

Mental Workload and Work Factors as Predictors of Stress Levels in Port Sector Employees

Wahdah Dhiyaul Akrimah¹, Irlangga Wisnu Wardana², Abdul Rohim Tualeka³

^{1,3}Department of Occupational Safety and Health, Faculty of Public Health, Universitas Airlangga, Indonesia
Campus C Mulyorejo, Surabaya, East Java 60115 Indonesia

²Safety Department, Health and Safety Division of PT Total Bangun Persada Tbk., Indonesia
Jl. Letjen. S. Parman Kav. 106, West Jakarta 11440 Indonesia

ABSTRACT

Introduction: Non-operational employees of the Terminal Jamrud Surabaya are faced with various work-related issues while performing their duties which can be stressful due to work demands, relationships with many parties, and workloads. This study analyzes the relationship between mental workload and work factors (role ambiguity, role conflict, job insecurity, and interpersonal conflict) with occupational stress for non-operational office employees at Terminal Jamrud Surabaya. **Methods:** This study was a descriptive observational study with a cross-sectional design. The sampling technique used in this study is total sampling. The sample for this study were all employees of the Terminal Jamrud Surabaya office, up to 30 people. Primary data were collected using a questionnaire to assess stress levels and work factors variables. The mental workload was measured using the NASA - Task Load Index questionnaire. **Results:** The employees mostly have a mental workload, role ambiguity, role conflict, and interpersonal conflict in the moderate category, while the majority of office employees have job insecurity at a low level. Meanwhile, the stress levels felt by employees were mainly in the moderate category. The strong relationship between mental workload with occupational stress is 0.634, while work factors with stress levels consist of role ambiguity ($r=0.523$), role conflict ($r=0.468$), job insecurity ($r=0.075$), and interpersonal conflict ($r=0.445$). **Conclusion:** Variables that have a strong relationship are mental workload variables with stress levels in non-operational office employees at Terminal Jamrud Surabaya, PT Pelabuhan Indonesia III.

Keywords: mental workload, office employees, occupational stress, work factors

Corresponding Author:

Wahdah Dhiyaul Akrimah
Email: wahdah.dhiyaul.akrimah-2018@fkm.unair.ac.id
Telephone: +6285784766997

INTRODUCTION

Entering the global acceleration round of technology and work processes, Indonesia is currently faced with the dynamics of the growth of various business sectors to affect the activities of the logistics sector. Based on the Economic Report by the Indonesian Central Bureau of Statistics (2020), the logistics sector in 2018 contributed to a Gross Domestic Product (GDP) of 797.8 trillion (5.38%), increasing to 881.6 trillion (5.57%). This increased financial performance means that the logistics sector's growth is essential to the nation's economic

development. Port is one of the infrastructures that plays an essential role in logistics (Kennedy, 2019).

The Sustainable Development Goals (SDGs) efforts in the scope of occupational health and safety are listed in the third target point 3d in capacity building in all countries, especially developing countries, regarding risk reduction and health risk management (Ministry of National Development Planning, 2020). Suppose it refers to the Regulation of the Minister of Manpower of the Republic of Indonesia Number 5 of 2018 concerning occupational Health and Safety in the work environment. In that case, it further describes that five risk factors in the work environment need to be assessed and controlled, including physical, chemical, biological, ergonomic, and psychological factors. The workplace's mental and psychosocial factors are a health hazard if not recognized and

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evaluated, and risk management efforts are not carried out.

Mental health issues in the workplace, including occupational stress, needs particular attention because the financial loss incurred is not a small amount. Data from the World Federation of Mental Health (2017) explains that the global costs of mental health problems in the workplace are estimated at US\$ 2.5 trillion and are expected to increase to US\$ 6 by 2030. The effect of stress is related to the organization, one of which is an increase in work turnover (Tarwaka, 2019). It is reinforced by the results of the study of Kachi *et al.* (2020) on 5765 women and 3892 male workers aged 20-49 years at Japanese financial companies showed that 122 men and 760 women resigned due to occupational stress. Men and women with a high-stress level are categorized as three times (men) and 1.5 times (women) risk resigning from work.

Work stressors are all work conditions that employees perceive as demands and can cause stress. Job stress can be caused by various factors, including outside the organization, organizational, individual internal, and group factors. The organizational factors studied in this research are mental workload, role ambiguity, role conflict, job insecurity, and interpersonal conflict (Asih, Widhiastuti and Dewi, 2018). Mental workload is the mental capacity the body needs to think, calculate, and predict things (Tarwaka, 2019). Role ambiguity is the gap between the amount of information owned and needed, the absence of clear directions and policies, and uncertainty about the authority to carry out its role correctly. In addition, it can also be interpreted as a lack of understanding of the privileges and obligations that someone can have to do work (Meidilisa and Lukito, 2020). Role conflict is more on the individual aspect of the perspective regarding each assignment given, whether by the role or work desk or whether it is a versatile job outside the work desk (Purnama, Wahyuni and Ekawati, 2019). Job insecurity is a condition that can affect a person's psychological condition because an uncertain job is associated with the threat of losing his job in the future (Qian *et al.*, 2019). Social interaction in the workplace can be a source of fulfilment and individual satisfaction, but on the other hand, it can also cause stress in the event of a conflict. Interpersonal conflict is one of the work factors that can lead to increased work stress (Suryani and Yoga, 2019).

PT Pelabuhan Indonesia III is a corporation in the maritime sector that manage 43 public ports located in seven provinces of the archipelago. Pelabuhan Indonesia III (Persero) provides comprehensive and varied port services ranging from logistics, containers, bulk terminal management liquid and gas, guiding the mooring of ships, and loading and unloading activities. One of the terminals is owned by PT Pelabuhan Indonesia III (Persero) Tanjung Perak Branch is Terminal Jamrud. The Jamrud Terminal port service process is supported by field operations personnel to carry out loading and unloading activities. The office staff are engaged in administrative and managerial fields such as managing records and notes for loading and unloading bills, payments for heavy equipment services, and notes receivable.

