Indonesian Journal of Global Health Research
Volume 8 Number 6, December 2026
e-ISSN 2715-1972; p-ISSN 2714-9749
http://jurnal.globalhealthsciencegroup.com/index.php/IJGHR

FACTORS ASSOCIATED WITH THE OCCURRENCE OF HYPERTENSION AMONG EMPLOYEES OF THE ACEH HEALTH OFFICE

Gebrina Raseky[1], Radhiah Zakaria[1]*, Farrah Fahdhienie[1], Dharina Baharuddin[1], Hermansyah[2]
[1]Master of Public Health Program, Universitas Muhammadiyah Aceh, Jl. Muhammadiyah No.91, Batoh, Lueng Bata, Banda Aceh, Aceh 23123, Indonesia
[2]Department of Applied Nursing Program, Poltekkes Kemenkes Aceh, Jl. Soekarno-Hatta, Lagang, Darul Imarah, Aceh Besar, Aceh 23123, Indonesia
*radhiah@unmuha.ac.id

ABSTRACT
Office employees often face demands for high productivity within limited timeframes. Monotonous administrative tasks, pressure from supervisors, routine reporting workloads, and limited rest periods contribute to chronic stress, which can directly affect blood pressure and lead to increases in blood pressure levels. This study aimed to analyze the factors associated with the incidence of hypertension among employees of the Aceh Health Office. This study employed a quantitative research method with a cross-sectional design. Data were collected from February 23 to March 6, 2026, through direct measurements and interviews using standardized and validated questionnaires. A total of 219 employees were selected from a population of 482 employees using proportionate stratified random sampling. Data were analyzed using univariate analysis, bivariate analysis with logistic regression ($p < 0.05$), and multivariate analysis with multiple logistic regression ($p < 0.05$) using StataMP 17. The results showed that the incidence of hypertension among employees of the Aceh Health Office was significantly associated with moderate work stress ($p = 0.001$), high work stress ($p = 0.001$), moderate workload ($p = 0.004$), high workload ($p = 0.001$), abnormal work duration ($p = 0.001$), high work culture ($p = 0.001$), moderate lifestyle ($p = 0.006$), unhealthy lifestyle ($p = 0.001$), moderate physical activity ($p = 0.001$), low physical activity ($p = 0.001$), and poor sleep quality ($p = 0.003$). The multiple logistic regression model showed a Pseudo R2 of 0.3267, indicating that the variables included in the model were simultaneously associated with the incidence of hypertension among employees of the Aceh Health Office, accounting for 32.67% of the variation. The incidence of hypertension among employees was influenced by work stress, workload, work duration, work culture, lifestyle, physical activity, and sleep quality ($p < 0.05$).

Keywords: hypertension; lifestyle; physical activity; sleep quality; work culture; work duration; workload; work stress

How to cite (in APA style)
Raseky, G., Zakaria, R., Fahdhienie, F., Dharina Baharuddin, & Hermansyah, H. (2026). Factors Associated with the Occurrence of Hypertension among Employees of the Aceh Health Office. *Indonesian Journal of Global Health Research*, *8*(6), 1257–1268. https://doi.org/10.37287/ijghr.v8i6.2847.

INTRODUCTION

Hypertension is one of the major non-communicable diseases (NCDs) that remains a significant health problem and continues to increase every year (Ghofrani, Gomberg-Maitland, Zhao, & Grimminger, 2025). Hypertension is also one of the major health challenges in Indonesia and is frequently encountered in primary health care settings, with an increasing risk of morbidity and mortality in line with rising systolic and diastolic blood pressure levels, which may lead to heart failure, stroke, and kidney failure. Hypertension is often referred to as a "silent killer" because individuals with hypertension frequently experience no symptoms (Flack et al., 2025). According to the World Health Organization (WHO) in 2023, approximately 1.28 billion adults aged 30-79 years worldwide had hypertension, with a global prevalence of 42% among adults. This trend indicates a significant increase since 1990, with hypertension-related mortality increasing by 50%, particularly in developing countries (WHO, 2023). In Indonesia, hypertension has become a serious public health problem, with a prevalence of 34.1%, while 15.1% of workers in Indonesia were reported to have hypertension based on the 2023 Indonesian Health Survey (SKI). The prevalence was estimated to increase to 40–45% by 2025 in the absence of effective interventions. The major risk factors for hypertension include chronic stress, unhealthy dietary patterns, insufficient physical

activity, and smoking, which are often associated with modern lifestyles and demanding work environments (Kemenkes, 2023).

