



The Influence of Work Motivation and Workload on Work Fatigue among Employees at the Train Maintenance Centre in Yogyakarta

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ABSTRACT

The amount of risk and job demands, and monotony of work and task deadlines that are too short, can affect the decrease in employee work motivation. Work motivation can affect work fatigue through work capacity, workload and work stress. The purpose of this study was to determine the effect between work motivation and workload on work fatigue in employees of Maintenance Center Unit (UPT) Balai Yasa Yogyakarta in the production department. The research method used is quantitative research with a correlational approach. The sampling process is carried out using the purposive sampling method, with criteria for being 20 – 56 years old and having worked at UPT Balai Yasa Yogyakarta for at least 1 year. The instrument used to collect the data in this study were work fatigue scale, work motivation scale, and workload scale. The results of this study show that: work motivation has an influence on the condition of work fatigue of UPT Balai Yasa Yogyakarta employees, workload also has an influence on work fatigue of UPT Balai Yasa Yogyakarta employees, and motivation and workload have an influence together on the condition of work fatigue of UPT Balai Yasa Yogyakarta employees.

ABSTRAK

Besarnya risiko dan tuntutan pekerjaan serta monotonnya pekerjaan dan dateline tugas yang terlalu singkat, dapat berpengaruh pada penurunan motivasi kerja karyawan. Motivasi kerja dapat berpengaruh pada kelelahan kerja melalui kapasitas kerja, beban kerja dan stress kerja. Tujuan dari penelitian ini adalah untuk mengetahui pengaruh antara motivasi kerja dan beban kerja terhadap kelelahan kerja pada karyawan UPT Balai Yasa Yogyakarta di bagian produksi. Metode penelitian yang digunakan adalah penelitian kuantitatif dengan pendekatan regresi. Proses pengambilan sampel dilakukan dengan metode purposive sampling, dengan kriteria berusia 20 – 56 tahun dan telah bekerja di UPT Balai Yasa Yogyakarta minimal 1 tahun. Alat Ukur yang digunakan pada penelitian ini adalah menggunakan skala modifikasi. Skala modifikasi yang digunakan adalah skala kelelahan kerja milik Zuraida dan Chie, skala motivasi kerja milik Pamungkas, dan skala beban kerja milik Alfandara. Hasil dari penelitian ini menunjukkan bahwa: motivasi kerja memiliki pengaruh terhadap kondisi kelelahan kerja karyawan UPT Balai Yasa Yogyakarta, beban Kerja juga memiliki pengaruh terhadap kelelahan kerja karyawan UPT Balai Yasa Yogyakarta, dan motivasi serta beban kerja memiliki pengaruh secara bersama-sama pada kondisi kelelahan kerja karyawan UPT Balai Yasa Yogyakarta.

Introduction

The Balai Yasa Technical Unit of Yogyakarta is a working unit at the Indonesian Railways Corporation. This company is involved in providing railway transportation services for passengers, both between cities and between regions (Fikri, Fhazrel, & Fahmi, 2018). PT. Indonesian Railways is

also a company with increasingly rapid development, and in its development PT. Indonesian Railways is able to serve various sectors, especially the industrial and service sectors. As industry increases in Indonesia, there are more and more risks that must be faced, including risks in occupational health and safety (Emilia & Heryadi, 2015). Therefore, the Balai Yasa Yogyakarta Technical Implementation Unit must be able to manage the work environment and its employees to reduce the risk of work accidents. The world crisis has also encouraged industries with a high risk of work accidents to be able to manage occupational health and safety management systems for their workforce (Dewi, 2018).

This occupational health protection aims to prevent work fatigue and to increase employee productivity. The indicator of achieving occupational health protection is if the work environment meets the health requirements that have been set (Dewi, 2018). This is also supported by the opinion of Pajow, Sondakh, and Lampus (2016), namely to prevent work accidents, work health and safety enforcement efforts aim to ensure that the workplace is always in a safe and healthy condition for employees, so that accidents do not occur. Work.