Based on the preliminary study conducted, a high mental workload can arise because the object of work requires much focus on the details of calculating numbers that amount to tens of millions of rupiah. In addition, the monotony of staring at the screen for 8 hours of work can also cause a mental workload. The leader achieving the monthly performance target often challenges workers to carry out more responsibilities outside of their usual work so that role conflicts can occur. The material for the briefing activities carried out before work is sometimes difficult for workers to grasp because the distance from the presenters is quite far. This situation can lead to role ambiguity in workers. Some workers are contract workers whose contracts can terminate at any time, so there is a threat of losing their jobs even though they have the responsibility to provide for their families. This situation can lead to job insecurity. Misunderstanding of coordination between workers can cause conflicts between groups or members that can cause interpersonal conflicts at work.

Various complaints experienced by office staff such as frequent headaches, sometimes loss of appetite, indigestion, sometimes difficulty focusing, difficulty in making decisions, and quickly tired indicate an indication of stress at work. The Health Safety Security and Environmental (HSSE) Terminal Jamrud stated that measurements had not been taken to determine the stress levels of non-operational office employees at Terminal Jamrud and the factors causing it. So a study was still needed on the stress levels of office employees and the strong relationship between the factors causing occupational stress at

Jamrud Terminal of PT Pelabuhan Indonesia III (Persero) Tanjung Perak Branch.

METHODS

The type of research used is observational, in which the researcher only observes the object of study without any particular treatment or intervention. Upon viewing the time dimension, this research is classified as a cross-sectional study because the researchers made observations over a certain period. When viewed from the nature of the problem and data analysis, this research is included in descriptive research because it aims to analyze the strength of the relationship between work factors and occupational stress levels.

The population in this study were all workers or non-operational office employees at Terminal Jamrud Surabaya, an amount of 30 people. In this study, the researcher did not set inclusion or exclusion criteria so that all office staff at Terminal Jamrud Surabaya could participate. The sampling technique used is the total population, where the researcher draws all members of the population, all non-operational office employees totalling 30 people. This research was conducted in the non-operational field, including employees of the office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III from March to June 2021.

The variables in this research consisted of independent variables and dependent variables. The independent variables studied included work factors: mental workload, role ambiguity, role conflict, job insecurity, and interpersonal conflict. The dependent variable is occupational stress levels.

Primary data collection was obtained directly from the respondents through questionnaires. The measurement of the level of work stress of office employees using the General Work Stress Scale. In this questionnaire, there are indicators of changes in motivation (questions 1 and 2), cognitive (questions 5, 6, 8, and 9), and affective (questions 3, 4, and 7). The assessment categories are low; $X < (\mu - 1.0\sigma)$, medium: $(\mu - 1.0\sigma) < X < (\mu + 1.0\sigma)$, and high: $(\mu + 1.0\sigma) < X$. Mental workload was measured using a special questionnaire in the form of value ratings and weighting based on the NASA-TLX method. The results of mental workload are categorized into five categories based on the final score that is very low (0-20), low (21-40), moderate (41-60), high (61-80), and very high (81-100). Work factors such as role ambiguity, role conflict, job insecurity,

and interpersonal conflict were measured using the NIOSH Generic Job Stress Questionnaire. The results obtained are then categorized based on the calculation of the formula:

$$Interval = \frac{\Sigma_{highest} - \Sigma_{lowest}}{Category}$$

So that the categories for role ambiguity and role conflict are low (7 – 20), moderate (21 – 34), and high (35 – 49). Job insecurity is low (5-10), moderate (11-15), and high (16-20), while the category of interpersonal conflict is low (16-36), moderate (37-58), and high (59-80). Primary data was also collected through interviews regarding activities or daily work processes carried out by respondents.

Primary data collection was obtained directly from the respondents through questionnaires. The mental workload was measured using a special questionnaire in the form of rating values and weighting based on the NASA-TLX method and interviews regarding activities or daily work processes carried out by respondents. Meanwhile, secondary research data includes company profiles in the form of general descriptions, names and the number of non-operational workers at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) Surabaya. The Spearman correlation test is used because the data is ordinal, so the strength and direction of the relationship are seen using the correlation coefficient (r) test. The strength of relationship's categories are very weak (0.000-0.199), weak (0.200-0.399), moderate (0.400-0.599), strong (0.600-0.799), and very strong (0.800-1.000). This research has passed the ethical feasibility test from the Ethics Committee of Airlangga University, Faculty of Dentistry, with the issuance number: 045/HRECC.FODM/II/2021.

RESULT

The frequency distribution of factors in work related to occupational stress include mental workload, role ambiguity, role conflict, job insecurity, and interpersonal conflict among employees of the non-operational office of Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero).

Based on table 1, it can be seen that from 30 employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III

(Persero), as many as 26.7% have a high mental workload. Most of the office employees' role ambiguity is in the moderate category with a percentage of 70%, as well as role conflict and interpersonal conflict, most of which are in the moderate category, each having a percentage of 50% and 53.3%. Moreover, most of the employees' job insecurity is at a low level, namely 66.7%.

From table 2 below, most of the employees have a moderate stress level with a percentage of 60%. Meanwhile, office employees who feel stress levels in a low state are 23.3% while the ones with a high state level are 16.7%.

The majority of the workers who have a moderate mental workload experienced moderate stress levels. Based on table 3, the finding shows that the higher the level of mental workload, the higher the work stress experienced by workers. The results of statistical tests give the results of the Spearman correlation coefficient of 0.634 with a positive direction. This means that the relationship between mental workload and occupational stress levels is in a strong category.