Office employees, including those working in government institutions such as the Health Office, often face high work demands, long working hours, and substantial administrative workloads. Although they work in an environment related to the health sector, many Health Office employees pay insufficient attention to healthy lifestyles due to their demanding work schedules. Busy work schedules make it difficult for employees to allocate sufficient time for exercise, adequate rest, and maintaining a healthy diet (Nabila, Herlinawati, Ariyanto, & Ronanarasafa, 2025). These conditions may increase the incidence of hypertension through changes in health behaviors and physiological responses to work-related demands. Prolonged work-related stress is also a major factor contributing to hypertension. Work targets, role conflicts, and lack of recognition and social support in the workplace may increase stress hormone levels, such as cortisol, and activate the sympathetic nervous system. In the long term, these conditions may contribute to persistent increases in blood pressure and impaired cardiovascular regulation (Syahputri, Safitri, Kamisahri, Nahrisah, & Baharuddin, 2025). In addition, sedentary lifestyles among employees, such as prolonged sitting in front of computers, consumption of fast food, and smoking or excessive caffeine consumption, may further worsen blood pressure conditions. Studies have shown that insufficient physical activity and unhealthy dietary patterns are strongly associated with an increased incidence of hypertension among office workers (Rahma, Wardani, Tama, & Kurniawan, 2023).

Changes in the lifestyle patterns of urban populations have also contributed to the increasing incidence of hypertension among office workers. Increasing work pressure, high mobility, and the availability of convenient but nutritionally poor food choices may cause hypertension to develop gradually and often without noticeable early symptoms (Paul, 2024). This condition is frequently overlooked until serious complications, such as cardiovascular disease and stroke, develop, which can reduce work productivity and increase health care costs (Indriyati, 2023). Office employees with hypertension tend to have lower productivity, experience fatigue more easily, and face a higher risk of cardiovascular complications. Therefore, it is important to understand the risk factors associated with the incidence of hypertension among Health Office employees. Workplace-based health promotion and prevention interventions are urgently needed to control and reduce the prevalence of hypertension in this population (Parati et al., 2025).

The working conditions of office employees in Health Offices often require high productivity within limited timeframes. Monotonous administrative tasks, pressure from supervisors, routine reporting requirements, and limited rest periods may contribute to chronic stress, which directly affects blood pressure. In addition, work environments characterized by limited physical activity, such as prolonged sitting in front of computers and inadequate access to exercise facilities at the workplace, may further increase the risk of hypertension (Tan, Santoso, Jap, Dinali, & Harsono, 2025). A previous study conducted by Maku et al. (2025), showed that irregular dietary patterns were associated with a higher risk of hypertension, particularly among office workers with sedentary lifestyles, abdominal obesity, and dyslipidemia. Employees who have insufficient time for physical activity or choose fast food because of their busy work schedules tend to experience increased blood pressure accompanied by changes in body composition and unhealthy lipid profiles. Modern lifestyles among employees, characterized by heavy reliance on private vehicles, limited walking, and inadequate rest due to work demands, may have long-term effects on the cardiovascular system. Irregular sleep patterns, particularly when work must be completed outside regular working hours, may also contribute to hormonal disturbances and impaired blood pressure regulation, thereby accelerating the development of hypertension (Schettini, Passos, & Koike, 2023).

Among the various divisions within the Aceh Health Office, the Disease Prevention and Control Division (P2P) has relatively more complex work characteristics because it is responsible for epidemiological surveillance, communicable and non-communicable disease control, immunization, outbreak response, and coordination of health programs across districts and municipalities. These work characteristics require rapid responses, high mobility, achievement of program targets within limited timeframes, and intensive cross-sectoral coordination. Differences in work characteristics among divisions indicate that the work environment of employees at the Aceh Health Office is not homogeneous and therefore needs to be considered in studies examining the determinants of hypertension (Gubernur, 2024). Hypertension among office employees has serious systemic consequences. In addition to reducing individual quality of life, hypertension may increase absenteeism, reduce employee productivity, and increase the country's health care expenditures in the long term. Therefore, health promotion and preventive interventions targeting risk factors such as work-related stress, working hours, workload, work culture, lifestyle, physical activity, and sleep quality need to be implemented promptly in the workplace, including government institutions such as the Health Office (Cancelliere, 2021).

