Determinants of Work Stress in Delivery Couriers in South Tangerang Area

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A B S T R A C T

Stress is a condition or situation where physical and emotional responses will arise when the ability and needs of workers do not match the job requirements. Statistical data shows that there are 440,000 cases in the UK, with 1,380 cases experiencing work-related stress. In Indonesia, especially in the capital city of DKI Jakarta, it is estimated that around 1.33 million of the 9.5 million population of DKI Jakarta are estimated to experience stress due to work. According to the Indonesian Ministry of Health in 2021, the impact and consequences of work stress will have an impact in the short and long term. The approach in this study uses a cross-sectional approach. This research was conducted at several shipping companies in South Tangerang. This research was conducted in July 2022. Based on the results of the study, it was found that sleep quality had a significant relationship between work stress and sleep quality (p=0.026); social support, there is no significant relationship between work stress and social support (p=0.572); work fatigue, there is a significant relationship between work stress and work fatigue (p=0.000); workload on work stress, found a significant relationship between work stress and workload (p=0.038); the variable that has the most significant influence on determining work stress scores is the work fatigue variable.

Kata kunci:
Faktor Risiko
Stres Kerja
Kurir Pengantar Barang

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INTRODUCTION

Work stress is stress caused by several elements such as; work environment, poor organizational management, disharmonious individual relationships, and inadequate work equipment (Stranks, 2005). Poor organizational management can lead to excessive workload. Social support between individuals is caused by individual relationships that are not harmonious, resulting in stress in the work environment. Employee work stress can also be caused by several other sources such as extreme temperatures, bad odors in the work environment, noise, bad lighting, and also bad air circulation. (Stranks, 2005). A work environment that can have an impact on stress will result in fatigue for employees so employee productivity decreases. So work stress is a psychological process of events or behaviors in the work environment that cause impacts and consequences such as psychological, individual, and physiological behavior (Manurung et al., 2017).

Stress is a condition or condition where physical and emotional responses will arise when the abilities and needs of workers are not following the work requirements. Statistics show as many as 440,000 cases in the UK, with an incidence rate of 1,380 cases experiencing work stress (HSE, 2021). In Indonesia, especially in the capital city of DKI Jakarta, it shows that around 1.33 million of the 9.5 million people of DKI Jakarta are estimated to experience stress due to work (Kemenkes RI, 2013). According to the Ministry of Health of the Republic of Indonesia 2021, the impact and consequences of work stress will have an impact in the short and long term. Stress can cause headaches, insomnia, the risk of hypertension, and even digestive disorders, stress can affect health by releasing some hormones and increasing heart rate and breathing rates (Ulfa & Fahzira, 2019). Based on research, experts show that stress problems there are 3 trigger factors, namely diseases that are difficult to cure, frustration, and relationships between individuals that are not harmonious (Ulfa & Fahzira, 2019). In addition to impacting worker health, occupational stress also impacts the safety of these workers, one of the precarious workers is a delivery courier worker. Data from the Cooperatives and MSMEs Office of South Tangerang City shows that the number of MSMEs amounting to 20,671 businesses contributes to income in South Tangerang City and is increasingly boosting growth with the development of the creative e-commerce economy (Adi, 2020). Based on data from the Ministry of Communication and Information Technology of the Republic of Indonesia, the higher the number of online buyers because the e-commerce business in Indonesia is increasingly diverse, the greater the users of delivery services between goods. With so many goods and package delivery services, courier services have increased, so it will impact occupational safety and health for couriers if they experience work stress. Based on these problems, researchers are interested in analyzing risk factors for work stress in delivery couriers in the South Tangerang area.

METHODS

Sampling Criteria

This research is included in the type of analytical observational research, namely research explaining the relationship between variables that have been formulated previously in the hypothesis. This study carried out data analysis to determine the hypothesis before the research began (Masturoh & T, 2018). This study uses a cross-sectional approach where cause/risk and effect/ causal variables are measured or collected simultaneously and carried out in the same situation (Notoatmodjo, 2015).