The large number of activities, workload and job demands are one of the problems in the work of the employees of the Balai Yasa Yogyakarta Technical Implementation Unit. Physical activity, assignments and pressure, followed by a lack of adaptability, can cause psychological problems in the world of work (Pajow, Sondakh, and Lampus, 2016). The psychological problem that can occur is fatigue, this is because employees have not been able to adapt to the tasks and workload they receive. Work fatigue can be interpreted as a condition of an individual's inability to carry out an activity (Hastuti, 2015).

When an employee experiences fatigue, their ability to carry out their duties or work activities decreases, which can cause work accidents (Budiman, Husaini, & Arifin, 2017). In line with this opinion, Suma'mur in Dewi (2018) also stated that fatigue is an unbalanced physical and psychological condition, and can result in decreased performance and reduced endurance. Fatigue conditions, if not treated immediately, can cause other effects such as work-related injuries. This is in line with the recap of work accidents that occurred at UPT Balai Yasa Yogyakarta. Research by Rahmawati & Bantam (2022) explains that in July 2019 at UPT Balai Yasa Yogyakarta there were still three cases of work accidents. The large number of work accident cases that occur at the Balai Yasa Yogyakarta Technical Implementation Unit can occur due to a lack of monitoring of employee conditions.

According to the International Labor Organization (ILO), every year accidents occur at work and nearly two million employees die, 32.8% of whom experience fatigue due to work (Dewi, 2018). The Department of Manpower and Transmigration also revealed that work accident data in 2004 contained 414 work accident cases in one day, 27.8% of work accidents were due to high levels of work fatigue, and 9.5% of cases resulted in disability in employees (Atiqoh, Wahyuni, & Lestantyo, 2014). The large number of work accident cases that occur at the Balai Yasa Yogyakarta Technical Implementation Unit can occur due to a lack of supervision of employee conditions.

Fatigue in employees can have a negative impact on their work, such as losing concentration which has the potential to endanger themselves and other employees (Syah & Suwarno, 2022). Research at an Indonesian company also showed that several employees complained of symptoms of headaches, stiffness in several parts of the body and also back pain due to fatigue (Juliana, Samelia, & Rahmiwati 2018). Fatigue can cause a feeling of discomfort and reduced achievement which can be seen from lower work productivity, more errors and discomfort while working (Rambulangi, 2016). Suharjo (2008) explains that workload is one of the causes of work fatigue. Where workload is defined by the weight of work carried out by an individual and the amount of work weight depends on how the individual interprets it. Work load is an aspect that must be taken into account by companies. Putra (2012) explains that one aspect of workload is the target that must be achieved. This is in line with research by Setyawan et al. (2016), where within a period of one month the Implementation Unit The Yogyakarta Yasa Technical Center can receive 10 to 12 locomotives for maintenance and repairs.

Employees from the UPT Balai Yasa Yogyakarta production department can complete maintenance on one locomotive within 32 days. UPT Balai Yasa Yogyakarta implements 9 hour working hours, from 8 am to 5 pm. However, in practice there are still many production employees who complete their work beyond the stipulated time (Antaka, 2018).

Research by Budiman, Husaini, and Arifin (2017) also found that work load and work fatigue are interconnected, where the weight that must be lifted by employees in one transport is 35kg. Employees in the production section of UPT Balai Yasa Yogyakarta also have to achieve certain production targets in one day. Employees who receive work loads beyond their capacity can cause work fatigue (Budiman, Husaini, & Arifin, 2017). Gabriel, Peretemode, Otaroghene, and Dinges (2018) also revealed that the causes of work fatigue are working hours that are more than normal working hours (overtime), drastic changes in the workplace such as the use of new technology, employee age, part-time working hours, and changes in work experience. in the work system, such as termination of employment and replacement of employees.

