www.drmgrdujhs.org

Indian Journal of Integrative Allied Health Sciences (IJIAHS)

Original Article

A Study on Hypertension and Its Risk Factors Among Teaching Professionals

Annie Caroline P[1], Giriharan M [2] , Jayapriya S[3], Sowmiya G R [4], Sindhuja M[4]

[1]Assistant Professor, [2] Lecturer, [3]Demonstrator, [4]Intern, Department of Cardiac Perfusion Technology, Faculty of Allied Health Science, Dr. M.G.R Educational and Research Institute, Chennai, Tamil Nadu, India.

***Corresponding author:**
Annie Caroline P,
Assistant Professor,
Department of Cardiac Perfusion Technology,
Faculty of Allied Health Science, Dr. M.G.R Educational and Research Institute,
Chennai, Tamil Nadu, India.

Received: 02/01/2026
Accepted: 26/02/2026
Published: 02/03/2026

ABSTRACT

Background: Hypertension, or high blood pressure, occurs when the pressure in your blood vessels is too high [1,2]. While it is common, it can lead to serious health issues if left untreated. Several factors contribute to the increasing prevalence of hypertension, including obesity, insulin resistance, high alcohol intake, high salt consumption, aging, a sedentary lifestyle, stress, low potassium intake, and low calcium intake. In the teaching profession, hypertension can be influenced by various factors, such as high levels of stress, long working hours, and the demanding nature of the job. We conducted a cross-sectional study among teachers to estimate the risk of hypertension and its association with job stress.

Methods: To understand the relationship between hypertension and stress among teachers, a workplace stress scale was used to assess job stress and other related risk factors[3]. Additionally, the blood pressure, height, weight, hip, and waist measurements of the respondents were taken. The total sample size comprised 520 teachers, while non-teaching professionals, hypertensive teachers, and pregnant women were excluded from the study.

Results: Out of 520 samples, 29.4% of participants were found to have prehypertension, while 24.2% had hypertension [4]. A significant association was identified between hypertension and several factors, including gender, age, body mass index (BMI), and stress factors such as travel stress, years of experience, and overall stress levels. Additionally, a notable correlation was found between hypertension and the lifestyle risk factor of physical activity.

Conclusion: Among teaching professionals, the rate of hypertension is lower than the rate of prehypertension [5]. Those in the prehypertension stage are strongly associated with various risk factors. To address this issue, early detection of prehypertension should be mandated. If not identified early, prehypertension can progress to hypertension, which increases the risk of modifiable cardiovascular diseases.

Keywords: Hypertension, teaching professionals, Prehypertension.

INTRODUCTION

Hypertension is defined as a persistent increase in blood pressure, characterized by a systolic blood pressure consistently at 140 mm Hg or higher, and/or a diastolic blood pressure consistently at 90 mm Hg or higher (WHO)[6]. According to the ESH Guidelines, hypertension can be classified into four stages:

- Normal: 120-129/80-84

- Prehypertension: 130-139/85-89[7]

- Hypertension Grade 1: 140-159/90-99[8]

- Hypertension Grade 2: 160-179/100-109[9]

Hypertension, or high blood pressure, is a significant risk factor for developing coronary heart disease, stroke, and other vascular complications[10]. In India, the overall prevalence of hypertension is 29. 8%. Notably, there are significant differences in prevalence between rural and urban areas, with rates of 27. 6% in rural areas and 33. 8% in urban regions.

The developing world is experiencing a rising proportion of elderly populations, rapid urbanization, and the globalization of unhealthy lifestyles[11]. Non-communicable diseases (NCDs), such as cerebrovascular diseases (CVD), cancer, diabetes mellitus, and chronic lung disease, are the leading causes of mortality worldwide. Hypertension, the most common cardiovascular risk factor, presents a significant public health challenge, particularly in populations undergoing socio-economic and epidemiological transitions.

Globally, CVD is responsible for approximately 17 million deaths each year [12]. One in three adults is affected by high blood pressure, contributing to about 9 million deaths annually. Hypertension accounts for at least 45% of deaths due to heart disease and 51% of deaths due to stroke. In India, there are specific regional and population variations in the prevalence of hypertension.

Hypertension is an increasing health concern among teaching professionals[13]. The demanding nature of their roles, often marked by long working hours, high levels of stress, and sedentary lifestyles, contributes to a higher risk of hypertension in this occupational group. It is essential to understand the specific factors that influence hypertension in educators to develop targeted health interventions and promote their overall well-being in this vital workforce.