Meanwhile, from the cross-tabulation between variables of role ambiguity and stress levels, it is clear that the majority of employees with moderate role ambiguity experienced moderate levels of stress. Also, the higher the role ambiguity, the higher the stress level experienced by office employees. Based on the results of the statistical test the Spearman correlation coefficient shows a value of 0.523 with a positive relationship direction. This indicates that there is a moderately strong correlation between role ambiguity and stress levels among office workers.

Table 1. Frequency Distribution of Work Factors at PT Pelabuhan Indonesia III (Persero) in 2021

| W o r k Factors | Category | | | | | | Total | |
|------------------------|----------|------|----------|------|------|------|-------|-------|
| | Low | | Moderate | | High | | N | % |
| | n | % | n | % | n | % | | |
| Mental workload | 6 | 20.0 | 16 | 53.3 | 8 | 26.7 | 30 | 100.0 |
| Role Ambiguity | 9 | 30.0 | 21 | 70.0 | 0 | 0.0 | 30 | 100.0 |
| Role Conflict | 13 | 43.3 | 15 | 50.0 | 2 | 6.7 | 30 | 100.0 |
| Job Insecurity | 20 | 66.7 | 9 | 30.0 | 1 | 3.3 | 30 | 100.0 |
| Interpersonal Conflict | 14 | 46.7 | 16 | 53.3 | 0 | 0.00 | 30 | 100.0 |

In the cross-tabulation results between variables of role conflict and the stress levels of office employees, it is clear that the majority of the workers who have a moderate role conflict experienced moderate stress levels and there are no workers with low levels of stress with high levels of role conflict. Thus, the higher the role conflict, the higher the stress level experienced by office employees. Based on the results of the statistical test the Spearman correlation coefficient shows a value of 0.468 with a positive relationship direction. This indicates that there is a moderately strong correlation between role conflict and stress levels among office workers.

Based on the results of the cross-tabulation between the variable job insecurity and the stress levels of office employees, it shows that all of the workers who have the high job insecurity experienced moderate stress levels. The higher the job insecurity, the higher the occupational stress levels felt by office employees. Based on the results of statistical tests, the value of the Spearman correlation coefficient is 0.075. This indicates that there is relatively little correlation between job insecurity and levels of occupational stress.

Also, the results of the cross-tabulation between the variables of interpersonal conflict and the stress levels of office employees, it can be interpreted that the majority of the workers who have moderate interpersonal conflict experienced moderate stress levels, and no employees with moderate interpersonal conflicts are experiencing low levels of stress. Thus, the higher the interpersonal conflict of office employees, the higher the level of their stress. The findings indicated that there were no workers who experienced high interpersonal conflicts. Moreover, the results of statistical analysis showed the results of the Spearman correlation coefficient of 0.445 with a positive relationship direction. This shows that the relationship between interpersonal conflict and stress levels has moderately strong relationship.

Table 2. Frequency Distribution of Occupational Stress Levels at PT Pelabuhan Indonesia III (Persero) in 2021

| Stress Levels | Frequency | Percentage (%) |
|---------------|-----------|----------------|
| Low | 7 | 23.3 |
| Moderate | 18 | 60.0 |
| High | 5 | 16.7 |
| Total | 30 | 100.0 |

DISCUSSION

Frequency Distribution of Work Factors and Occupational Stress Levels

From the results of this research which was conducted on 30 employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero), it can be seen that the employees of the non-operational office at Terminal Jamrud Surabaya mostly have a mental workload, role ambiguity, role conflict, and interpersonal conflict in the moderate category, while the majority of office employees have job insecurity at a low level. Meanwhile, the stress levels felt by employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) was mostly in the moderate category.

The office staff at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) can handle 3 to 4 ships with various kinds of records and notes such as heavy equipment operation, weighing, loading, and unloading activities, where each record and note has various amounts. Each note that must be completed has a deadline and allows for the build-up to occur. This is in line with research conducted by Suci (2018) which said that work demands can be the cause of mental workload, namely the fulfillment of targets and time demands from the company that must be met.

The Terminal Jamrud Health Safety Security and Environmental (HSSE) said that although all office staff worked non-shift, starting at 08.30 – 16.00, sometimes unfinished work must be done at home, and even staff sometimes received calls from agents, customers, or teammates for various purposes such as planning operations for loading and unloading activities. In addition, billing records must be updated, thus whether employees like it or not, they must be available for calls. This is in line with research by Lady, Susihono, and Muslihati (2017) which states that when an individual's expectations from the organization are high, role conflict frequently arises.

The misunderstanding of coordination between non-operational employees led to a revision of the note recording because the agent or customer asked for a price reduction so the staff worked twice to fix the notes and records. This is following the statement by Pratama and Fuadati (2021) that differences in thinking between fellow employees can lead to problems that can trigger conflicts between employees or interpersonal conflicts.