Another factor that influences fatigue is work motivation factors (Indriani, Setyaningrum, Noor, Khairiyati, & Anhar, 2021). According to Uno, work motivation is an individual's internal condition that is able to awaken the individual to act, encourage the individual to achieve their targets, and help the individual to want to carry out their activities again (Dewi, 2018). Tarwaka & Bakri (2010) also revealed that motivation in a job is psychological support for completing work demands in order to achieve company goals. Work motivation can be strongly related to fatigue, where if employee work motivation is low, the fatigue experienced by employees will be greater (Dewi, 2018).

Research by Indriani, Setyaningrum, Noor, Khairiyati, and Anhar (2021) shows that 56.52% of respondents have a lack of work motivation, resulting in work fatigue. Dewi (2018) reveals that employees who have low work motivation will psychologically feel burdened and easily feel tired, on the other hand, a production employee with high work motivation, the lower the load he experiences, so he does not feel tired easily. He also revealed that work motivation influences employee work levels through work capacity, work load and work stress. Therefore, the author wants to examine the influence of work motivation and workload on fatigue among employees in the Balai Yasa Yogyakarta Technical Implementation Unit, especially for employees in the production section.

Method

This research method uses a quantitative approach with a multiple linear regression design. Researchers used the dependent variable, namely work fatigue, and the independent variables, namely work motivation and workload. The research involved 104 employees of UPT Balai Yasa Yogyakarta in the production section as participants with the criteria being male, aged 20 to 56 years and had worked at UPT Balai Yasa Yogyakarta for at least 1 year. The selection of participants was determined using a purposive sampling technique. The data collection procedure was carried out offline using a Likert scale which was distributed to UPT Balai Yasa Yogyakarta employees in the Production section. The measuring instruments in this research used modifications.

The scale is modified by changing item specifications, in order to adjust behavioral indicators according to conditions in the field. The work fatigue scale was modified from Zuraida & Chie's (2014) work fatigue scale with 9 statement items (Cronbach's alpha = 0.742). The work motivation scale was modified from the Pamungkas (2015) scale with 18 question items (Cronbach's alpha = 0.782). And the workload scale was modified from Alfandara's (2019) workload scale with 18 statement items (Cronbach's alpha = 0.824). The number of items in this questionnaire consists of 2 statement items, namely favorable and unfavorable. All of these questionnaires, there are 5 level responses ranging from 1-5 (1=Strongly disagree, 5=Strongly agree). The analysis technique for this research uses multiple linear regression techniques.

Results

Description of research data is carried out to describe the power obtained during research. This is done to make it easier to interpret subsequent data. Based on the research data that has been obtained, categorization is then carried out, which contains maximum and minimum values, mean and standard deviation. Where the work fatigue variable has ($X_{\max}=25$, $X_{\min}=12$, $M=18.5$, $SD=2.5$), the work motivation variable gets a score of ($X_{\max}=80$, $.1$), and for the workload variable get a score ($X_{\max}=54$, $X_{\min}=30$, $M=42$, $SD=5.4$). Based on the categorization norms formula, the researchers categorized respondents into five categories, namely very high, high, medium, low and very low, as in the following table.

Table 1. Categorization of research data

Category	Work Fatigue		Work Motivation		Workload	
	Frequency	P(%)	Frequency	P (%)	Frequency	P (%)
Very low	4	4%	5	5%	5	5%
Low	12	12%	24	23%	37	36%
Moderate	58	56%	50	48%	37	36%
High	24	23%	18	17%	21	20%
Very High	6	6%	7	7%	4	4%
Total	104	100%	104	100%	104	100%

Based on the results of the research data categorization in table 1, it shows that UPT Balai Yasa Yogyakarta employees in the production section have a level of work fatigue, this can be seen from the categorization score on the work fatigue variable which shows a figure of 56% in the medium category, 23% in the high category, and 6% are in the very high category. Based on the normality results carried out using the Kolmogorov-Smirnov Test, a significance result of 0.087 was obtained for the work motivation variable, 0.139 for the workload variable, and 0.064 for the work fatigue variable. All three met the normality requirements, namely having a significance value greater than 0.05, so that the data can be stated to be normally distributed. Next, a linearity test was carried out and obtained deviation from linearity values of 0.195 and 0.744, and the data was declared linear. The next test was the multicollinearity test and obtained results of 0.849 for the tolerance value and 1.178 for the VIF value, so it can be interpreted that the data does not experience multicollinearity. The final assumption test is the heteroscedasticity test, which shows results of 0.456 on the work motivation variable and 0.950 on the workload variable, so it can be concluded that the data does not experience multicollinearity.