Additionally, the sedentary nature of many teaching tasks, which often involve prolonged periods of desk work and limited physical movement, further increases the risk of hypertension among educators[14]. The lack of regular breaks for physical activity may contribute to a more sedentary lifestyle, which is a known risk factor for elevated blood pressure. Addressing the risk of hypertension among teaching professionals requires not only individual lifestyle modifications but also systemic changes within educational institutions to promote a healthier and more balanced work environment. This comprehensive approach is essential for mitigating the impact of hypertension on teachers' well-being and fostering a culture of health within the educational community.

There is an urgent need for population-based research to understand the determinants at both the organizational and community levels that influence individuals' choices and options regarding risk behaviors[15]. Workplace settings offer valuable opportunities to explore the factors that contribute to negative health behaviors. Among these environmental factors, job stress is a significant determinant of hypertension, and it is well established that job stress can lead to elevated blood pressure. Job stress is defined as "a set of psychosocial factors experienced by workers due to work conditions, generated as composite experiences at different levels within an organization"

In our study, we conducted a cross-sectional analysis among teachers to estimate the risk of hypertension and its association with job stress[16]. Identifying these risk factors can inform workplace interventions aimed at preventing morbidity and mortality, ultimately increasing workforce productivity. By recognizing the risk profiles of teachers, we can guide worksite interventions to prevent debilitating conditions, thereby improving overall productivity. We hypothesized that there is a correlation between stress and hypertension among teachers

MATERIAL AND METHODS

This questionnaire study was conducted among 520 teaching professionals[17]. Ethical approval was obtained from the Institutional Ethical Committee, and written informed consent was secured from all participants. Inclusion criteria for this study are teachers of either gender, aged between 25 and 60 years, and currently working as teaching professionals with no comorbidities. Exclusion criteria include non-teaching professionals, pregnant women, and teachers with hypertension.

A proforma was distributed to the teaching professionals, which included socio-demographic characteristics[18]. After completing the demographic details, participants were asked to provide measurements for height, weight, waist circumference, and hip circumference. Blood pressure was also measured. Stress factors were assessed using a two-part questionnaire. The first section included questions related to stress, while the second section utilized a workplace stress scale to measure stress levels. Additionally, questions about lifestyle characteristics were included.

STATISTICAL ANALYSIS

The data were analyzed using frequency, percentage, and chi-square tests. A P-value of less than 0.05 was considered statistically significant.

RESULTS

In a sample of 520 teaching professionals, the average systolic blood pressure (SBP) was 120 mmHg, and the diastolic blood pressure (DBP) was 80 mmHg[19].

Variables	Frequency (%)
GENDER	
Male	212 (40.8%)
female	308 (59.2%)
AGE	
<30	85 (16.3%)
31-40	274 (52.7%)
41-50	129 (24.8%)
51-60	32 (6.2%)
MARITAL STATUS	
Single	81 (15.6%)
Married	415 (79.8%)
Divorced	10 (1.9%)
Widow	14 (2.7%)
EMPLOYMENT STATUS Temporary	396 (76.2%)
Permanent	124 (23.8%)
LEVEL OF EDUCATION	
Bachelor's	244 (46.3%)
Master's	275 (52.9%)
Doctoral	1 (0.2%)
SOCIO-ECONOMIC LEVEL Low	9 (1.7%)
Middle	491 (94.4%)
High	20 (3.8%)

TABLE 1 Socio-demographic characteristics of teaching professionals

Stages of hypertension	Frequency (%)
Normal	241 (46.3%)
Prehypertension	153 (29.4%)
Hypertension Stage1	126 (24.2%)
Total	520 (100.0%)

Table 2: Stages of hypertension

Gender	Normal	Prehypertension	Hypertension stage 1	P-value
Male	133 (53.3%)	57 (26.9%)	42 (19.8%)	0.02
Female	128 (41.6%)	96 (31.2%)	84 (27.3%)	

Table 3 Comparison between gender and stages of hypertension

Table 3 illustrates the comparison of gender and stages of hypertension among teaching professionals. Female teachers exhibited a higher proportion of prehypertension and hypertension compared to male teachers.