Because speakers are often relatively far away from the audience, it might be challenging for workers to understand the information during the briefing activities that take place before work. This is in line with research by Meidilisa and Lukito (2020) which explains that when members of an examination team are unclear about their

Table 3. The Relationship Between Work Factors and Occupational Stress Levels at PT Pelabuhan Indonesia III (Persero) in 2021

| Work Factors | | Stress Level | | | | | | Total | | Correlation Coefficient |
|------------------------|----------|--------------|------|----------|-------|------|------|-------|-------|-------------------------|
| | | Low | | Moderate | | High | | | | |
| | | n | % | n | % | n | % | N | % | |
| Mental Workload | Low | 4 | 66.7 | 2 | 33.3 | 0 | 0.0 | 6 | 100.0 | 0.634 |
| | Moderate | 3 | 18.8 | 12 | 75.0 | 1 | 6.3 | 16 | 100.0 | |
| | High | 0 | 0.0 | 4 | 50.0 | 4 | 50.0 | 8 | 100.0 | |
| Role Ambiguity | Low | 6 | 66.7 | 2 | 22.2 | 1 | 11.1 | 9 | 100.0 | 0.523 |
| | Moderate | 1 | 4.8 | 16 | 76.2 | 4 | 19.0 | 21 | 100.0 | |
| | High | 0 | 0.0 | 1 | 50.0 | 1 | 50.0 | 2 | 100.0 | |
| Role Conflict | Low | 6 | 46.2 | 6 | 46.2 | 1 | 7.7 | 13 | 100.0 | 0.468 |
| | Moderate | 1 | 6.7 | 11 | 73.3 | 3 | 20.0 | 15 | 100.0 | |
| | High | 0 | 0.0 | 1 | 50.0 | 1 | 50.0 | 2 | 100.0 | |
| Job Insecurity | Low | 5 | 25.0 | 12 | 60.0 | 3 | 15.0 | 20 | 100.0 | 0.075 |
| | Moderate | 2 | 22.2 | 5 | 55.6 | 2 | 22.2 | 9 | 100.0 | |
| | High | 0 | 0.0 | 1 | 100.0 | 0 | 0.0 | 1 | 100.0 | |
| Interpersonal Conflict | Low | 7 | 50.0 | 5 | 35.7 | 2 | 14.3 | 14 | 100.0 | 0.445 |
| | Moderate | 0 | 0.0 | 13 | 81.3 | 3 | 18.8 | 16 | 100.0 | |

responsibilities and authority when conducting exams, role ambiguity frequently happens.

Several non-operational employees of PT Pelabuhan Indonesia III (Persero) are contract workers whose contracts can be terminated at any time, so there is a threat of losing their jobs even though they have the responsibility to provide for their families. The fluctuating dynamics of the work environment arise due to the various types of tasks that are contractual or temporary. This position as an employee who is unstable and income that is increasingly unpredictable is one of the causes of job insecurity (Saputri, Hidayati, and Lestari, 2020).

Health Safety Security and Environmental (HSSE) Terminal Jamrud stated that various conditions and work demands faced by office staff became stressors and could trigger an increase in personal stress at work. The mental or psychological conditions of workers must be monitored because the stress experienced by a person will change the way the immune system works and become the cause of occupational diseases (Reppi, Sumampouws, and Lestari, 2020).

Relationship Between Mental Workload with Employee Stress Levels

Mental workload is the mental capacity that the body needs to think, calculate, and predict things (Tarwaka, 2019). The mental workload experienced by office employees is in the form of various activities such as input for recording loading and unloading scales, field verification of ship scale data, recap and revision of loading and unloading notes, as well as various other administrative activities related to administrative and financial activities for loading and unloading goods and passenger ship services. Office employees are also faced with service responsibilities to service users, so they are often confronted directly to follow up on details of notes and notes for loading and unloading, accounts receivable, discounted prices, etc.

The results of this study indicate that the majority of employees who have a high mental workload will experience high levels of stress. Meanwhile, light occupational stress was experienced by the majority of office employees with light workloads. No one experiences high levels of stress in the office employees with low mental workloads. The results of this study are in line with the opinion of Puspasari (2019), where if someone tends to have a high mental load, it will be followed

by high occupational stress received. Overstress at work can occur due to the high mental burden that a person feels. So much workload, fulfillment needs, handling problems, and in the end, it is very energy draining both physically and mentally (Maharani and Budianto, 2019).

Mental workloads that are not well-organized can result in adverse effects in fatigue, boredom, and decreased concentration levels and alertness at work (Aini *et al.*, 2021). The high mental load can also cause stimulation to the central nervous system, which can cause pain (Diniari, 2019).

Upon its viewed from the calculation of the highest value among the six dimensions of mental workload, it was obtained that 40% of the total respondents, or 12 people had the highest score on the mental demand dimension. Mental demands become the dominant sub-dimension for workers because, in the administrative section of recording the loading and unloading of goods and passengers, office employees are required to focus, but on the other hand, they require to be calm. Many nominal numbers must be recapitulated for printing or billing to service users, so it takes a calm mind to concentrate on remembering, observing, and verifying thousands and even hundreds of millions of nominal numbers. If the demands are not considered in proportion, they can increase the mental burden received by a person, both excessive and too little (Pradipta, Ekawati, and Jayanti, 2019).

The results of statistical tests illustrate that the strong relationship between mental workload variables and stress levels is included in the strong category. A positive value indicates a unidirectional relationship where the higher the mental workload, the higher the occupational stress. This research is in line with several previous studies of similar scope. The results of the research conducted by Suci (2018) show that mental workload and occupational stress have a decent relationship in the strong category with a positive relationship direction. Trisminingsih (2019) adds that there is a positive relationship between mental workload and occupational stress at the UPT Crew KA Blitar machinist PT Indonesian Railways at a strong level with a positive relationship with a correlation coefficient value of 0.683. Meanwhile, the results of research from Sugiharto (2019) stated that mental workload and occupational stress had a strong relationship in the weak category with a correlation coefficient value of 0.306. Another study that supports this result by

Djakroosmaelduna (2018) found the correlation coefficient between the variables of mental workload and occupational stress of 0.186, which means that the relationship is positive in the weak category.

Employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) in carrying out each assignment given requires high focus and concentration such as recording docking ship bills, preparing operation plans, checking the readiness of loading and unloading equipment, inputting notes for loading and unloading goods, and other various administrative support activities for loading and unloading ships and passengers. Office employees carry out reporting and recording of loading and unloading of ships using a one-day billing system where once the ship docks at the terminal, various notes on weighing the cargo of the ship must be completed within one working day. To achieve this target time, office employees collect various data related to bills, receivables, as well as various forms of post-unloading financial records taking a communicative approach to service users so that they are not bothered by adjusting the note data in the field with the primary recording of the scales.