In addition, employees' lifestyle patterns also influence the incidence of hypertension. Many employees spend most of their working hours sitting at desks, engage in limited physical activity, and have dietary patterns high in carbohydrates and fats due to time constraints. These unhealthy lifestyle patterns are particularly common among employees working in administrative and secretarial divisions. The combination of work-related stress and unhealthy lifestyle behaviors may ultimately increase the risk of hypertension among employees of the Aceh Health Office (Wianti, 2025). Based on the background described above, work-related stress may arise from high work demands, performance targets, and time pressure, which are further exacerbated by long working hours and heavy administrative workloads. In addition, a work culture that emphasizes high performance may often limit employees' opportunities to adopt healthy lifestyles. Low levels of physical activity, prolonged sitting, unhealthy lifestyle patterns, and suboptimal sleep quality may also contribute to an increased incidence of hypertension. This study aimed to identify factors associated with the occurrence of hypertension among employees of the Aceh Health Office.

METHOD

This study employed a quantitative approach with a cross-sectional design to examine factors associated with hypertension among employees of the Aceh Health Office. The study was conducted at the Aceh Health Office, Banda Aceh, Aceh, from February 23 to March 6, 2026. The study population consisted of 482 employees, with a sample of 219 employees selected using proportionate stratified random sampling with a 5% margin of error. Data were collected through direct blood pressure measurements and structured questionnaires administered by two enumerators. The variables assessed included work stress, workload, working hours, work culture, lifestyle, physical activity, and sleep quality. Work stress was measured using the Perceived Stress Scale (PSS; Cronbach's α = 0.84-0.86), workload using the Subjective Workload Assessment Technique (SWAT; Cronbach's $\alpha > 0.80$), work culture using the Competing Values Framework (CVF), lifestyle using the Simple Lifestyle Indicator Questionnaire (SLIQ; test-retest reliability = 0.63-0.97), physical activity using the Global Physical Activity Questionnaire (GPAQ; Spearman's r = 0.67-0.81), and sleep quality using the Athens Insomnia Scale (AIS; Cronbach's α = 0.84; test-retest reliability = 0.86). Working hours were measured as average weekly hours. These psychometric estimates were derived from previous validation studies; reliability and validity should also be verified for the versions used in the study population.

Data were analyzed using StataMP 17. Univariate analysis was performed using frequency and percentage distributions. Bivariate analysis was conducted using logistic regression to determine the associations between the independent variables and hypertension, with results presented as odds ratios (ORs) with 95% confidence intervals (CIs). Variables with $p<0.25$ and those considered

theoretically relevant were included in the multivariable logistic regression model. Statistical significance was set at p≤0.05, and adjusted odds ratios (AORs) with 95% CI. The study received ethical approval from the Ethics Committee of Universitas Muhammadiyah Aceh (No. 27/EA/KEPK/Unmuha/2026). All participants provided informed consent before participating in the study, and the confidentiality of participants' information was maintained throughout the research process.

RESULT

Table 1.
Respondent characteristics (n= 219)

Respondent characteristics	f	%	Mean (SD)	Min-Max
Age			45.01 (8.51)	26-60
Sex				
Female	84	38.36		
Male	135	61.64		
Education				
Secondary Education	7	3.20		
Higher Education	212	96.80		
Marital Status				
Unmarried	5	2.28		
Married	214	97.72		
Length of Employment			16.24 (11.99)	1-41
Employment Status				
PPPK	71	32.42		
PNS	148	67.58		
Monthly Income				
Moderate IDR 2,00,000-5,000,000/ month	167	76.26		
High IDR > 5,000,000/moth	52	23.74		
Rank/Grade				
Low II/a-II/d	8	3.65		
Moderate III/a-III/d	82	37.44		
High IV/a-IV/c	129	58.90		
Department/Division				
Secretariat	39	17.81		
Public Health	35	15.98		
Disease Prevention and Control (P2P)	24	10.96		
Health Services	23	10.50		
Health Resources	25	11.42		
UPTD Health Laboratory and Equipment Testing Center	50	22.83		
UPTD Health Training Center	23	10.50		
Body Masa Index (BMI)				
Underweight	37	16.89		
Normal	69	31.51		
Overweight	67	30.59		
Obesity	46	21.00		
Waist Circumference				
Normal	119	54.34		
Central Obesity	100	45.66		

Based on the analysis presented in table 1, the average age of employees at the Aceh Health Office was 45 years, with an age range of 26-60 years. Most employees were female (61.64%), had higher education (96.80%), and were married (97.72%). The average length of employment was 16 years. Most employees at the Aceh Health Office were civil servants (PNS) (67.58%), had a moderate monthly income (76.26%), and were in the high rank/grade category (IV/a-IV/c) (58.90%). In terms of work division, the largest proportion of employees worked at the UPTD Health Laboratory and Equipment Testing Center (22.83%). In addition, 31.51% of employees had a normal Body Mass Index (BMI), while 54.34% had a normal waist circumference.