This research was conducted in several delivery expedition companies in South Tangerang. The study was conducted in July 2022. In this study, researchers used the Sampling Theory put forward To determine the number of samples in multiple regression research. The following formula is determined for multiple regression research (Hsieh et al., 1998):

\[ N = \left( \frac{\text{Var} 1 + \text{Var} 2 + \text{Var} 3 + \text{Var} 4 + \text{Var} 5}{2} \right) + 50 \]

Where:

- \( N \) = Minimum Sample Number
- \( \text{Var} 1 \) = Number of Questionnaire items in Variable 1 (Work Stress)
- \( \text{Var} 2 \) = Number of Questionnaire items in Variable 2 (Sleep Quality)
- \( \text{Var} 3 \) = Number of Questionnaire items in Variable 3 (Social Support)
- \( \text{Var} 4 \) = Number of Questionnaire items in Variable 4 (Work Fatigue)
- \( \text{Var} 5 \) = Number of Questionnaire items in Variable 5 (Workload)

From the calculation above, the value of the number of respondents obtained is a minimum of 103 respondents. In this study, 152 samples were taken which is the total population. According to Green’s Rule of Thumb, to determine the characteristics of respondents in factor analysis research is as follows; 50 is said to be not good, 100 is medium 150 is declared good, 200 and so on is said to be very good (Understanding Power And Rule Of Thumb).

The inclusion criteria in this study were couriers with a minimum working mass of ≥6 months, working with two-wheeled motorized vehicles, and productive age (15-64 years). The exclusion criteria in this study were couriers who were not willing to be respondents.

The validity test is performed with the SEM model. In structural equation modeling (SEM), a model is said to match observed data for the extent to which the model-implied covariance matrix is equivalent to the empirical covariance matrix. Reliability testing to ensure research instruments can be used to measure the same object by producing the same data. Testing the instrument’s reliability using the Alpha Cronbach formula because this research instrument is in questionnaires and stratified scales (Suryanto et al., 2018).

Measurement

The instrument to measure work stress in this study used the NIOSH Generic Job Stress Questionnaire measuring instrument. There are 20 indicators (causative factors) of the occurrence of work stress, but in this study, researchers only used 10 indicators (causal factors), namely conflict at work, employment opportunities, general health, how you feel about yourself, job requirement, mental demands, problems at work, work hazards, workload and responsibility, and your job future. In 10 indicators (causal factors) used, 26 statements were used to measure work stress. The statement researchers translated into Indonesian from the NIOSH Generic Job Stress Questionnaire (National Institute for Occupational Safety and Health, 2017).
The instrument to measure the quality of sleep researchers used was the Groningen Sleep Quality Scale. There were 15 statements to measure sleep quality, but researchers adopted only 14 appropriate statements and translated them into Indonesian (Providence Health Care, n.d.). Furthermore, the instrument measures social support in this study using the Interpersonal Support Evaluation List (ISEL) measuring tool. Researchers adopted 37 corresponding statements from 40 statements and translated them into Indonesian (Cohen & Hoberman, 2020).

Researchers used the Subjective Self Rating Test (SSRT) measuring instrument with 30 statements to measure work fatigue. Indicators (causal factors) of social support based on ISEL are the dull tired, exhausted, mental decline of working motivation, specific feelings of incongruity in the body, and dysfunction of autonomic nervous systems (Rizkita et al., 2019). While the instrument measures the workload of researchers using the Subjective Workload Assessment Technique (SWAT) measuring tool consisting of 3 indicators (causal factors), researchers adopt 24 statements from previous researchers. Indicators (causal factors) of workload based on SWAT are time load, mental effort load, and psychological stress load (Reid, 1989).

### Data Analysis

The univariate analysis aims to describe the characteristics of each study variable, independent and dependent variables. Numerical scale data used mean, median, and standard deviation values. Bivariate analysis is carried out to determine the relationship between one variable and another. This study performed bivariate analysis using simple linear regression and correlation tests. Multivariate analysis is carried out to determine the relationship between several variables, with one variable carried out simultaneously. In this study, multivariate analysis was performed by multiple linear regression analysis (Notootmodjo, 2015).