Constraints encountered at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) is usually when crosschecking data where service users are late/too long in providing the required data, while the deadline for collecting post-unloading notes is quite short. Several other obstacles that can affect the mental burden are data on loading and unloading tally sheets, forgetting to not record them by field officers, errors in recording goods, submitting discounts or sudden loss notes to be completed immediately, as well as various impromptu tool realization data. Office employees do not work shifts, but sometimes some unresolved demands are continued at home, requiring them to be on call to revise or complete loading and unloading records. The slightest error in providing the value or completeness of the data will have an impact on being too low or too high a bill to service users, resulting in complaints and reprimands. From the results of field data collection, it is known that the mental workload of the majority of office employees is at moderate and high levels. This condition is an explanation of the strong relationship between mental workload and stress levels in non-operational office employees at Terminal Jamrud Surabaya with a strong positive direction.

The Relationship Between Role Ambiguity with Employee Stress Levels

Role ambiguity is the gap between the amount of information owned and what is needed, the absence of clear directions and policies, and uncertainty about the authority to do their role correctly. In addition, it can also be interpreted as a lack of understanding of the privileges and obligations that someone can have to do work (Meidilisa and Lukito, 2020)

Based on the results of the study, employees of the non-operational office at Terminal Jamrud Surabaya who experience stress in the high category mostly have moderate role ambiguity. On the other hand, among office employees who have low role ambiguity, the majority experience stress at a low level as well. This result is supported by the research of Yuliani and Fitri Miranti (2020) that Employees with high levels of role ambiguity will have psychological conditions that are linked to poor stress management. This is indicated by the incidence of occupational stress at a high level mostly experienced by workers who have high role ambiguity.

The findings of this study indicated that the statistical test has a strong relationship between the role ambiguity variables and stress levels in the moderate category with a positive relationship direction. The findings in this study are in line with several previous studies. Research conducted by Cahaya, Santhi, and Piartrini (2020) describes that role ambiguity and work stress have a strong relationship in the medium category with a coefficient value of 0.409. The positive direction of the relationship indicates that the higher the role ambiguity, the higher the stress felt by workers. Research conducted by Lady, Susihono, and Muslihati (2017) states that role ambiguity and occupational stress had a very strong relationship and found a relationship between the two research variables.

Employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) routinely holds briefings that discuss the tasks that must be carried out individually and in-team in conducting the operational plan, confirming proof of realization of loading and unloading activities for service users, recording minutes of events ownership of ships, as well as various other goods and passenger ship administration activities. Office employees

are not given specific instructions on how they should do so that the final result is satisfying and follows service standards. Even though they are given freedom in how to complete their tasks, office employees get good support from the shift manager, general manager, and peers. Office employees share various problems in completing their work. They often remind each other about direct procedures related to the role of the job desk in the assignment in question, so that even though they are sometimes given responsibilities that are not what they usually do, they can complete them based on the performance standards set. This can be an explanation related to the direction of the relationship in the moderate category between role ambiguity and the occupational stress levels of non-operational office employees at Terminal Jamrud Surabaya.

The Relationship Between Role Conflict with Employee Stress Levels

Role conflict is more on the individual aspect of the perspective regarding each assignment given, whether by the role or work desk given or whether it is a versatile job outside of the work desk. If a person is continuously required to work beyond the abilities or job desk given, it can create a sense of confusion in carrying out his role as a worker. This confusion triggers feelings of stress, depression, frustration, anxiety, and fear due to the powerlessness to complete work. This condition leads a person to the threat of chronic psychological disorders such as prolonged sadness, decreased concentration, and loss of work motivation. This condition is known as burnout (Purnama, Wahyuni, and Ekawati, 2019).

The results of this study indicate that the majority of non-operational office employees at Terminal Jamrud Surabaya who feel high role conflict experience high occupational stress and employees who experience low occupational stress mostly have low role conflict. This finding is in line with the results of research from Permadi (2018) that the majority of workers who have a low level of role conflict will be followed by low-stress levels felt by workers. Zakaria *et al.* (2018) added that high role conflict could disrupt emotional well-being, making a person feel depressed and often depressed. The emergence of perceived role conflict is characterized by fatigue and depression when given tasks, lack of sleep, and disturbed eating patterns. Someone who cannot limit each role that

is carried out makes the individual spend a long time working and less time for refreshing so that there is an internal rhythm imbalance in prioritizing each role and causes the perceived burden due to excessive tasks to increase.

The results of the statistical test showed that the role conflict variable and the occupational stress levels had a moderately strong relationship with a positive direction. The findings in this study are in line with several previous studies which showed a strong relationship between role conflict and stress levels. Research conducted by Novita, Afriani, and Ariska (2021) shows that role conflict and stress levels have a strong relationship with a correlation coefficient value of 0.498 and have a positive relationship direction. Another study was conducted on dump truck operators at PT Mandiri Inti Perkasa Tarakan City shows a positive relationship direction where the higher the role conflict, the higher the stress levels felt by workers with a coefficient value of 0.173 (Permadi, 2018). The results study of Lady, Susihono, and Muslihati (2017) stated that there was a strong relationship between role conflict variables and occupational stress in the strong category with a positive relationship direction (coefficient value = 0.842).

