

Safety climate and work stress in university administration staff

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Abstract

Purpose: Workers can be exposed to work stress that can cause accidents. As a center for the development of science, universities cannot avoid the dangers and risks that can threaten safety. In this case, there is a need for an approach to workplace safety through applying a safety climate that is useful for providing a sense of security and comfort and increasing safety behavior.

Method: This survey used 164 respondents who work at a university, asking questions about gender, age, work experience, stress level, and perception of safety. The analysis included univariate analysis using frequency and percentage; bivariate and multivariate analysis using a binary logistic regression test. **Result:** Most respondents were women, middle-aged, and had worked for more than 21 years. More than half of the respondents experienced stress and rated the safety climate as low. Male respondents had a higher chance of experiencing stress than female respondents. Respondents with a lower level of safety climate were more likely to report work stress than those respondents with a high level of safety climate.

Conclusion: Respondents' perception of the safety climate affected their stress levels, and managers should consider this when designing programs to prevent stress at work.

Keywords: safety climate; work stress; administration staff

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INTRODUCTION

Constitution Number 13 of 2003, concerning manpower, regulates Occupational Safety and Health (OSH) to protect workers. In this case, it is applied to achieve physical endurance, work power, and occupational health for the comfort of workers in the workplace, so that OSH doesn't only focus on physical factors but also includes psychological factors for workers. Workplace stress is one of the psychological risk factors that workers may experience. Work stress

is a significant issue for workers and the workplace because it is linked to worker productivity [1]. Work stress is another factor that contributes to workplace accidents because it affects worker behavior [2]. There were 828,000 cases of workers in the United Kingdom from 2019 to 2020 experiencing stress, depression, or anxiety related to their work, according to data from the Labor Force Survey (LSC) that the Health and Safety Executive (HSE) released [3]. Universities as one of the workplaces are also exposed to stress hazards. A previous research in Australia on academic

and general staff within 15 Universities revealed that academic and general staff reported having occupational stress, where academic staff reported having a higher level of stress than general staff [4]. One of the Indonesian study on university administrative staff in Medan found that the staff experience physiological, psychological and behavioral stress symptoms [5]. In addition, a study conducted at the North Sulawesi Province Regional Financial and Asset Agency on the state civil apparatus to obtain research results that 55.5% of the civil apparatus had a high category of work stress and 45.5% of the civil apparatus had a low category of work stress [6].

Educational institutions such as universities are no longer low-stress environments because stressors such as work performance lead to work demands that result in workplace conditions and infrastructure that directly impact work stress [7]. In this case, researchers conducted preliminary research on 20 administration staff and discovered that as many as 12 administration staff (60%) have mild work stress and as many as 8 administration staff (40%) have work stress category currently.

Safety climate is the perception of individuals as workers regarding several things, such as policies, procedures, practices, interests, and priorities in safety at work. The concept of "safety climate" was originally introduced by Zohar in 1980, and the concept illustrates that workers do have a unity of awareness regarding the safety aspects of their organization [8]. Griffin and Neal stated that the safety climate affects work safety. The influence of the safety climate can be seen in the form of an influence on attitudes, work methods, and interactions between workers [9]. If safety climate is lacking, it will be one of the causes of work accidents [10].

The university as a center for the development of science also cannot avoid dangers and risks that can threaten the safety of all teaching staff, administration staff, and students who are in their environment [11]. These hazards and risks can be in the form of chemical hazards (dust in the work environment), physical hazards (environmental temperature, radiation from computers, and air pressure), biological hazards (cleanliness of the work environment), ergonomic hazards (poor equipment and workplace design), inadequate lighting, repetitive movements, and awkward working positions causing musculoskeletal disorders in workers. Therefore, there is a need for the implementation of occupational and health management in the workplace [12].

Previous research on the relationship between safety climate and work stress has not previously been

discussed within educational institutions such as universities and academic staff. Previous study results on palm oil factory employees' found no negative relationship between safety climate and work stress, with the effect of safety climate accounting for 0.9% of factory employee work stress. A negative relationship means that the two variables are not related, and this occurs due to implementing a routine stress management training program once a month [13]. In addition, there is research conducted on factory employees of PT. X in Solo shows a negative relationship between safety climate and work stress, meaning that the higher the safety climate, the lower the perceived work stress [14]. Based on some previous studies, examining the relationship between safety climate and work stress in different fields of work, especially in jobs within the scope of educational institutions is necessary. This study will discuss the relationship between these two variables as university educational resources that can eventually be referenced in future studies.