### Ethical Considerations

This study was ethically reviewed and approved by the Commission on Health Research Ethics Committee, Faculty of Public Health, Universitas Muhammadiyah Jakarta, under the following number: 10.614.B/KEPK-FKUMJ/VII/2022.

### RESULTS AND DISCUSSION

Based on Table 1, it was found that the average work stress was a score of 50.00, with a variation of 10.00. The lowest stress score was 27.04, and the highest score was 69.59. The analysis results show that 95% are believed to have an average work stress score between 48.40 to 51.60.

According to NIOSH, work stress is a condition or situation in which physical and emotional responses will arise when the capabilities and needs of workers do not match the job requirements (Widhiastuti, 2002).

The average sleep quality score was 50.00, with a variation of 10.00. The lowest sleep quality score was 30.03, and the highest score was 65.21. The analysis results show that 95% are believed to have an average sleep quality score between 48.40 to 51.60.

The average social support score was 50.00, with a variation of 10.00. The lowest courier worker social support score was 33.85, and the highest score was 81.59. The analysis results show that 95% are believed to have an average social support score between 48.40 to 51.60.

Based on the table, it is found that the average work fatigue score is with a score of 50.00, with a variation of 10.00. The lowest courier worker burnout score was 32.14, and the highest score was 69.59. The analysis results show that 95% are believed to have an average social support score between 48.40 to 51.60.

The average workload score is 50.00, with a variation of 10.00. The lowest courier worker load score was 33.67, and the highest score was 71.07. The analysis results show that 95% are believed to have an average social support score between 48.40 to 51.60.

### Table 1

**Distribution of Work Stress, Sleep Quality, Social Support, Work Fatigue, and Workload in South Tangerang City**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Minimum-Maximum</th>
<th>95% Cl</th>
</tr>
</thead>
<tbody>
<tr>
<td>Work Stress</td>
<td>27.04 - 69.59</td>
<td>48.40 - 51.60</td>
</tr>
<tr>
<td>Sleep Quality</td>
<td>30.03 - 65.21</td>
<td>48.40 - 51.60</td>
</tr>
<tr>
<td>Social Support</td>
<td>33.85 - 81.59</td>
<td>48.40 - 51.60</td>
</tr>
<tr>
<td>Work Fatigue</td>
<td>32.14 - 69.59</td>
<td>48.40 - 51.60</td>
</tr>
<tr>
<td>Workload</td>
<td>33.67 - 71.07</td>
<td>48.40 - 51.60</td>
</tr>
</tbody>
</table>

### Table 2

**Correlation and Regression Analysis of Sleep Quality, Social Support, Work Fatigue, and Workload with Work Stress of South Tangerang City Delivery Courier**

<table>
<thead>
<tr>
<th>Variable</th>
<th>r</th>
<th>R²</th>
<th>Line Equation</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Quality</td>
<td>-0.191</td>
<td>0.047</td>
<td>Work Stress = 61.579 - 0.232 Sleep Quality</td>
<td>0.026</td>
</tr>
<tr>
<td>Social Support</td>
<td>-0.049</td>
<td>0.001</td>
<td>Work Stress = 46.117 + 0.078 Social Support</td>
<td>0.572</td>
</tr>
<tr>
<td>Work Fatigue</td>
<td>-0.297</td>
<td>0.008</td>
<td>Work Stress = 55.950 - 0.119 Work Fatigue</td>
<td>0.000</td>
</tr>
<tr>
<td>Workload</td>
<td>-0.177</td>
<td>0.006</td>
<td>Work Stress = 48.330 + 0.033 Workload</td>
<td>0.038</td>
</tr>
</tbody>
</table>

The results of statistical tests found a significant relationship (p = 0.026) between work stress and sleep quality. The correlation test results showed a weak relationship (r = -0.191) and a negative pattern meaning that
the more sleep quality, the lower the work stress. The value of the coefficient with a determination of 0.047 means that the regression line equation obtained can explain 4.7% of the variation in work stress so that the variable sleep quality has an influence of 4.7% on work stress. This shows that the variable work stress can be explained through the variable sleep quality by 4.7%.