The employee of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) in 5 working days always schedule a good morning briefing routine for 30 minutes. Even though regular morning briefings have been scheduled, it is still possible for employees to have role conflicts. This can be due to fluctuations in the morning briefing schedule, sometimes starting at 08.30 but at other times starting 5, 15, or even 20 minutes earlier than usual. The schedule that changes according to these conditions causes office employees to be sometimes late for the morning briefing so that something may be missed. This condition can be explained as related to the strong moderate relationship and the direction of the positive relationship between the role conflict variable and the occupational stress levels of employees in the non-operational office at Terminal Jamrud Surabaya.

The Relationship Between Job Insecurity with Employee Stress Levels

Job insecurity or work that is uncertain is a stressor of work factors that can affect the mental condition of workers and contribute to an increase in the degree of perceived stress. Job insecurity is

a condition that can affect a person's psychological condition because an uncertain job has a relationship with the threat of losing his job in the future. Each individual has a different response to the threat of termination of employment. This condition can encourage workers to improve their performance to remain recognized and employed. However, on the other hand, it can indirectly lead to conditions of stress and self-dissatisfaction, thus affecting their productivity at work (Qian *et al.*, 2019).

Based on the results of the study, it can be seen that the majority of high occupational stress is experienced by office employees who have moderate job insecurity, while occupational stress in the low category is mostly experienced by office employees with low job insecurity. These findings are in line with the research of Syaharudin *et al.* (2018), which states that high levels of job insecurity can lead to increased stress felt by workers. Workers feel uncomfortable and insecure due to the threat of dismissal from work, transfer of status, transfer to other areas, or even a permanent layoff. So that it will impact job stability, career development, and decreased income (Saputri, Hidayati, and Lestari, 2020). In addition, various changes that arise within the company can cause employees to feel threatened, stressed, or anxious due to adjustments in working conditions and the continuity of relationships as well as efforts to reciprocate services received by the company (Syaharudin, Utami, and Andini, 2018).

The results of the statistical test show that there is a strong relationship between job insecurity and occupational stress levels, which is in the very weak category and has a positive direction. Several previous studies have described the strong relationship between the job insecurity variable and occupational stress levels. The research described by Permadi (2018) states that higher job uncertainty or job insecurity will be followed by an increase in perceived occupational stress. In his research, Permadi (2018) claims that the strong relationship between variables in the category is very weak. While the results of another study by Lady, Susihono, and Muslihati (2017) state that there is a strong relationship between job uncertainty and occupational stress levels in the moderate category and has a positive relationship pattern.

The majority of employees in the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) has employment status as organic workers or permanent workers who have clear work contracts. Both permanent workers

and contract workers are given separate benefits that are commensurate and their work welfare is guaranteed. Based on the results of discussions with office employees, most stated that the work reward and bonus system was described as clearly as possible and accompanied by several additional work benefits so that office employees felt calm and comfortable with their work. There is no significant nominal difference in the provision of allowances.

The description of clear and directed work prospects by the East Java Regional Pelindo III HR and various aspects of career development can provide an initial picture for office employees at work to reduce anxiety about job uncertainty and be able to minimize occupational stress that arises due to unclear situations. With a clear picture of the future of work, office employees with contract status can prepare themselves carefully and develop themselves to continue to excel if at any time their contracts have expired or are not extended. This is reinforced by the results of research which show that there are no office employees who have a high level of job insecurity. This condition is an explanation related to the strong moderate relationship and the direction of the positive relationship between the job insecurity variable and the occupational stress levels of non-operational office employees at Terminal Jamrud Surabaya.

Relationship Between Interpersonal Conflict with Employee Stress Levels

Social interaction in the workplace can be a source of fulfillment and individual satisfaction, but on the other hand, it can also cause stress in the event of a conflict. The negative impacts caused by conflict include the emergence of work stress, which can be disharmonious relationships, decreased productivity, and job insecurity. Other negative impacts are wasted work time and resources, decreased morale, loss of commitment to work, increased resignation, moral injury, excessive absence, and legal effects. Interpersonal conflict is one of the work factors that can lead to increased work stress (Suryani and Yoga, 2019).

The results of this study illustrate that most office employees who experience stress in the high category, feel a high level of interpersonal conflict. In contrast, employees who experience low levels of stress are mostly experienced by employees who have low interpersonal conflicts. This finding is in line with the results of research by Radanny and Hidayat (2019) which states that workers

with quality interpersonal relationships tend to experience stress in the lighter category, while poor quality interpersonal relationships cause workers to experience severe occupational stress. Reppi *et al.* (2020) add that high interpersonal conflict has a 2.484 times greater risk of causing someone to experience high occupational stress compared to someone who experiences low interpersonal conflict. A good relationship between co-workers and superiors can become a personal resource, especially being able to motivate the individual to perform well, so that it can indirectly minimize psychological pressure and occupational stress (Radanny and Hidayat, 2019).

Interpersonal conflict can be caused by differences in opinion between individuals, leading to conflict. If allowed to continue, interpersonal conflict can significantly affect stress. Excessive work stress can cause a decrease in a person's physical and psychological condition. Symptoms of work stress such as unstable emotions, feelings of restlessness, aloofness, difficulty sleeping, excessive smoking, inability to relax, anxiety, tension, nervousness, increased blood pressure, and digestive disorders (Pratama and Fuadati, 2021).

It should be realized that conflict within the organization does not always negatively impact. However, there are times when conflict can also have a positive impact which can be seen as an opportunity for organizational growth and even strengthening relationships between work teams or individuals. Some types or degrees of conflict may prove helpful when used to promote organizational progress at the stage of change or innovation. So, conflict is not something that must be avoided, but conflict needs to be managed to contribute to achieving organizational goals (Suryani and Yoga, 2019).