Table 2.
Analysis of Factors Associated with Hypertension among Employees of the Aceh Health Office Using Logistic Regression

Variable	*Hypertension*										OR	95% CI	p-value
	Normal		Prahipertensi		Hipertensi Derajat 1		Hipertensi Derajat 2		Hipertensi Derajat 3				
	f	%	f	%	f	%	f	%	f	%			
Work Stres													
Low	50	83.33	7	11.67	3	5.00	0	0.00	0	0.00			
Moderate	67	59.29	18	15.93	25	22.12	2	1.77	1	0.88	3.61	1.67-7.77	0.001
High	22	47.83	7	15.22	14	30.43	2	4.35	1	2.17	6.18		
Work Load													
Low	42	93.33	2	4.44	1	2.22	0	0.00	0	0.00			
Moderate	65	67.01	25	25.77	7	7.22	0	0.00	0	0.00	6.06	1.75-20.95	0.004
High	32	41.56	5	6.49	34	44.16	4	5.19	2	2.60	28.56	8.08-100.9	0.001
Working Hours													
Normal	130	74.71	17	9.77	26	14.94	1	0.57	0	0.00			
Abnormal	9	20.00	15	33.33	16	35.56	3	6.67	2	4.44	7.77	4.08-14.80	0.001
Work Culture													
Low	88	79.28	12	10.81	11	9.91	0	0.00	0	0.00			
High	51	47.22	20	18.52	31	28.70	4	3.70	2	1.85	4.44	2.48-7.96	0.001
Lifestyle													
Healthy	58	80.56	4	5.56	10	13.89	0	0.00	0	0.00			
Moderately Healthy	70	59.32	23	19.49	22	18.64	2	1.69	1	0.85	2.61	1.32-5.16	0.006
Unhealthy	11	37.93	5	17.24	10	34.48	2	6.90	1	3.45	7.14	2.88-17.67	0.001
Physical Activity													
High	47	88.68	2	3.77	3	5.66	1	1.89	0	0.00			
Moderate	38	55.07	11	15.94	20	28.99	0	0.00	0	0.00	6.13	2.33-16.11	0.001
Low	54	55.67	19	19.59	19	19.59	3	3.09	2	2.06	5.96	2.34-15.19	0.001
Sleep Quality													
Good	58	78.38	5	6.76	9	12.16	2	2.70	0	0.00			
Poor	81	55.86	27	18.62	33	22.76	2	1.38	2	1.38	2.63	1.39-4.98	0.003

Based on table 2, bivariate analysis revealed significant associations between hypertension and work stress, workload, working hours, work culture, lifestyle, physical activity, and sleep quality ($p<0.05$). Compared with the respective reference categories, moderate and high work stress were associated with higher odds of hypertension (OR=3.61 and OR=6.18, respectively). Moderate and high workload were also associated with higher odds (OR=6.06 and OR=28.56, respectively). Abnormal working hours were associated with 7.77 times higher odds of hypertension. Furthermore, high work culture scores (OR=4.44), moderately healthy and unhealthy lifestyles (OR=2.61 and OR=7.14, respectively), moderate and low physical activity (OR=6.13 and OR=5.96, respectively), and poor sleep quality (OR=2.63) were significantly associated with hypertension.

Based on Table 3, workload was the most dominant variable associated with hypertension among employees of the Aceh Health Office. Employees with a high workload had approximately 20 times higher odds of developing hypertension compared with those with a low workload, after controlling for other variables in the model. The analysis showed a Pseudo R^2 value of 0.3267, indicating that the model had an explanatory capacity of 32.67% for the relationship between the independent variables and hypertension. Thus, the model provided an explanatory capacity of 32.67%, while the remaining variation was not explained by the variables included in the model.