Hypothesis testing was carried out using multiple regression analysis, simultaneous F test, partial test (t) and analysis of the coefficient of determination. From the F test, the coefficient of determination in of R square value is 0.256, $p < 0.05$. Thus, it can be concluded that work motivation and workload have an influence on work fatigue of UPT Balai Yasa Yogyakarta employees in the production section together by 25.6%. The results of the regression analysis show that the constant value is 18.491 and is positive, so it can be concluded that a decrease in work motivation accompanied by an increase in workload will increase the risk of work fatigue.

Table 2. The results of regression analysis

Variable	Regression Coefficient	Standardized Coefficients Beta	Sig.
Constant	18,491		0,000
Work Motivational	-0,105	-0,169	0,073
Workload	0,195	0,416	0,000

The results of the simultaneous F test in table 2 show that the constant significance value is 0.000, and it can be interpreted that the work motivation and workload variables have an influence on the work fatigue variable together. Apart from the simultaneous F test, a partial test (t) was also carried out to determine the effect of each independent variable on the dependent variable. The results of the partial test (t) in table 2 show a significance value of 0.073 with a regression coefficient of (-0.105) on the work motivation variable. Based on these results, it can be concluded that work motivation has an insignificant and negative influence on work fatigue of UPT Balai Yasa Yogyakarta employees in the production section. The workload variable shows a significance value of 0.000 with a regression coefficient of 0.195, so it can be interpreted that workload has a significant and positive influence on work fatigue of UPT Balai Yasa Yogyakarta employees in the production section.

Discussion

The Influence of Work Motivation on Work Fatigue in Employees

Based on the results of the analysis in this research, it was found that work motivation had a negative but not significant influence on work fatigue. This shows that if an employee's work motivation increases, work fatigue will tend to decrease, and vice versa, if work motivation decreases, the work fatigue felt by the employee will increase.

Dewi (2018) in her research also obtained results that work motivation has an influence on work fatigue with an opposite or negative influence, so it is assumed that the lower work motivation, the more work fatigue will tend to increase. The high work motivation of Kareb Bojonegoro Cooperative Processing Unit employees can encourage them to carry out activities to achieve certain targets (Dewi, 2018). UPT Balai Yasa Yogyakarta employees also have high work motivation, where they are aware of their shortcomings and always try to improve themselves. This can be seen in the categorization results where 48% of employees have moderate work motivation, 17% have high motivation and 7% of employees have high work motivation.

This research also obtained new results, that work motivation does not have a significant influence on work fatigue. The work motivation of UPT Balai Yasa Yogyakarta employees in the production department does not have a significant influence on work fatigue. It can be seen that the significance value of the work motivation variable is 0.073 and this value is more than 0.05, so it can be interpreted that the effect of work motivation on work fatigue is not significant.

The Effect of Workload on Work Fatigue in Employees

The results of the analysis also show that workload has an influence on the condition of work fatigue in employees. This influence is positive and significant. Where if the workload experienced by employees is high, then the work fatigue experienced by employees will also tend to increase, and vice versa, if the workload experienced is low, then the work fatigue experienced will tend to be low too.

Hadriansyah (2021) in his research also revealed that workload has quite a strong influence on work fatigue of South Barito Police personnel. Giving the task of maintaining order and security requires employees to always be ready and alert in any condition, however, the lack of personnel has resulted in an accumulation of tasks which has resulted in conditions of work fatigue experienced by South Barito Police personnel. With almost similar conditions of work demands, employees in the production section of UPT Balai Yasa Yogyakarta, where the employees they have are not commensurate with the workload given, this is also one of the causes of work fatigue among employees (Antaka, 2018).