The results of the study indicate that the correlation between interpersonal conflict variables and occupational stress levels is in the moderate category with a positive relationship direction. The results of this study are in line with several similar studies relating to the strong relationship between interpersonal conflict and stress levels. The results of Permadi's (2018) research show that there is a strong relationship between interpersonal conflict and occupational stress of Dump truck Operators at PT Mandiri Inti Perkasa is in the moderate category with a positive relationship direction. Lady, Susihono, and Muslihati (2017) also describe the

strong relationship between interpersonal conflict and work stress levels, showing that the relationship is very strong at an intense level with a correlation coefficient value of 0.869 and the direction of the relationship is positive. Meanwhile, according to Reppi *et al.* (2020), interpersonal conflict has a strong and weak relationship with occupational stress levels (r -value = 0.210). In addition, Benua *et al.* (2019), states that interpersonal conflict is not significant with occupational stress levels and has a negative relationship direction.

Employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) may experience interpersonal conflicts with co-workers and service users. Conflicts that occur with co-workers such as miscommunication related to the completeness of records, bills, as well as ship administration and loading and unloading due to several field constraints such as errors in loading and unloading weighing records, double-entry records so that they work repeatedly to verify finally, wrongly penalizing goods, etc. Interpersonal conflicts with service users, such as consumer complaints, applying for price discounts or discounts at the hour approaching the end of the billing system, and miscommunication of bills for the use of loading and unloading equipment.

The results of the field findings indicated that there are no office employees who have high interpersonal conflicts and the majority of office employees have moderate interpersonal conflicts. Based on discussions with office employees, it is known that the relationship between colleagues and superiors has been well established. In performing their duties, office employees are not reluctant to exchange opinions regarding some miscommunication. Office employees also often spend free time together during and after work by playing a PlayStation in the entertainment room, playing table tennis, and joking around so that the work environment is not boring, fostering a sense of togetherness, and getting to know each other. These various conditions support the establishment of good relations between fellow employees so that solid interpersonal relationships can be built. This is an explanation related to the strong relationship in the moderate category with a positive correlation between interpersonal conflict and stress levels of employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III.

CONCLUSION

According to the results of the study on 30 employees of the non-operational office at Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III (Persero) it can be concluded that a strong relationship between the independent variable with the dependent variable has varying values. Variables that have a strong relationship are mental workload variables with stress levels. Therefore, it is recommended to the staff of the non-operational office of Terminal Jamrud Surabaya of PT Pelabuhan Indonesia III increases self-awareness of perceived stress symptoms and promotes a positive attitude toward any challenges, obstacles, and trials to reduce the additional mental burden that can impair the performance, especially mental illness. As for the Regional HR division of PT Pelabuhan Indonesia III (Persero) is to conduct an assessment of the mental workload of non-operational office employees with the ergonomics method and evaluate the findings of the mental workload value. Another recommendation for PT Pelabuhan Indonesia III (Persero) is to do a rolling or refreshment program for employees to overcome the mental workload that is too long so that employees do not feel bored, or stressed on assignments, can learn new knowledge, and do not feel bored with varied work skills so that worker productivity can be increased.

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REFERENCES

- Aini, A. *et al.* (2021) 'Hubungan Kebisingan dan Beban Kerja Mental dengan Stres Kerja di PT Duraquipt Cemerlang', *Journal Of Community Mental Health And Public Policy*, 4(1), pp. 37–48.
- Asih, G. Y., Widhiastuti, H. and Dewi, R. (2018) *Stres Kerja*. Semarang: Semarang University Press.
- Benua, M. G., Lengkong, V. P. K. and Pandowo, M. H. C. (2019) 'Pengaruh Gaya Kepemimpinan, Konflik Interpersonal Dan Mutasi Kerja Terhadap Stres Kerja Pada PT Pegadaian (Persero) Kanwil V Manado', *Jurnal EMBA*, 7(3), pp. 3698 – 3707.
- CahayaSanthi, N. P. M. and Piartrini, P. S. (2020) 'The Effect of Role ambiguity on Work Related Stress and Employees' Work Satisfaction', *American Journal of Humanities and Social Sciences Research (AJHSSR)*, 4(6), pp. 99–107.
- Diniari, H. R. (2019) 'Analisis Stres Kerja Akibat Beban Kerja Mental pada Pekerja PT Kerta Rajasa Raya', *Medical Technology and Public Health Journal*, 3(2), pp. 133–140.
- Djakroosmaelduna, R. A. (2018) *Faktor yang Berhubungan Dengan Tingkat Stres Kerja Pada Tenaga Kerja (Studi pada Divisi Fasilitas Pemeliharaan dan Perbaikan PTPelindo Marine Service Surabaya*. Undergradu. Surabaya: Faculty of Public Health, Universitas Airlangga.
- Indonesian Central Bureau of Statistics (2020) *Laporan Perekonomian Indonesia 2020*. Jakarta.
- Kachi, Y. *et al.* (2020) 'Occupational Stress and the Risk of Turnover: A Large Prospective Cohort Study of Employees in Japan', *BMC Public Health*, 20(1), pp. 1–8.
- Kennedy, P. S. J. (2019) 'Analisis Tingginya Biaya Logistik Di Indonesia Ditinjau Dari Dwelling Time', *Jurnal Economic Resource*, 1(2), pp. 136–145.
- Lady, L., Susihono, W. and Muslihati, A. (2017) 'Analisis Tingkat Stres Kerja dan Faktor-Faktor Penyebab Stres Kerja pada Pegawai BPBD Kota Cilegon', *Journal Industrial Servicess*, 3(1), pp. 191–197.
- Maharani, R. and Budianto, A. (2019) 'Pengaruh Beban Kerja terhadap Stres Kerja dan Kinerja Perawat Rawat Inap Dalam', *Journal of Management Review*, 3(2), pp. 327–332.
- Meidilisa, V. and Lukito, H. (2020) 'Pengaruh Beban Kerja dan Ketidakjelasan Peran Terhadap Kinerja Pemeriksa Dengan Stres Kerja Sebagai Variable Mediasi Pada Badan Pemeriksa Keuangan Perwakilan Provinsi Sumatera Barat', *Jurnal Manajemen Strategi dan Simulasi Bisnis (JMASSBI)*, 1(2), pp. 53–82.
- Ministry of National Development Planning (2020) *Pedoman Teknis Penyusunan Rencana Aksi Tujuan Pembangunan Berkelanjutan (TPB)/ Sustainable Development Goals (SDG's)*. Jakarta: Kedepuitan Bidang Kemaritiman dan Sumber Daya Alam, Kementerian Perencanaan Pembangunan Nasional/ Badan Perencanaan Pembangunan Nasional.