The results showed that there was a significant relationship between work stress and sleep quality. This is following Meta Agustina’s research that there is a relationship between sleep quality and worker stress (Agustina, 2014). The results of this study are in line with research conducted by Xuexue Deng in 2020 in China which stated that couriers who have high levels of stress are affected by poor sleep quality at night (Deng et al., 2020).

The relationship between work stress and social support showed a weak relationship \( (r = -0.049) \) and a negative pattern meant that the more social support, the lower the work stress. The value of the coefficient with a determination of 0.001 means that the regression line equation obtained can explain by 0.1% so that the social support variable has an influence of 0.1% on work stress. This shows that the effect of the variable work stress can be explained by the effect of the variable social support by 0.1%. The results of statistical tests found no significant relationship between work stress and social support \( (p = 0.572) \) because \( p > 0.5 \), which means that the \( p \)-value exceeds the tolerance limit of error or \( error \) in the study.

The results of this study found that there was no significant relationship between work stress and social support. The results of this study support the results of previous research conducted by Kreh and Maiorano which explained that there is no significant effect between social support and stress in the workplace environment (Karadağ & Duran, 2022). On the other hand, this study contradicts previous research conducted by Setiawan in 2013 which stated that there was a significant influence between social support and work stress (Setiawan & Darminto, 2013).

The results of this study are different from the results of Umm’s research which shows that there is a significant relationship between social support and work stress (Husen, 2011). According to Johnson revealed that social support in general will increase productivity through increased motivation, quality of reasoning, and job satisfaction and reduce the impact of work stress. In addition, social support can improve psychological well-being so that it can experience a reduction in distress (Husen, 2011).

It is also different from the results of Adams’ research that the benefits of social support have a direct effect on stressors so support and stress are negatively related (Adams et al., 1996). According to Hadipranata, the support you get can reduce the harmful effects of stress. In addition to social support from co-workers, it can create calm at work and a sense of comfort for the workers themselves so that co-workers who support each other will create a pleasant workplace environment. (Husen, 2011).

The results of statistical tests found a significant relationship \( (p = 0.000) \) between work stress and work fatigue. The correlation test results showed a moderate relationship \( (r = -0.049) \) and a negative pattern, meaning that the more increased work fatigue, the lower the work stress. The value of the coefficient with a determination of 0.008 means that the regression line equation obtained can explain 0.8% of the variation in work stress so that the variable work fatigue has an influence of 0.8% on work stress. This shows that the variable work stress can be explained through the variable of work fatigue by 0.8%.

This study shows that there is a significant relationship between work stress and job burnout. The results of this study support the results of previous research conducted by Kyriacou in 1987. Kyriacou considers job burnout as an extreme form of work-related stress and considers job stress as an irreconcilable product of job burnout (Yu et al., 2015). The results of this study also support previous research conducted by Salama Wagih which said that job stress represents employees' feelings of a negative emotional state towards the workplace environment and their inability to deal with work pressure caused by work fatigue (Salama et al., 2022).

The results of statistical tests found a significant relationship \( (p = 0.038) \) between work stress and workload. The correlation test results showed a moderate relationship \( (r = -0.177) \) and a negative pattern, meaning that the workload increases, the lower the work stress. The value of the coefficient with a determination of 0.006 means that the regression line equation obtained can explain 0.6% of the variation in work stress so that the workload variable has an influence of 0.6% on work stress. This shows that the workload variable of 0.6% can explain the work stress variable.

This study shows that there is a significant relationship between work stress and workload. The results of the analysis in this study support the results of previous research conducted by Aster Andriani Kusuma and the team in 2014 which explained that there is a significant and positive effect between workload and work stress (Kusuma & Soesatyo, 2014). As the results of several studies show that excessive workload is the strongest cause of work stress in many types of work (Muhdar, 2012).