Age	Normal	Prehypertension	Hypertension Stage 1	P-value
<30	77 (90.6%)	4 (4.7%)	4 (4.7%)	0.00
31-40	131 (47.8%)	74 (27.0%)	69 (25.2%)	
41-50	29 (22.5%)	58 (45.0%)	42 (32.6%)	
51-60	4 (12.5%)	17 (53.1%)	11 (34.4%)	

Table 4 Comparison between age and stages of hypertension

A comparison of teachers' ages shows the following distribution: 85 teachers (16. 3%) are under 30, 274 teachers (52. 7%) are aged 31 to 40, 129 teachers (24. 8%) are 41 to 50, and 32 teachers (6. 2%) are between 51 and 60. This distribution is highly significant, with a p-value of 0. 00 (Table 2).

Variables	Normal	Prehypertension	Hypertension Stage 1	P-value
Family History Of Hypertension Normal	119 (48.7%)	105 (25.7%)	105 (25.7%)	0.00
Hypertensive	42 (37.8%)	48 (43.2%)	21 (18.9%)	
WAIST HIP RATIO Male <0.95	113(53.6%)	57(27.0%)	41(19.4%)	0.11
0.96-1.0	0(0%)	0(0%)	1(100%)	
Female <0.8	32(43.2%)	24(32.4%)	18(24.3%)	
0.81-1.0	95(40.8%)	72(30.9%)	66(28.3%)	
>1.0	1(100%)	0(0%)	0(0%)	
BMI Underweight	3(30.0%)	5(50.0%)	2(20.0%)	0.05
Normal	129(48.9%)	82(31.1%)	52(20.1%)	
Overweight	99(46.7%)	52(24.5%)	61(28.8%)	
Obese	10(29.4%)	14(41.2%)	10(29.4%)	

Table 5: Stress factors associated with blood pressure among teaching professionals

A study of hypertension stages among the offspring of parents with hypertension revealed significant findings . It showed that 37. 8% had normal blood pressure, 43. 2% were prehypertensive, and 18. 9% were in the initial stage of hypertension. The low p-value of 0. 00 highlights a strong connection between hypertension stages and family history, raising awareness among educators about the complications associated with hypertension.

Analyzing hypertension stages by Body Mass Index (BMI) categories yielded the following results: In the underweight category, 30. 0% had normal blood pressure, 50. 0% were prehypertensive, and 20. 0% were in stage 1 hypertension. Among those of normal weight, 48. 9% had normal blood pressure, while 31. 1% were prehypertensive, and 20. 1% were in stage 1 hypertension. For the overweight group, 46. 7% maintained normal blood pressure, but 24. 5% were prehypertensive and 28. 8% were in stage 1 hypertension. In the obese category, only 29. 4% had normal blood pressure, with 41. 2% prehypertensive and 29. 4% in stage 1 hypertension. A p-value of 0. 05 indicates significant differences among these BMI groups, with higher risks for the overweight and obese.

Variables	Normal	Prehypertension	Hypertension stage 1	P-value
TRAVEL STRESS Normal	108 (46.0%)	67 (28.5%)	60 (25.5%)	0.00
Middle	90 (58.1%)	44 (28.4%)	21 (13.5%)	
High	43 (33.1%)	42 (32.3%)	45 (34.6%)	
DISCRIMINATION AT WORK Yes	15 (42.9%)	9 (25.7%)	11 (31.4%)	0.58
No	226 (46.6%)	144 (29.7%)	115 (23.7%)	
SALARY SATISFACTION Satisfied	117 (47.8%)	66 (26.9%)	62 (25.3%)	0.49
Dissatisfied	124 (45.1%)	87 (31.6%)	64 (23.3%)	
YEARS OF EXPERIENCE 1-3 year	36 (92.3%)	3 (7.7%)	0 (0.0%)	0.00
3-5 year	47 (75.8%)	7 (11.3%)	8 (12.9%)	
5-10 year	67 (46.2%)	40 (27.6%)	38 (26.2%)	
>10 year	91 (33.2%)	103 (37.6%)	80 (29.2%)	

Table 6 Stress factors at workplace associated with blood pressure among teaching professionals.