- Novita, H., Afriani, S. and Ariska, Y. I. (2021) 'The Relationship Of Multiple Role Conflict On Work Stress Of State Civil Services (ASN) At The Health Office Of Kaur District', *Jurnal Ekonomi, Manajemen, Bisnis dan Akuntansi Review*, 1(1), pp. 32–37.
- Permadi, S. H. E. (2018) *Stres Kerja Pada Operator Dumptruck dan Faktor Yang Mempengaruhi di PT Mandiri Inti Perkasa Kota Tarakan Kalimantan Utara Tahun 2018*. Undergraduate Thesis.. Surabaya: Faculty of Public Health, Universitas Airlangga.
- Pradipta, A. D., Ekawati, E. and Jayanti, S. (2019) 'The Relation of Mental Workload and Stress Management on Technician's Job Stress of PT X Branch Semarang', *Jurnal Kesehatan Masyarakat (Undip)*, 7(4), pp. 581–585.
- Pratama, A. N. and Fuadati, S. R. (2021) 'Pengaruh Konflik Interpersonal, Beban Kerja terhadap Stress Kerja UPT Pengawasan dan Sertifikasi Benih Tanaman Pangan dan Hortikultura', *Jurnal Ilmu dan Riset Manajemen*, 10(9), pp. 1-22.
- Purnama, K. W., Wahyuni, I. and Ekawati (2019) 'Faktor-Faktor yang Berhubungan dengan Stres Kerja pada Pegawai Negeri Sipil Badan Penanggulangan Bencana Daerah (BPBD) Kota Semarang', *Jurnal Kesehatan Masyarakat*, 7(4), pp. 246–253.
- Puspasari, C. D. (2019) *Hubungan Antara Beban Kerja Mental dan Shift Kerja Dengan Stress Kerja Pada Agent Call Center PDAM Surya Sembada Kota Surabaya*. Undergraduate Thesis.. Surabaya: Faculty of Public Health, Universitas Airlangga.
- Qian, S. *et al.* (2019) 'Is Job Insecurity always Bad? The Moderating Role of Job Embeddedness in the Relationship between Job Insecurity and Job Performance', *Journal of Management & Organization*, 28(5), pp. 1–17.
- Radanny, N. D. and Hidayat, S. (2019) 'Occupational Stress in Landing Platform Dock (LPD) Project Workers of PT PAL Indonesia', *The Indonesian Journal of Occupational Safety and Health*, 8(2), pp. 131–138.
- Reppi, B., Sumampouw, O. J. and Lestari, H. (2020) 'Faktor-faktor Risiko Stres Kerja pada Aparatur Sipil Negara', *Sam Ratulangi Journal of Public Health*, 1(1), pp. 33–39.
- Saputri, P., Hidayati, T. and Lestari, D. (2020) 'Pengaruh Job Insecurity terhadap Stres Kerja, Kinerja, dan Turnover Intention Karyawan PT Bank Mandiri (Persero) Tbk', *Jurnal Bisnis dan Manajemen*, 16(3), pp. 235–259.
- Suci, I. S. M. (2018) 'Analisis hubungan faktor individu dan beban kerja mental dengan stres kerja', *The Indonesian Journal of Occupational Safety and Health*, 7(2), pp. 220–229.
- Sugiharto, F. M. (2019) 'The Relationship between Mental Workload and Occupational Stress Among Aircraft Maintenance Officers at PT X', *The Indonesian Journal of Occupational Safety and Health*, 8(2), pp. 233–239.
- Suryani, N. K. and Yoga, G. A. D. M. (2019) 'Konflik dan stres kerja dalam organisasi', *Jurnal Widya Manajemen*, 1(1), pp. 99–113.
- Syahrudin, M., Utami, W. and Andini, A. P. (2018) 'Pengaruh job insecurity dan lingkungan kerja terhadap turnover intentions melalui stres kerja sebagai variabel intervening pada karyawan PT Wonokoyo Jaya Corporindo Pasuruan', *UNEJ e-Proceeding*, pp. 312–325.
- Tarwaka (2019) *Ergonomi Industri Revisi Edisi II*. Surakarta: Harapan Press.
- Trisminingsih, K. A. (2019) 'Hubungan Antara Beban Kerja Mental Dengan Stres Kerja Pada Masinis Upt Crew Ka Blitar Daop Vii Madiun PT Kereta Api Indonesia', *Medical Technology and Public Health Journal*, 3(2), pp. 170–175.
- World Federation of Mental Health (2017) *Mental Health In The Workplace World Mental Health day 2017*.
- Yuliani, I. and Fitri Miranti (2020) 'Faktor-Faktor Yang Berhubungan Dengan Stres Kerja Di Area Stationery', *Jurnal Antara Keperawatan*, 3(3), pp. 82–98.
- Zakaria, S. M. *et al.* (2018) 'Hubungan Antara Konflik Peranan, Sokongan Sosial dan Kesejahteraan Emosi Wanita dwi-Peranan di Lembah Klang', *The Sultan Alauddin Sulaiman Shah Journal (JSASS)*, 5(2), pp. 77–88.