Indicators. New Delhi. India;2020 p.05.
7. Ministry of health and Family Welfare. Government of India. National family health survey (NFHS-5) 2019-20 District fact sheet Chamarajanagar Karnataka Key Indicators. New Delhi. India;2021. p.05.
8. Kumar V, Bharati DR, Prasad N, Kumar S, Chandrasekaran S. Hypertension prevalence and related factors among schoolteachers: A cross-sectional study from India. Prev Med Res Rev 2025;2:231-4.

9. DevivaraPrasad M, Subramaniyan P, Praveen Kumar BA, Janakiraman P. Prehypertension and hypertension among school teachers: An epidemiological study from South India. Med J DY Patil Vidyapeeth 2024;17:349-54.
10. World Health Organization (2006), WHO child growth standards, Length/height-for-age, weight for age, weight-for-height and body mass index-for-age, Methods and Development [Internet].[Cited 2024 January 20].
11. Joint National Committee (JNC) Guidelines For Hypertension - New [Internet]. [cited 2024 May 15]. Available from: https://medicoapps.org/m-joint-national-committee-jnc-guidelines-for-hypertension/
12. Ghimire N, Mishra R. Prevalence of hypertension and its associated risk factors among teachers in governmental secondary schools of Godawari Municipality, Lalitpur: a cross-sectional study. J Patan Acad Health Sci. 2025;12(2):66-74.
13. Devi R, Lavanya C, Verma L. Prevalence of Hypertension and Related Life Style Practices Among School Teachers in Hyderabad Telangana. Int J Innov Res Technol. 2024;11(3):837-46.