Table 3.
Analysis of Factors Associated with Hypertension among Employees of the Aceh Health Office Using Logistic Regression Multiple

Variable	AOR (95% CI)	*p*-value
Work Stress		
Low		
Moderate	3.05 (1.23-7.57)	0.016
High	4.54 (1.60-12.87)	0.004
Workload		
Low		
Moderate	2.05 (0.48-8.53)	0.336
High	20.10 (4.62-87.41)	0.001
Working Hours		
Normal		
Abnormal	6.45 (2.99-13.88)	0.001
Work Culture		
Low		
High	4.23 (2.06-8.67)	0.001
Lifestyle		
Healthy		
Moderately Healthy	2.89 (1.28-6.52)	0.058
Unhealthy	3.24 (1.09-9.63)	0.004
Physical Activity		
High		
Moderate	3.16 (0.96-10.38)	0.058
Low	5.41 (1.72-16.95)	0.004
Sleep Quality		
Good		
Poor	1.25 (0.55-2.82)	0.585
Pseudo R^2	0.1012	

DISCUSSION

This study showed that occupational stress, workload, working duration, work culture, lifestyle, physical activity, and sleep quality were significantly associated with hypertension among employees of the Aceh Health Office. These findings indicate that hypertension among health office employees is not only related to individual behavioral factors but also to occupational and psychosocial conditions. The employees in this study were generally in the productive and middle-adult age groups, with considerable work experience and responsibilities. These characteristics may expose employees to prolonged occupational demands, while family responsibilities and lifestyle patterns may further influence their cardiovascular health (Eddy, Wertheim, Hale, & Wright, 2023).

Occupational stress was significantly associated with hypertension. Employees with higher levels of occupational stress had a greater likelihood of experiencing hypertension compared with those with lower stress levels. This finding may be related to the characteristics of work within the Aceh Health Office, where employees are involved in program planning, reporting, coordination across health sectors and districts/cities, monitoring and evaluation, achievement of program targets, and adaptation to changes in health policies. Continuous exposure to these demands may contribute to psychological stress, particularly when workload and time pressure are not accompanied by adequate recovery. Chronic occupational stress can activate the hypothalamic-pituitary-adrenal (HPA) axis and the sympathetic-adrenal-medullary system, resulting in increased secretion of cortisol and catecholamines. Persistent activation of these systems may increase heart rate, vascular resistance, and blood pressure. (Eddy et al., 2023) reported that occupational stress and an imbalance between effort and reward may be associated with neuroendocrine responses that affect cardiovascular health. Similarly, Alhajaji et al. (2025) found that workplace stressors, long working hours, and organizational pressures were related to cardiovascular risk. These findings support the importance of considering occupational stress as part of hypertension prevention among employees.

Workload was also significantly associated with hypertension. Employees experiencing higher workload were more likely to have hypertension. Workload in this setting may involve not only the amount of work but also task complexity, time pressure, program targets, administrative reporting, coordination activities, and additional duties that may arise unexpectedly. When several responsibilities must be completed simultaneously, employees may experience prolonged psychological and physiological demands. A sustained high workload can activate the sympathetic nervous system and HPA axis, which may subsequently affect cardiovascular regulation. Midu and Astrid (2024) reported that workload, fatigue, stress, and long working hours were associated with hypertension among workers. Therefore, the relationship between workload and hypertension may reflect the cumulative effect of occupational demands rather than the number of tasks alone.

Working duration was also associated with hypertension. Employees with longer or abnormal working hours had a greater likelihood of hypertension. Although formal working hours are regulated, employees in the health sector may spend additional time completing reports, attending meetings, conducting monitoring and evaluation activities, coordinating programs, and responding to priority health issues. Prolonged working hours may reduce opportunities for adequate rest, physical activity, healthy eating, and sleep. Insufficient recovery can contribute to the accumulation of physiological stress or allostatic load, which may affect cardiovascular regulation over time. Sagalulu and Health (2023), reported an association between long working hours and hypertension, while Midu and Astrid (2024), also found that long working hours were related to occupational stress and hypertension. Thus, adequate working and recovery time may be important components of occupational health management.