Table 3

<table>
<thead>
<tr>
<th>Variable</th>
<th>R</th>
<th>R²</th>
<th>Line Equation</th>
<th>P Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep Quality</td>
<td>0.345</td>
<td>0.106</td>
<td>Work Stress = 73.216 – 0.176 Sleep Quality – 0.288 Work Fatigue</td>
<td>0.032</td>
</tr>
<tr>
<td>Work Fatigue</td>
<td>0.001</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

After analysis, it turned out that the independent variables that entered the regression model were sleep quality and work fatigue. The coefficient of determination \( (R²) \) result shows a value of 0.106, meaning that the regression model obtained can explain 10.6% of the variation in the dependent variable of work stress. The result of the F test showing a value of \( P = 0.000 \) means the regression model is significant for predicting the variable of work stress. The result of the regression equation obtained is

\[
\text{Work Stress} = 73.216 - 0.176 \text{ Sleep Quality} - 0.288 \text{ Work Fatigue}
\]

With this equation model, it can be estimated that work stress is used by the variables of sleep quality and work fatigue, while the meaning of coefficient \( b \) for each variable is as follows:
1) In workers who have good sleep quality, the work stress score will be reduced by 0.176 points after controlling for work fatigue variables
2) In workers who experience work fatigue, the work stress score will be reduced by 0.288 points after controlling for sleep quality variables

The multivariate results show that the variable that has the most significant influence on determining work stress scores is the work fatigue variable (value B = -0.288).

Based on data analysis, it shows that the independent variables included in the regression model are sleep quality and work fatigue. In workers who have good sleep quality, the work stress score will decrease. This is following research at the PAN Hospital that there is a relationship between work stress levels and sleep quality (Agustina, 2014).

In addition, for workers who experience work fatigue, the work stress score will also decrease. The multivariate results show that the variable that has the greatest influence on determining work stress scores is work fatigue. This is according to research workers experience stress of 63.3% (Amir et al., 2019).

The results of this multivariate analysis support the results of research conducted by Rahmi Maharani in 2019 where there is a significant effect between workload and work stress of 19.3% (Maharani & Budianto, 2019). The results of this study also support the results of previous research conducted by M. Solon (2021) which stated that there was a significant influence between workload and its impact on work stress during the Covid-19 pandemic (Solon et al., 2021).

The results of this study support previous research conducted by Jhohana in 2010 which stated that there was a significant influence between work fatigue and work stress (Widyasari, 2010). The results of this study also support the results of Oesman’s research in 2019 which stated that there is a significant effect between work fatigue and work stress (Oesman, 2019). These results also support the results of Xuexue Deng’s 2020 study in China which stated that there is a significant effect between sleep quality and work stress (Deng et al., 2020).

LIMITATIONS OF THE STUDY

There are several limitations experienced by researchers and can be a complement for further research. Some of the limitations in this study include: This research is a cross-sectional study where the data is taken at a certain time so that it only describes the situation at that particular time at the time of the study, this study uses a closed instrument so it does not get an in-depth answer. In collecting data, this study used a questionnaire with the risk of causing information bias.

CONCLUSIONS AND SUGGESTIONS

Based on the results of the study, it was found that sleep quality had a significant relationship between work stress and sleep quality (p=0.026); social support had a significant relationship between work stress and social support (p=0.572); work fatigue there is a significant relationship between work stress and work fatigue (p=0.000); workload on work stress, it was found that there was a significant relationship between work stress and workload (p=0.038); The independent variables included in the regression model are sleep quality and work fatigue.

Suggestions for further research are that this research is a cross-sectional study where the data is taken at a certain time so that it only describes the situation at that particular time at the time of the study. This study uses a closed instrument, so it does not get an in-depth answer. In addition, in collecting data, this study used a questionnaire at risk of causing information bias, so it is hoped that further research can be carried out.

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ETHICAL CONSIDERATIONS

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Conflict of Interest Statement

The authors declared that no potential conflicts of interest to the authorship and publication of this article.

REFERENCES


HUSE. (2021). Work-related Stress, Anxiety or Depression Statistics in Great Britain. *HSE, March*.


