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Work Department and Workplace Stress: A Cross-Sectional Study on Health Office Employees

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Abstract
Introduction: Work-related stress has become a critical issue in the health sector, with significant impact on productivity and quality of service. Preliminary studies found that 50% of employees at the Health Office of City X experienced work stress. This study aimed to investigate the association between gender, age, department, and stress among health workers in the Health Office of X city.
Methods: A cross-sectional study was conducted among 115 Health Office employees in City X in February- July 2025, which has already fullfill the minimal sample size for two proportion hypothesis with alpha of 0.05 and 95% power. The subjects were from five departments in the Health Office. Data were collected through interviews using valid and reliable structured questionnaires of the Workplace Stress Scale. Analyses were performed using chi-square tests and logistic regression.
Results: Overall, 53% of respondents experienced work-related stress. Older subjects (≥30 years) experienced more stress than younger workers, with an OR of 2.4 (95% CI: 1.04-5.56; p=0.038). Workers in the Division of Disease Prevention and Control also experienced more stress, with an OR of 3.56 (95% CI:1.13 – 11.11; p=0.030), while those in the other departments did not. No significant relationship was found between gender and work stress (p =0.552).
Conclusion: Work stress mitigation for employees can be implemented through interventions such as cross-generational mentoring programs and workload evaluation. Additionally, it is necessary to conduct regular assessments of work stress, stress management training, and monitor the workload of all employees in the Health Department.

Keywords: Employees; Health Office; Workplace Stress Scale; Work Departement; Work Stress

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Introduction

The work environment includes all the physical, psychological, social, and organizational conditions that affect the comfort and productivity of the employee.[1] A good environment with transformational leadership and inclusive policies can build up mental resilience.[2] On the other hand, a poor environment-for example, lack of proper resources, inefficient communication, or a toxic work climate-can act as a trigger for stress and ill health.[3,4]

According to the ILO (International Labour Organization) , work stress occurs when job demands exceed an individual's capacity.[5]

Data from the world show the urgency of work-related stress problems in various countries. For example, in the UK, there were 776,000 cases of work-related illnesses in 2023–2024[6], while in Indonesia, the stress level reached 16%.[7] A similar condition was found in preliminary studies at the Health Office of City X, where 50% of employees experienced work stress, consistent with the findings of Sorongan et al. in Manado (72.3%).[8] The government's response through Law No. 17/2023 on Health assures that mental health is a human right and becomes the basis for the importance of addressing work stress.[9]

According to Gibson et al., work stress results from the interaction between various stressors at the individual, group, organizational, and external levels in the workplace. More recent research also confirms excess workload and bullying, as well as some individual characteristics, as risk factors.[10,11] The impacts of this stress are multidimensional, from decreased productivity to physiological risks like cardiovascular disease.[12]

Health office workers are a special group because of their responsibility for citizens, heavy workload, and need to make speedy decisions.[13] These characteristics contribute to increased vulnerability to stress, while the importance of a supportive work environment has been emphasized. These studies suggest that specific approaches should be pursued in City X, as 50% of its employees reported stress.

Given these challenges, this study aimed to examine the relationship between individual characteristics (age and gender) and work division with work stress levels among Health Office employees in City X. We hypothesized that older employees and those in divisions with higher job demands (such as disease prevention and control) would experience higher levels of work stress than their younger counterparts.

Methods

A quantitative analysis was conducted in this study, adopting a cross-sectional design in which all the research variables were measured at one point in time. This design was selected for this study because of its applicability, efficiency in terms of resources and time, and suitability for the variables analyzed. The research was conducted at the Health Office of City X, from February to July 2025, covering the elaboration of the proposal, the period of data collection up to analysis, and data interpretation.

The study population comprised 140 employees of the Health Office of City X, distributed across five departments: Secretariat, Public Health, Disease Prevention and Control, Health Care Services, and Health Resources. Participant inclusion was based on well-defined criteria—currently employed personnel who voluntarily agreed to participate—and exclusion parameters consisted of staff members already on approved leave and any person who had previously participated in the pilot study. The sample size was calculated using the two-proportion hypothesis test formula:

$$n = \frac{[Z_{1-}\alpha/2\sqrt{2P(1-P)} + Z_{1-}\beta\sqrt{P_1(1-P_1) + P_2(1-P_2)}]^2}{(P_1 - P_2)^2}$$

Description:
$Z_{1-}\alpha/2 = 1.96$ (95% confidence level)
$Z_{1-}\beta = 1.64$ (95% power)
P_1 = 0.5(18) (expected stress proportion in exposed group)
P_2 = 0.11(18) (expected stress proportion in unexposed group)
$P = (P_1+P_2)/2 = 0.305$

This calculation yielded a minimum sample size of 72 respondents for the study. To account for potential non-response and enhance validity, we increased the sample size to 115.