The association between work culture and hypertension suggests that organizational conditions may also contribute to employees' cardiovascular health. Work culture reflects the values, norms, expectations, and behavioral patterns that guide employees in performing their responsibilities. Within the Aceh Health Office, discipline, accountability, compliance with regulations, achievement of program indicators, coordination, and timely completion of administrative tasks are important components of organizational performance. However, a work culture that strongly emphasizes targets and control without sufficient organizational support may increase psychosocial pressure. The Competing Values Framework explains that organizational effectiveness requires a balance between control and flexibility, as well as internal and external orientation. A supportive work culture may facilitate communication, teamwork, and employee well-being, whereas excessive emphasis on performance and control may contribute to work pressure. Previous studies have similarly emphasized the importance of supportive organizational environments, communication, leadership, and employee involvement in maintaining psychological well-being at work Nasution and Nyorong (2023); Rafi'i, Hanif, and Bin Daud (2025); Tan et al. (2025).

Lifestyle was significantly associated with hypertension. Employees with less healthy lifestyles were more likely to experience hypertension. Lifestyle is an important modifiable determinant of cardiovascular health and includes dietary habits, physical activity, smoking behavior, weight management, and other health-related behaviors. The presence of overweight, obesity, and central obesity among employees in this study may indicate an accumulation of unfavorable lifestyle patterns. Excess visceral adiposity can contribute to hypertension through activation of the sympathetic nervous system and renin-angiotensin-aldosterone system, inflammation, endothelial dysfunction, and metabolic disturbances. Excessive sodium intake may also contribute to fluid retention and increased blood pressure, while diets high in saturated fat and simple sugars may contribute to weight gain and insulin resistance. Previous studies have consistently shown that unhealthy lifestyle patterns are associated with hypertension and cardiovascular risk Halim, Sutriyawan, and Health (2022); Lyon et al. (2022); Ojangba et al. (2023).

Physical activity was also significantly associated with hypertension. Employees with lower levels of physical activity had a greater likelihood of hypertension compared with those with higher physical activity (Wirakhmi & Purnawan, 2023). This finding may be related to the predominantly administrative nature of some tasks, including computer use, meetings, reporting, and prolonged sitting. Although some employees may be involved in field activities, substantial periods of sedentary work may still occur during the working day. Regular physical activity contributes to cardiovascular health by improving endothelial function, increasing nitric oxide availability, improving vascular elasticity, and supporting energy balance. Conversely, insufficient physical activity may contribute to weight gain, visceral adiposity, sympathetic activation, oxidative stress, and endothelial dysfunction. Similar findings have been reported in previous studies showing that low physical activity is associated with an increased likelihood of hypertension (Imamah, Prasetyowati, & Antika, 2023).

Sleep quality was another factor significantly associated with hypertension. Employees with poor sleep quality were more likely to experience hypertension. Sleep plays an important role in cardiovascular recovery through reductions in sympathetic activity and blood pressure during the night (Rachman, Nursery, & Hati, 2023). Poor or insufficient sleep may interfere with this recovery process and increase sympathetic nervous system activity, cortisol secretion, inflammation, oxidative stress, and endothelial dysfunction. Occupational demands may further influence sleep quality when employees need to complete reports, attend meetings, or manage work responsibilities beyond regular working hours. Family and social responsibilities may also reduce opportunities for adequate sleep (Subagiartha, Katuuk, & Paat, 2024). Previous studies have demonstrated that poor sleep quality is associated with hypertension and other cardiovascular risk factors among adults and workers Islami, Marisa, Kaidah, Muttaqien, and Illiandri (2025).

The findings of this study suggest that occupational and behavioral factors may interact in relation to hypertension among employees of the Aceh Health Office. High workload and prolonged working duration may contribute to occupational stress and inadequate recovery, while poor sleep and insufficient physical activity may further reduce the body's ability to recover from occupational demands. At the same time, unhealthy lifestyle patterns may increase cardiovascular vulnerability. Therefore, hypertension prevention in this occupational group should not focus only on individual behavior but should also consider the work environment. Workplace interventions may include regular blood pressure screening, workload management, adequate rest periods, promotion of physical activity, stress management, sleep health education, and the development of a supportive organizational culture.

This study has several limitations. The cross-sectional design does not allow temporal relationships between occupational and behavioral factors and hypertension to be established. In addition, some behavioral and psychosocial variables were assessed based on respondents' reported conditions and may therefore be subject to reporting or recall bias. Nevertheless, the findings provide important evidence that hypertension prevention among health office employees should involve an integrated approach that combines individual lifestyle modification with improvements in occupational and organizational conditions. Further longitudinal research is needed to examine the long-term effects of occupational stress, workload, working duration, work culture, lifestyle, physical activity, and sleep quality on the development of hypertension among health sector employees.