Workplace stressors included travel stress, discrimination, salary satisfaction, and experience. Regarding travel stress, for those with travel times under 30 minutes, 46. 0% reported normal blood pressure, while 28. 5% were prehypertensive and 25. 5% had stage 1 hypertension. For travel times under 1 hour, 58. 1% had normal blood pressure; however, 28. 4% were prehypertensive, and 13. 5% were in stage 1 hypertension. Among those traveling over 1 hour, only 33. 1% maintained normal blood pressure, and 34. 6% suffered from stage 1 hypertension. The significant difference (p-value of 0. 00) suggests that travel stress notably increases hypertension risks for educators. Discrimination affected only 6. 7% of participants and showed no significant correlation (p-value = 0. 58) with hypertension level

Table 7 Stress scale vs Stages of hypertension

Stress scale	Normal	Prehypertension	Hypertension Stage1	P-value
Chilled out and relatively calm	101 (42.8%)	83 (35.2%)	52 (22.0%)	0.00
Moderate stress	70 (61.9%)	12 (10.6%)	31 (27.4%)	
Fairly low	67 (40.6%)	57 (34.5%)	41 (24.8%)	
Severe stress	3 (50.0%)	1 (16.7%)	2 (33.3%)	

According to the workplace stress scale, stress levels can be classified into four categories. The distribution of hypertension stages based on these stress levels is as follows: For individuals who reported feeling very calm, 101 had normal blood pressure (42. 8%), 83 had prehypertension (35. 2%), and 52 had stage 1 hypertension (22. 0%). For individuals experiencing moderate stress, 70 had normal blood pressure (61. 9%), 12 had prehypertension (10. 6%), and 31 had stage 1 hypertension (27. 4%). Among those with fairly low stress, 67 had normal blood pressure (40. 6%), 57 had prehypertension (34. 5%), and 41 had stage 1 hypertension (24. 8%). For individuals under severe stress, 3 had normal blood pressure (50. 0%), 1 had prehypertension (16. 7%), and 2 had stage 1 hypertension (33. 3%). These findings indicate a statistically significant difference in hypertension stages based on stress levels, with a p-value of 0. 00.

The most common lifestyle risk factor was coffee intake at 82. 1%. The least prevalent were physical inactivity (8. 3%), salty diet (59%), fatty diet (65. 6%), smoking (8. 7%), and alcohol (5. 8%). The study found no association between these factors and hypertension, including physical inactivity, which is consistent with the Basrah study. This may be due to a higher general engagement in physical activity in our country compared to that region

Discussion:

Hypertension is an increasing health concern among teaching professionals. The prevalence of hypertension in this group may be influenced by various factors, including stress, a sedentary lifestyle, diet, and access to healthcare. Given the demanding nature of their profession, which often involves long hours, high levels of responsibility, and sometimes challenging work environments, stress could be a significant contributor to hypertension among teachers.

In this study, a total of 520 samples were analyzed: 241 individuals (46. 3%) had normal blood pressure, 153 (29. 4%) were classified as having prehypertension, and 126 (24. 2%) were identified as being in stage 1 hypertension. The prevalence of prehypertension among the study population was higher than that reported in a previous study conducted in Basrah (20. 4%) but lower than that found in a study in Bengaluru (34%). Additionally, the incidence of stage 1 hypertension in this study was similar to the percentage reported among teaching professionals in Bengaluru (24%), but higher than the figure found in the Basrah study (20. 6%). These differences may stem from variations in socioeconomic status and employment circumstances.

Furthermore, this study revealed that female teachers exhibited a higher proportion of prehypertension (31. 2%) compared to their counterparts in the Bengaluru study (29%). Again, these differences may be attributed to variations in socioeconomic levels and marital status.

Teachers aged 41 to 50 exhibited a higher prevalence of prehypertension (45%) and stage 1 hypertension (32. 6%). This may be attributed to various factors, including age, BMI, marital status, and workload. Among the children of hypertensive parents, 37. 8% had normal blood pressure, while 43. 2% were classified as having prehypertension, and 18. 9% had stage 1 hypertension. This indicates that the teachers were aware of the complications associated with hypertension, particularly among participants who were offspring of hypertensive parents.

The major stress factors in the workplace included the number of travel hours, travel-related stress, discrimination at work, salary satisfaction, years of experience, and overall workplace stress levels. A significant association was observed between years of experience and hypertension. Specifically, an increase in years of experience was linked to a higher prevalence of prehypertension. Discrimination also emerged as a common cause of workplace stress that may contribute to hypertension. In our study, discrimination was reported by only 6. 7% of participants, and there was no significant difference in hypertension rates related to discrimination, which aligns with findings from a study conducted in Bengaluru.