The study participants were employees of the Health Office of City X, and data were collected using valid and reliable questionnaires. The Workplace Stress Scale employed a 1-5 Likert scale to measure work stress. Primary data were obtained directly from the respondents, and secondary data included employee records from the relevant institution.

The data analysis procedure included coding, entering, editing, and cleaning the data for accuracy. In the bivariate analysis, chi-square tests or simple logistic regression were performed to measure the associations between the variables. All analyses were performed using a statistical software.

Ethical approval for this study was obtained from the Health Research Ethics Committee of the Faculty of Health Sciences, Syarif Hidayatullah State Islamic University Jakarta (No. Un.01/F.10/KP.01.1/KE.SP/07.08.011/2025). The research procedures were authorized by the Health Office of City X to guarantee the confidentiality of the participants and their voluntary consent to participate in this study.

Results

Based on the research results from 115 respondents who participated in this study, work stress among respondents is shown in Table 1.

Based on Table 1, the majority of City X Health Department employees in 2025 experienced stress, with a total of 61 respondents (53%). The characteristics and work factors of the respondents are presented in Table 2.

According to Table 2, individual characteristics and department assignment of City X Health Office personnel in 2025 reveal specific patterns. Most staff members are 30 years of age or above, comprising 83 workers (72.2%), and the female gender dominates, with 86 employees (74.8%). Concerning work sector distribution at the City X Health Office in 2025, disease prevention and control (P2P) accommodates the highest proportion with 27 staff members (23.5%), while healthcare services employs the smallest number at 15 workers (13%).

Age with Work Stress

From the data in Table 3, of the 83 people aged 30 years and above, 59 % (n = 49) experienced stress, while the remaining 41% (n = 34) did not. In the group of people aged under 30 years (n = 32), 37.5 % (n = 12) experienced stress, while the remaining 62.5% (n = 20) did not experience stress. After analyzing the findings, the results revealed a statistically significant relationship between age and those who experienced work-related stress (p = 0.038), with an OR of 2.042. This indicates that people aged 30 years and above had a risk 2.042 times higher than those aged under 30 years old.

Gender with Work Stress

As indicated in Table 3, the results revealed that out of 29 male respondents, 14 (48.3%) experienced stress, whereas 15 (51.7%) did not. Of the 86 female respondents, 47 (54.7%) experienced stress, while 39 (45.3%) did not. Statistical analysis revealed no significant relationship between sex and occupational stress (P = 0.552), with an OR of 0.774, indicating a non-significant trend toward lower stress in men.

Work Department with Work Stress

Table 3 reveals a notable disparity in the distribution of work stress in relation to departments, where the highest rate is experienced by the disease prevention and control department (66.7%), and the lowest is in the health resources department (36%). In the Secretariat, both stressed and unstressed employees are in parity (50:50). Although the overall statistical analysis revealed no significant association between work departments and the onset of occupational stress, there was a partial statistical association between the disease prevention and control departments and occupational stress (p = 0.030). The results indicated that the likelihood of occupational stress was 0.281 times as likely in disease prevention and control departments as in employees of health resources.

However, the proportion of stressed employees in Disease Prevention and Control (66.7%) was higher than that in Health Resources (36%), suggesting that while the reference group (Health Resources) has higher odds, the Disease Prevention and Control division experiences a higher absolute stress prevalence. This apparent contradiction may reflect differences in sample size or other confounding factors not captured in this bivariate analysis.