CONCLUSION

Based on the findings of this study, it can be concluded that work stress, workload, working hours, work culture, lifestyle, physical activity, and sleep quality were significantly associated with hypertension among employees of the Aceh Health Office ($p < 0.05$). Employees with high work stress had six times higher odds of hypertension compared with those with low work stress. Workload was the factor most strongly associated with hypertension, with employees who had a

high workload having 29 times higher odds of hypertension compared with those with a low workload. In addition, abnormal working hours were associated with an eightfold higher odds of hypertension, while high work culture, an unhealthy lifestyle, moderate physical activity, and poor sleep quality were associated with fourfold, sevenfold, sixfold, and threefold higher odds of hypertension, respectively, compared with their respective reference categories.

REFERENCES

Alhajaji, R., Alfahmi, M. Z., Alshaikhi, S. A., Fairaq, A. M., Fudlaldeen Jan, S., Aljuaid, S., . . . Al Sulaiman, K. (2025). The influence of workplace stressors on the risk of cardiovascular diseases among healthcare providers: a systematic review. Front Psychiatry, 16, 1461698. doi:10.3389/fpsyt.2025.1461698

Cancelliere, C., Cassidy, J. D., Ammendolia, C., & Côté, P. (2021). Are workplace health promotion programs effective at improving presenteeism in workers? A systematic review and best evidence synthesis of the literature. BMC Public Health, 11, 395.

Eddy, P., Wertheim, E. H., Hale, M. W., & Wright, B. J. (2023). A Systematic Review and Revised Meta-analysis of the Effort-Reward Imbalance Model of Workplace Stress and Hypothalamic-Pituitary-Adrenal Axis Measures of Stress. Psychosom Med, 85(5), 450-460. doi:10.1097/psy.0000000000001155

Flack, J. M., Azizi, M., Brown, J. M., Dwyer, J. P., Fronczek, J., Jones, E. S., . . . Wang, J.-G. J. N. E. J. o. M. (2025). Efficacy and safety of baxdrostat in uncontrolled and resistant hypertension. 393(14), 1363-1374.

Ghofrani, H.-A., Gomberg-Maitland, M., Zhao, L., & Grimminger, F. J. N. R. C. (2025). Mechanisms and treatment of pulmonary arterial hypertension. 22(2), 105-120.

Gubernur, A. P., Aceh. (2024). Peraturan Gubernur Aceh Nomor 01 Tahun 2024.

Halim, R., Sutriyawan, A. J. J. o. N., & Health, P. (2022). Studi retrospektif gaya hidup dan kejadian hipertensi pada usia produktif. 10(1), 121-128.

Imamah, S., Prasetyowati, I., & Antika, R. B. J. J. K. M. (2023). Analisis mengenai hubungan obesitas, aktivitas fisik, dan stres kerja dengan kejadian hipertensi pada guru sma negeri di kecamatan kota kabupaten sumenep. 11(1), 83-88.

Indriyati, L. H., Ujianti, I., & Lakhsmi, B. S. (2023). The Prevalence Of Metabolic Syndrome And Its Components Among Male Workers In Indonesia. Journal of The Indonesian Medical Association,, Vol. 73(2), 2023).

Islami, S. A., Marisa, D., Kaidah, S., Muttaqien, F., & Illiandri, O. J. H. (2025). Hubungan kualitas tidur dengan tingkat tekanan darah pada pegawai Disdikbud Kalsel Tahun 2023. 7(3), 623-630.

Kemenkes. (2023). Survei Kesehatan Indonesia (SKI).

Lyon, A. R., Lopez-Fernandez, T., Couch, L. S., Asteggiano, R., Aznar, M. C., Bergler-Klein, J., . . . Cosyns, B. J. E. h. j. (2022). 2022 ESC Guidelines on cardio-oncology developed in collaboration with the European Hematology Association (EHA), the European Society for Therapeutic Radiology and Oncology (ESTRO) and the International Cardio-Oncology Society (IC-OS) Developed by the task force on cardio-oncology of the European Society of Cardiology (ESC). 43(41), 4229-4361.

Maku, F. N., Ismail, M. F., Kadir, K. P., Ramadhan, M. S., Umar, C. P. A., & Rahma, S. J. J. K. S. (2025). Gambaran Pola Hidup Sebagai Faktor Resiko Prahipertensi Pada Mahasiswa Fakultas Kedokteran Universitas Negeri Gorontalo. 8(12), 8423-8434.