METHOD

This type of research is an analytic study with a cross-sectional design. This research was conducted in every faculty at Sam Ratulangi University in Manado from May to September 2022. The research population was divided into the target population, which is all administration staff at the university, and the accessible population, which is administration staff at faculties in the University of Sam Ratulangi Manado, totaling 264 people. The research sample consisted of 164 respondents obtained using a purposive sampling technique with inclusion and exclusion criteria. This study has a dependent variable, which is work stress as a reaction given by each member of the administration staff both physically and emotionally in response to the causes of stress, and an independent variable, which is safety climate, which is the perception of administration staff towards policies, procedures, and the application of work safety in the university environment. To measure work stress variables, a single-item questionnaire on stress symptoms [15] and adaptation questionnaire from Nordic Safety Climate Questionnaire (NOSACQ-50) with 47 statements (26 favorable items and 21 unfavorable items) to measure the safety climate variable [16]. Data analysis used in this study consisted of univariate analysis, which was performed using frequency and percentage, bivariate analysis, and multivariate analysis, which was performed using a binary logistic regression test. Variables that have a p -value ≤ 0.20 that is, gender, age, overall score of

Table 1. Univariate and bivariate analysis with frequency and percentage (n = 164)

Univariate		Bivariate			
Variable	%	OR	95%CI	p-value	
Gender		2.013	1.007	4.021	0.048
Male	37.8				
Female	62.2				
Age		1.602	0.788	3.256	0.193
26 - 45 years (Adult)	32.3				
46 - 65 years (Elderly)	67.7				
Last education		0.731	0.384	1.393	0.341
Graduated from high school/equals	43.3				
Graduated from university	56.7				
Length of employment		1.278	0.672	2.430	0.454
<21 years	48.8				
≥21 years	51.2				
Employment status		1.128	0.538	2.366	0.749
Honorar	25.6				
Government employees	74.4				
Work stress					
No	35.4				
Yes	64.6				
Overall Score of Safety climate		0.487	0.250	0.950	0.035
Low score	56.1				
High score	43.9				
Safety priority, management commitment, and competence		0.911	0.162	5.129	0.916
Low score	96.3				
High score	3.7				
Empowerment of work safety from management		1.207	0.488	2.987	0.684
Low score	86.0				
High score	14.0				
Management justice on work safety		2.385	1.229	4.630	0.010
Low score	48.2				
High score	51.8				
Workers' commitment to work safety		1.699	0.890	3.243	0.108
Low score	56.7				
High score	43.3				
Workers' safety priority, and intolerable risks		1.768	0.925	3.379	0.085
Low score	57.3				
High score	42.7				
Learning, communication, and competence		0.971	0.385	2.447	0.971
Low score	86.0				
High score	14.0				
Workers' trust in work safety systems		1.941	0.646	5.836	0.238
Low score	91.5				
High score	8.5				

safety climate, dimensions of management justice on work safety variables, dimensions of workers' commitment to workplace safety, and dimensions of Workers' safety priority, and intolerable risks were included in the multivariate analysis.

RESULTS

The highest gender distribution of respondents is females. The study is conducted with educational

workers ranging from 26 to 65 years of age, with the most respondents in the age group of 46 to 55 years. In terms of last education, the majority of respondents were university graduates. The majority of respondents had more than 21 years of work. They were mostly with employment status as government employees.

In this study, the statistical analysis result of work stress suggest that the respondents were more likely to experience work stress. Furthermore,

overall the result of safety climate falls into the "low" score category. The safety climate consists of seven dimensions: dimensions of safety priority, management commitment, and competence are in low score categories; empowerment dimensions of work safety from management have an low score category; dimensions of management justice on work safety are in a high score category; dimensions of workers' commitment to workplace safety are in an low score category; dimensions of workers' safety priority and intolerable hazard risks are in a low score category; learning dimensions, safety communication, and confidence in safety competence are in low score categories; and dimensions of workers' trust in the effectiveness of work safety systems are in an low score category.

The results of the bivariate analysis for the variables gender, overall score of safety climate, and dimensions of management justice on work safety have a significant relationship with work stress.

The multivariate analysis revealed that gender had a relationship with the onset of work stress, in this study, males have a 2.2-fold greater chance of experiencing work stress than females. Age had a relationship with work stress. Adults (26-45 years) are 2.2-fold more prone to work stress than elderly (46-65 years). Dimensions of management justice on work safety has a significant relationship with the incidence of work stress. The lower the dimensions of management justice on work safety, the higher the possibility of work stress (table 2).

Table 2. Analysis multivariate with binary logistic regression test

Variabel	Model 1 OR 95%CI	Model 2 OR 95%CI
Gender		
Male	2.282* 1.090-4.778	2.236* 1.095-4.569
Female	.	.
Age		
26-45 years (Adult)	2.221* 1.008-4.891	
46-65 years (Elderly)	.	.
Overall score of safety climate		
Low score	0.528* 0.247-1.129	
High score	.	.
Management justice on work safety		
Low score	2.093* 1.011-4.332	2.591* 1.313-5.113
High score	.	.
Workers' commitment to work safety		
Low score	1.321 0.627-2.786	
High score	.	.
Workers' safety priority, and intolerable risks		
Low score	1.717 0.826-3.571	
High score	.	.