Table 1. Distribution of Work Stress Levels Among City X Health Department Employees

Work Stress	Frequency (n)	Percentage (%)
Stress	61	53.0
Not Stressed	54	47.0
Total	**115**	**100.0**

Table 2. Demographic Profile and Work Department Distribution of Health Workers at City X Health Department Employees

Independent Variable	Frequency (n)	Percentage (%)
Age		
≥30 years old	83	72.2
<30 years old	32	27.8
Gender		
Female	86	74.8
Male	29	25.2
Work Departement		
Secretariat	24	20.9
Disease Prevention and Control	27	23.5
Healthcare Services	15	13.0
Public Health	24	20.9
Health Resources	25	21.7
Total	**115**	**100.0**

Table 3. Cross-tabulation of Individual Characteristics and Work Departement with Work Stress

Independent Variable	Work Stress						*P-value*	OR (CI 95%)
	Stress		Not Stressed		Total			
	n	%	n	%	n	%		
Age								
≥30 years olf	49	59.0	34	41.0	83	100.0	0.038	2.402 (1.038 - 5.557)
<30 years old	12	37.5	20	62.5	32	100.0		
Gender								
Male	14	48.3	15	51.7	29	100.0	0.552	0.774 (0.333 – 1.799)
Female	47	54.7	39	45.3	86	100.0		
Work Departement								
Secretariat	12	50.0	12	50.0	24	100.0	0.324	0.563 (0.179 - 1.765)
Disease Prevention and Control	18	66.7	9	33.3	27	100.0	0.030	3.559 (1.134 – 11.111)
Healthcare Services	9	60.0	6	40.0	15	100.0	0.144	0.375 (0.100 - 1.399)
Public Health	13	54.2	11	45.8	24	100.0	0.204	0.476 (0.151 - 1.496)
Health Resources	9	36.0	16	64.0	25	100.0		1

Discussion

Age with Work Stress

Evidence from the current research shows that age is a factor that affects the level of work-related stress experienced by employees of the Health Office of City X. This agrees with Gibson et al., who postulated that age is one of the characteristics that predispose people to experience occupational stress, given the disparities in adaptability, stage of career, and occupational demands.[12] Moreover, the factors of aging influence the susceptibility of a given individual to occupational stress arising from the effects of the pressure of work.

This is affirmed by a study conducted by Maziyya et al., which revealed that older employees are expected to possess more experience in

the workplace, thereby enhancing effective means of coping with stress as a result of that experience.[14] Conversely, however, a study conducted by Zulkifli et al. revealed that the reduction in one's physical and mental faculties due to aging, including a lack of visual, mental, and auditory acuity, becomes a source of extra stress.[15] This creates a paradox where work experience helps reduce stress, while aging increases its vulnerability to stress.

Moreover, employees aged ≥30 years had a risk of work-related stress that was 2.402 times higher than that of younger employees. This further reinforces that even as work experience helps in managing stress, the ill effects of aging, including lack of stamina and augmented responsibilities, also influence the risk factors considerably.

To reduce the stress that comes with aging, agencies can consider things like cross-generational mentoring, where senior employees mentor junior employees in the agency.[16] This not only assists the younger employees in becoming acclimated faster to the workplace environment, but it is also a way of making the senior employees feel valuable and giving them a chance to continue contributing to the establishment.

Gender with Work Stress

The results obtained in this study indicate that gender is not a significant factor in the level of work-related stress experienced by employees of the Health Office of City X. This is rather fascinating, as it runs contrary to the theory postulated by Gibson et al. that gender can be a determinant of stress at work due to variations in social requirements, gender roles, and coping mechanisms. Women are theoretically expected to be more susceptible to stress due to their joint responsibilities at home and in the workplace, whereas men experience stress as a result of being the primary wage earners in the family.[12] However, this study revealed a different dynamic in the context of the institution.

This is possibly due to the equality of gender roles in the organization, where duties are equitably shared in a manner that lacks gender bias. Finally, equality in employee stress management strategies and the convenience of stress management programs offered in employees' work environments may be balancing factors in this equation. This means that in a favorable working environment, gender roles do not act as a dominant factor in stress among individuals in organizations.

This result supports those of Maziyya et al. and Shintyar & Widanarko, who found that there is no significant relationship between gender and work-related stress.[14,17] They attributed this to the homogeneity of problem-solving, learning capacities, and work motivation in the workplace. It is evident that if well managed in the organization, the performance of employees as well as their stress levels are dependent on commitment rather than gender.

Nevertheless, this is in conflict with the result obtained by Awalia et al. for the nurses' group, which revealed a significant relationship between gender and occupational stress.[18] This is possibly due to differences in occupational characteristics, in which the employees of a health office are mostly engaged in administrative duties, as opposed to the emotional and tangible demands that nurses experience on a regular, everyday basis.

Despite a lack of statistical significance, this study found a greater percentage of job-related stress among female employees, as found in various studies, indicating the double burden faced by women.[19,20] Conversely, men are also under distinct pressures as family earners.[21] This study highlights that gender disparities need not demonstrate statistical importance in highlighting gender-related stress factors.