Midu, S. Y., & Astrid, M. J. M. P. P. K. I. (2024). Faktor-Faktor yang Mempengaruhi Kejadian Hipertensi pada Pekerja: Literature Review. 7(3), 637-647.

Nabila, R. I., Herlinawati, H., Ariyanto, S., & Ronanarasafa, R. J. B. J. I. B. (2025). Hubungan Jenis Kelamin, Tingkat Pendidikan, dan Indeks Massa Tubuh Dengan Kejadian Hipertensi Pada Lansia di Wilayah Kerja PUSKESMAS Gunungsari Lombok Barat. 13(1), 364-373.

Nasution, M., & Nyorong, M. J. J. K. M. D. (2023). DETERMINAN SOSIAL BUDAYA DAN POLA MAKAN DENGAN KEJADIAN HIPERTENSI PADA MASYARAKAT SUKU ALAS DI WILAYAH KERJA PUSKESMAS MAMAS KUTACANE. 2(1), 87-100.

Ojangba, T., Boamah, S., Miao, Y., Guo, X., Fen, Y., Agboyibor, C., . . . Dong, W. J. T. J. o. C. H. (2023). Comprehensive effects of lifestyle reform, adherence, and related factors on hypertension control: A review. 25(6), 509-520.

Parati, G., Pengo, M. F., Avolio, A., Azizi, M., Bothe, T. L., Burnier, M., . . . Gironacci, M. M. J. J. o. h. (2025). Nocturnal blood pressure: pathophysiology, measurement and clinical implications. Position paper of the European Society of Hypertension. Journal of Hypertension, 43(8), 1296-1318.

Rachman, A., Nursery, S. M. C., & Hati, I. P. J. J. K. (2023). Hubungan kualitas tidur dengan tekanan darah. 15(4), 17-24.

Rafi'i, M. R., Hanif, S. A. M., & Bin Daud, F. (2025). Exploring the link between healthcare organizational culture and provider work satisfaction: a systematic review. BMC Health Serv Res, 25(1), 904. doi:10.1186/s12913-025-12973-6

Rahma, A. N., Wardani, H. E., Tama, T. D., & Kurniawan, A. (2023). Hubungan Faktor Internal dan Eksternal terhadap Kejadian Hipertensi pada Pekerja Satuan Kerja Perangkat Daerah (SKPD) Kabupaten Kediri. Universitas Negeri Malang,

Sagalulu, R. S. J. J. O. E. I., & Health, P. (2023). HUBUNGAN AKTIVITAS FISIK DENGAN KEJADIAN HIPERTENSI PADA WANITA MANOPOUSE DI WILAYAH KERJA PUSKESMAS TELAGA KABUPATEN GORONTALO. 1(2), 126-143.

Schettini, M. A. S., Passos, R., & Koike, B. D. V. (2023). Shift Work and Metabolic Syndrome Updates: A Systematic Review. Sleep Sci, 16(2), 237-247. doi:10.1055/s-0043-1770798

Subagiartha, F. S., Katuuk, M. E., & Paat, T. C. C. J. J. K. (2024). Hubungan kualitas tidur dengan tekanan darah pada perawat di Siloam Hospitals Manado. 12(1), 89-96.

Syahputri, N. S., Safitri, V., Kamisahri, K., Nahrisah, P., & Baharuddin, D. J. P. J. K. M. (2025). Analisis Pelaksanaan Program Penanggulangan Hipertensi Di Puskesmas Pante Raya Kabupaten Bener Meriah, Provinsi Aceh. 4(1), 11-18.

Tan, S. T., Santoso, A. H., Jap, A. N., Dinali, D., & Harsono, A. J. J. P. S. (2025). Pengukuran Tekanan Darah dengan Lingkungan Kerja pada Pekerja Kantoran di Kawasan Sudirman, Jakarta. 3(2), 197-203.

WHO. (2023). Laporan global tentang hipertensi 2025: taruhan tinggi: mengubah bukti menjadi tindakan.

Wianti, S. J. J. P. K. M. B. I. K. O. (2025). Edukasi Pencegahan Hipertensi dan Diabetes Melitus melalui Promosi Gaya Hidup Sehat bagi Karyawan Hatchery di Wilayah Pesisir Kabupaten Rembang.

Wirakhmi, I. N., & Purnawan, I. J. J. U. M. S. (2023). Hubungan aktivitas fisik dengan hipertensi pada lanjut usia di Puskesmas Kutasari. 7(1), 61-67.