* : significant ≤ 0.05

DISCUSSION

From a psychological standpoint, the stress that administration staff in this study experience is work stress. Work stress from a psychological perspective can affect the psychological well-being of workers. This psychological well-being then affects worker performance. In this case, workers with low stress levels can improve subjective well-being in terms of effectiveness and cognition as reflected in always

doing good to colleagues, being able to restrain emotions, being able to do tasks rationally, and always trying to improve themselves [17]. Research conducted on employees at PT. Telekomunikasi Indonesia TBK shows that women experience more work stress than men. Work stress can be influenced by gender because there are differences between male and female genders in dealing with problems at work. Males perceive a problem or competition in the workplace as a positive encouragement, whereas for females, problems that arise can trigger fear, anxiety,

and stress because they have a negative awareness of the problem [18]. Changes in the hormones estrogen and progesterone can also cause women to be more at risk of experiencing work stress [19]. In this study, based on the multivariate analysis conducted, it was found that male respondents had twice the chance of experiencing work stress than women, so it was inversely proportional to previous research. The female administration staff in this study were more dominant and had a high level of education. Research conducted on call center officers at the Regional Disaster Management Agency found that workers with a high school education level tend to experience more work stress compared to workers who have an education up to the university level. This happens because workers are less adaptable to changes in the way they work, such as the use of computers and a lack of skills in dealing with problems in the workplace [20]. According to Munandar, the level of education plays a role in the emergence of stress in the workplace because it can lead to resilience and skills at work. Workers who have a low level of education will tend to experience work stress because they are not equipped with sufficient education, so they cannot overcome problems at work [21].

The next individual characteristic associated with work stress is age. In this study, adults with an age range of 26-45 years tend to be more susceptible to experiencing work stress than those with an age range of 46-65 years or the elderly. Based on research conducted in Taiwan in 2015 on people who work to get results, younger workers experience higher levels of work stress, caused by work pressure, greater self-assessment, feel tired even before work, and think more about work than the older age group [22]. On the other hand, according to research at PT. Elnusa Tbk Muara Badak Region in terms of physical health, someone who is older has a declining health condition. This can occur due to physiological abilities that experience decreased functions such as visual, thinking, remembering, and hearing and this can make older workers tend to experience work stress compared to younger workers [23].

Safety climate is the perception or perspective of workers about management's commitment to workplace safety and how much it contributes to the production process in general [24]. In this study, the relationship between safety climate and work stress is that if the workplace does not guarantee a sense of security for its workers, this will make workers feel uncomfortable doing work and impact their ability to experience work stress [13]. The research was conducted to analyze the relationship between safety climate variables and previous work stress, but has

not been found within the scope of educational institutions such as universities, especially among administration staff. However, there are other studies, the research conducted in PT. X at PT. Kideco Jaya Agung for heavy dump truck (HD) operators, the result of which is that there is a relationship between the two variables in the direction of a negative or opposite relationship. This means the higher the safety climate, the lower the perceived work stress [25]. In the study, the safety climate is more dominant in the "low" category, with dominant work stress still experienced by administration staff, so the implementation of a "low" safety climate has not prevented administration staff from experiencing stress at work.

Safety climate in this case, has seven dimensions that support the creation of a safe workplace and describe the perception of each worker towards the work safety climate [26]. From the seven dimensions, there is one that has a high score category and related to work stress, namely the dimension of management justice on work safety. This dimension is the worker's response to how management works in the workplace when dealing with workers who are involved in occupational health and safety. If this dimension is not well implemented, for example, management is unfair when treating workers who are involved in accidents, then this can cause workers to experience work stress. This work stress occurs because workers assume that when they have an accident, management will not treat them well, instead it will blame the worker without conducting an accurate investigation of the accident [13]. In addition, workers have concerns about sanctions if workers report near miss [27]. The dimensions of the safety climate that have the most respondents with low scores are the dimensions of workers' safety priority and intolerable hazard risks. Every workplace must have risks and hazards that can arise from the use of machines and materials to the effects on workers. Within the scope of education, various means of supporting activities can be a source of potential hazards, such as the use of electronic devices that have the impact of electric shock or electric short circuits [28].

CONCLUSION

Based on this research, it can be concluded that the safety climate has a significant relationship and is an important risk factor for the emergence of work stress in administration staff at the university. It is recommended that administration staff could manage stress properly, such as regularly practicing physical exercise, best possible use of time by completing work,

increasing exercise time, practicing relaxation, adopting a clean and healthy lifestyle, and avoiding conflict. In addition, the administration staff is also expected to be able to actively participate in all forms of efforts to address occupational health and safety in the workplace, such as maintaining the tidiness and cleanliness of the workplace and being able to report any injuries or accidents at the workplace to health and safety team in university.

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