Hamzah (2019), in his research, also found that workload had a positive and significant influence on work fatigue of nurses at Abdul Sjahranie Hospital, Samarinda. Work fatigue experienced by employees has different levels, depending on how the employee is able to handle it. The employees of UPT Balai Yasa Yogyakarta also felt the same thing. The large number of work

demands, short assignment deadlines, and inability to handle these situations can trigger work fatigue among UPT Balai Yasa Yogyakarta employees. This can be seen in the research results where 36% of UPT Balai Yasa Yogyakarta employees experienced moderate workload, 20% of employees experienced high workload and 4% of employees experienced very high workload.

The Influence of Motivation and Workload on Work Fatigue in Employees

Work motivation and workload also have an influence on work fatigue experienced by employees. Where the data from this research shows that work motivation and workload have a joint influence on work fatigue in employees. These results indicate that the higher the work motivation that employees have and the lower the workload experienced by employees, the work fatigue felt by employees will tend to be smaller, and vice versa. The lower the employee's work motivation and the higher the workload they experience, the higher the work fatigue that the employee will experience.

These results are in line with research by Dewi (2018) where work motivation and workload have an influence on work fatigue of employees at the KAREB Bojonegoro Cooperative Processing Unit. Where work motivation has an indirect influence on work fatigue conditions, namely through workload, work stress and work capacity. Employees who have low work motivation will tend to easily feel burdened so that it can trigger work fatigue in UPT Balai Yasa Yogyakarta employees. This can be seen from the subject categorization, where 56% of employees experience moderate work fatigue, 23% of employees experience high work fatigue, and 6% of employees experience very high work fatigue.

Working hours are one of the factors that trigger work fatigue (Antaka, 2018). UPT Balai Yasa Yogyakarta sets working hours for 9 hours, starting from 8 am to 5 pm. Apart from these working hours, there are still some employees who have to do overtime or overtime. UPT Balai Yasa Yogyakarta has also established a night picket system for its employees. So many employees complain that they are often sleepy when working. In line with the results of this research, Indriani, Setyaningrum, Noor, Khairiyati, & Anhar (2021) explained that misalignment of rest periods is one of the factors that triggers work fatigue in employees.

Apart from making good use of time, it is important for employees to be able to build good relationships with fellow colleagues (Muis, Nasution, & Azhar, 2018). A form of good interpersonal communication is the ability of a superior to be able to manage his subordinates by building good emotional relationships. Bosses who are close to employees and are willing to listen to employee complaints can reduce aspects of mental fatigue, namely dissatisfaction with workplace policies. This is reinforced by the research results of Palupi, (2022) where superiors who do not hold discussions and make their own decisions without considering other employees tend to be disliked and create feelings of dissatisfaction with the leadership system in the company. The good interpersonal relations of UPT Balai Yasa Yogyakarta employees can be seen in the sensitivity and care between co-workers, where employees remind each other when there are dangerous conditions, and avoid conflicts between co-workers.

Conclusion

Based on the obtained data and the results of the analysis conducted, several conclusions can be drawn regarding the factors influencing work fatigue among UPT Balai Yasa Yogyakarta employees in the production department. Firstly, work motivation demonstrates a negative impact on work fatigue, indicating that higher levels of work motivation correspond to lower levels of perceived fatigue, and vice versa. Secondly, workload has a positive influence on work fatigue, suggesting that increased workload is associated with higher levels of fatigue among employees, and vice versa. Additionally, a relationship between work motivation and workload in relation to work fatigue was identified, revealing that lower levels of motivation coupled with higher workloads contribute to greater work fatigue experienced by employees, and conversely. These findings emphasize the

interconnected dynamics of work motivation, workload, and work fatigue, providing valuable insights for UPT Balai Yasa Yogyakarta to address these factors and enhance employee well-being in the production department.

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