The nonsignificant result between gender and job stress in this analysis implies that the main cause of a stressed condition is rooted in another factor, which, in this case, is the organizational culture. Furthermore, to continue enjoying this positive condition, institutions need to promote a flexible environment free from gender discrimination. This will not only promote a healthier condition among

employees, but it will also form a firm foundation in productivity

Work Departement with Work Stress

The results of this study show that there is a significant relationship between departments of work and the level of job stress, specifically in the Disease Prevention and Control departments. This supports the theory proposed by Gibson et al. that having a variation in job characteristics in various departments affects the level of job stress.[12] For example, the disease prevention and control department experiences high stress associated with the gravity of issues in the medical field.

This is inconsistent with Pitaloka's findings, as he concluded that there is no significant relationship between work units and stress, since employee competency will act as a buffer to reduce the effects of stress.[20] Conversely, this is in agreement with the findings of Akbar et al., as well as Ningrat & Mulyana, which indicated that job-related stress is influenced by certain requirements of the job, such as time constraints associated with strict deadlines.[22,23] This discrepancy may stem from differences in institutional characteristics and the effectiveness of implemented stress management systems.

In the Health Office of City X, where stress levels vary according to the department, job demands cause varying levels of stress. Nevertheless, strategies to alleviate this problem have been implemented. Activities such as department meetings and consultations with supervisors/colleagues are effective ways to avoid stress. Despite this, stress is high in specialized departments such as disease prevention and control.

Further data support a relatively equal allocation of workload across departments, indicating subjectively equal allocation of tasks. However, a large number of staff members continue to experience moderate to high workloads. This further supports the notion that, notwithstanding the fact that overall stress levels do not vary across departments, specialized departments such as disease prevention and control continue to pose a higher risk.

To address disparities in stress levels, the Health Office in City X could implement the following improvements: First, optimize task allocation based on each department's specifications. Second, department-based wellness programs, such as stress management training, should be enhanced. Finally, implementing a workload monitoring process, where departments that require focused intervention can be identified, leads to a well-balanced environment that is healthier for all.

Research Limitations

This study has some limitations that could influence the results and analysis of the findings. First, there is a risk that response bias will result from employees filling out the questionnaires during their breaks. This scenario could result in employees rushing to answer the questions. Moreover, employees could submit questionnaires with their colleagues. This issue could reduce data quality despite the fact that the research instrument had been crafted in an easily understandable way with clear instructions on filling in the questionnaires. Nonetheless, employees were given explanations before completing the questionnaires.

Second, this study did not include employment status as a factor, despite previous findings showing a significant relationship between it and workplace stress. Therefore, it is recommended that future studies include this factor to add depth to the findings related to work stress.

Conclusion

In 2025, the prevalence of employee stress in the Health Office of City X was found to be 53%. A large number of employees in the Health Office of City X were ≥30 years old (72.2%), female (74.8%), and had a service duration of less than 8 years (59.1%). Employees in The Health Office of City X are divided into various job departments, of which the most common is disease prevention/control (23.5% of employees). A large number of employees in the Health Office of City X rated the internal culture of the office as good (54.8% in total), whereas employees'

mental workload is mostly in the moderate group (45.2% in total), followed by high

The results of the analysis revealed that age had a significant association with work stress (OR = 2.402), implying that older workers were more prone to experiencing stress. Despite the fact that job departments had no significant relationship, there was a partial significant association between the disease prevention and control department and work stress. Moreover, there was a highly significant association between organizational culture variables and work stress (OR = 8.014), implying that a negative perception of organizational culture is a significant factor that increases the risk of stress.

Ethics approval

This study was approved by the Health Ethics Commission of the Faculty of Health Sciences, Syarif Hidayatullah State Islamic University Jakarta. The ethical approval letter has the reference number Un.01/F.10/KP.01.1/KE.SP/07.08.011/2025. The validity period of this ethical approval refers to the duration stated in the submitted protocols and research plans. This research has also obtained permission from the relevant authorities.

Availability of data and materials

The data collected and analyzed in this study are not publicly available to maintain the confidentiality of the respondents but can be requested directly from the author if needed.

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Author Contribution

HRA designed the study and analyzed, interpreted, and discussed the related aspects of the entire study and is the major contributor. IH provided input, corrected the text, and prepared the manuscript for submission. All authors have read and approved the final manuscript.

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