The distribution of hypertension stages based on stress levels is as follows: For individuals who felt calm and relaxed, 101 had normal blood pressure (42. 8%), 83 had prehypertension (35. 2%), and 52 had stage 1 hypertension (22. 0%). Among individuals experiencing moderate stress, 70 had normal blood pressure (61. 9%), 12 had prehypertension (10. 6%), and 31 had stage 1 hypertension (27. 4%). In the group with fairly low stress, 67 had normal blood pressure (40. 6%), 57 had prehypertension (34. 5%), and 41 had stage 1 hypertension (24. 8%). For those experiencing severe stress, 3 had normal blood pressure (50. 0%), 1 had prehypertension (16. 7%), and 2 had stage 1 hypertension (33. 3%). These findings indicate a statistically significant difference in the stages of hypertension based on stress levels.

The most common lifestyle risk factors identified were being overweight (40. 80%) and coffee intake (82. 10%). Conversely, the least prevalent risk factors were physical inactivity (8. 30%), smoking (8. 70%), and alcohol intake (5. 80%). This study found no association between physical activity and hypertension, which aligns with the findings of the Basrah study. This may be due to a higher level of engagement in physical activity in our country compared to that region.

To address hypertension effectively, screening should be mandated starting at age 30 to identify prehypertensive cases early on. This proactive approach will facilitate the implementation of awareness and preventive measures to reduce hypertension risk. Furthermore, teachers who are already diagnosed with hypertension should consistently monitor their blood pressure and strive to prevent potential complications. Interestingly, non-hypertensive teachers showed less interest in having their blood pressure checked, despite 29. 4% of them being classified as prehypertensive. This indicates a lack of understanding about hypertension and its complications among teachers, who are expected to educate the community on such important health issues.

Acknowledgments

Researchers thankfully acknowledge Dr. Kalpana Devi, Principal, and Dr. Kalavathy Victor, Director of Allied Health Science of Dr. M.G.R. Educational and Research Institute for active guidance.

Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

REFERENCES:

1. Manjula D, Sahu B, Sasikumar NS, Babu GR. Prevalence of hypertension in school teachers of Bengaluru. Natl J Public Health. 2016;5(2).
2. Ali HA, Jasim N, Al-Asadi JN. Prevalence and lifestyle determinants of hypertension among secondary school female teachers in Basrah. Med J Basrah Univ. 2009;27(2)
3. Monica SJ, John S, Madhanagopal R. Lifestyle determinants of hypertension among female school teachers. Int J Community Med Public Health. 2017;4(12)
4. Delfino LD, Tebar WR, Gil FC, Tebar FCS, de Souza JM, Romanzini M, et al. Association between sedentary behavior, obesity and hypertension in public school teachers. Industrial Health. 2020;58(4):335–43.
5. Gonsalves N, Aggarwal A, Palekar TJ, Jadhav C. Screening of pre-hypertension risk factors among teaching professionals. Int J Health Sci Res.
6. Burt VL, Whelton P, Roccella EJ, Brown C, Cutler JA, Higgins M, et al. Prevalence of hypertension in the US adult population: results from the Third National Health and Nutrition Examination Survey, 1988–1991. Hypertension. 1995;25(3):305–13.
7. Hajjar I, Kotchen TA. Trends in prevalence, awareness, treatment, and control of hypertension in the United States, 1988–2000. JAMA. 2003;290(2):199–206.
8. World Health Organization. World health report 2002: reducing risks, promoting healthy life. Geneva: World Health Organization; 2002.
9. National High Blood Pressure Education Program. The sixth report of the Joint National Committee on prevention, detection, evaluation, and treatment of high blood pressure. Archives of Internal Medicine. 1997;157(21):2413–46.
10. Chobanian AV, Bakris GL, Black HR, Cushman WC, Green LA, Izzo JL Jr, et al. 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(19):2560–72.
11. National Heart, Lung, and Blood Institute. National high blood pressure education program. Bethesda (MD): US Department of Health and Human Services
12. National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. Report of the National High Blood Pressure Education Program Working Group on High Blood Pressure in Pregnancy. American Journal of Obstetrics and Gynecology. 2000;183(1 Suppl):S1–22.

How to cite this article: Annie Caroline P, Giriharan M, Jayapriya S, Sowmiya GR, Sindhuja M. A study on hypertension and its risk factors among teaching professionals. *Indian Journal of Integrative Allied Health Sciences*. 2026;1(1):7–12.