Analysis of Factors Related to Work Fatigue on Workers in the CPP (Cable Product Plan) Part of PT. City of JJ-Lapp SMI (Factory) Tangerang in 2019

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Abstract: Fatigue is a symptom associated with a decrease in work efficiency, specific to the skills as well as increased anxiety and even boredom. Fatigue itself marked by feelings of fatigue decreased output, and the physiological condition resulting from excessive activity. This research was conducted to analyze Factors Associated with Work Fatigue Workers in Section CPP (Cable Product Plan) PT. JJ-Lapp Cable SMI (Factory) Tangerang in 2019. This study used a cross-sectional method. Research measuring instrument in the form of questionnaire fatigue subjective work from the Industrial Fatigue Research Committee (IFRC), weight scales and height and stopwatch. The population in this study were workers in the CPP (Cable Product Plan) some 60 workers. Sample of 51 workers with the random sampling method. The results using the Chi-Square test. Statistical analysis showed an association between age (p-value = 0.045), workload (p-value = 0.000), nutritional status (p-value = 0.000) To reduce and overcome the fatigue is high then the recommended companies carry out medical examinations on the incidence of fatigue especially on workers and provide meals that meet the nutritional balanced for workers.

1 PRELIMINARY

Technological advances have raised standards and quality of human life better through increased production and work productivity other than that technological advancements have resulted in various adverse impacts, which can increase environmental pollution, workplace accidents and various types of diseases caused by work. Overcoming these problems requires the high performance of Human Resources (HR) (Tarwaka, 2010). Work fatigue contributes 50% to work accidents. Data from the International Labor Organization (ILO) states that almost every year as many as two million workers die due to work accidents caused by fatigue (ILO, 2013).

Data from the International Labor Organization (ILO) states that in 2013 1.2 million workers died due to exhaustion (ILO, 2013) total time lost because of fatigue on workers averaged 5.6 hours/week when compared to 3.3 hours of workers who did not experience fatigue (Ricci et al, 2007).

According to a National Transportation Safety Board (NTSB) report, in the United States, it was found that 52% of single accidents were caused by heavy equipment vehicles and from nearly 18% of accident cases, drivers claimed to lack concentration due to fatigue and fell asleep while driving (Peden, 2004). Based on data obtained from the Ministry of Manpower and Transmigration of the Republic of Indonesia states that the number of work accidents fluctuated in 2011 to 9,891 cases, in 2012 as many as 21,735, in 2013 as many as 35,917, and in 2014 as 24,9106, with 65% of workers in Indonesia with complaints work fatigue so that there is need for control (RI Ministry of Manpower and Transmigration, 2014). Based on the results of the Work Fatigue Survey Report on the CPJ (Cable Product Plant) of PT JJ-Lapp Cable SMI (Factory) Tangerang in 2018 using the IFRC (Industrial Fatigue Research Committee) questionnaire from 87 workers found that work exhaustion of the CPP (Cable Product Plant) by 70.37% (19 workers) experienced mild fatigue and 29.62% (8 workers) experienced moderate fatigue, CWP of (12) 100% of

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workers experienced mild fatigue, the EHS department obtained by 80% (12 workers) experienced mild fatigue and 20% (3 workers) experienced moderate fatigue, the logistics department was 81.25% (13 workers) experienced mild fatigue and 18.75% (3 workers) experienced moderate fatigue, and engineering and maintenance were found 88.23% (15 workers) experienced mild fatigue and 11.76% (2 workers) experienced moderate fatigue.

2 RESEARCH METHOD

This research uses a quantitative approach to aim to get an idea by studying the correlation or relationship between the independent variables of this dependent. this research using a cross-sectional design for this study data collection is done at the same time. The population in this study were workers at the Cable Product Plan with a sample size of 51 respondents. Sample calculations performed using two different formulas proportions. The sampling technique in this study using simple random sampling. The collection of data that will be used resources in the form of primary data through interviews using a questionnaire for age, workload, and nutritional status the data were analyzed using univariate performed each variable, while bivariate analysis was done with a chi-square test using SPSS with a significance level of p = 0.05 (CI = 95).

3 RESULTS

Based on the results of the study, it is known that the highest proportion of fatigue levels in workers is workers who experience high fatigue as many as 37 workers (72.5%) and the lowest proportion of workers who experience low fatigue as many as 14 workers (27.5%). work (≤ 3 years) as many as 20 people (33.3%).

The results of the study on the age variable are known to be the highest proportion of age among workers who are at risk age category that is 34 workers (66.7%) and the lowest proportion of workers with no risk category is 17 workers (33.3%).

The results of research on the workload variable are known that the highest proportion of workload on workers is workers who experience heavy loads of 35 workers (68.8%) and the lowest proportion in the medium load category of 16 workers (31.4%).

The results of the study on the nutritional status variable found out that the proportion of nutritional status of workers is workers with risk nutritional status categories, as many as 36 workers (70.6%) and the lowest proportion with no risk nutritional status categories, as many as 15 workers (29.4%).

Table 1: An overview of each variable on the Cable Product Plan in PT. JJ-Lapp Cable SMI factory Tangerang 2019.

Variables	Frequency	Percentage (%)
level of work fatigue		
High >60	37	72,5
Low ≤60	14	27,5
Age		
Risk of ≥ 36	34	66,7
Not Risk < 36	17	33,3
Workload		
Heavy load %CVL ≥ 60	35	68,6
Medium load %CVL <60	16	31,4
Nutritional status		
Risky <18,5 and >24,9	36	51.7
Not at Risk 8,5 -24,9	16	48.3

Table 2: The proportion of workers with work fatigue the independent variable Cable Product Planning Section PT. Cable Factory JJ-Lapp SMI Tangerang 2019.

Variables	Work Fatigue				Total		P-Value	OR (95% CI)
	Risky		Not at Risk					
	N	%	N	%	N	%		
Age								
Risk of ≥ 36	28	82,4	6	17,6	34	100.0	0,045	1,556
Not Risk < 36	9	52,9	8	47,1	17	100.0		(0,968-2,500)
Workload								
Heavy load %CVL ≥60	34	97,1	1	2,9	35	100.0	0,000	5,181
Medium load %CVL<60	3	18,8	13	81,3	16	100.0		(1,865-14,390)
Nutritional status								
Risky <18,5 and > 24,9	32	88,9	4	11,1	36	100.0	0,00	22.032
Not at Risk 8,5 - 24,9	6	33,3	10	66,7	16	100.0		(1,071-3,853)

4 DISCUSSION

4.1 Age

Statistical test results show that there is a significant relationship between the age of workers with work fatigue with workers (p-value = 0.045). The results of this study are in line with Medianto (2017), that there is a significant relationship between the age of workers who are at risk> 36 years with work fatigue in Unloaded Workers (TKBM) workers. This is because the age of workers is older than older workers, so workers experience work fatigue more quickly.

From the results of this study, it can be seen that age is one of the factors that affect the workability of an individual. This is because of the age at risk ≥ 36 years so that they will experience fatigue faster than the age of no risk <36 years. The age factor can affect a person's work capacity and a person's age is directly proportional to his work capacity. This is as a result of various biological changes as a consequence of aging. Therefore, suggestions for companies need to have a maximum age standard for employment, so companies have workers with higher work capacities.

4.2 Workload

Based on the results of the study obtained statistical test results indicate that there is a significant relationship between the workload of workers with work fatigue with workers (p-value = 0,000). Based on the results of research in line with Mastiawan (2017) that there is a relationship between workload with fatigue on PT SAP workers (Sarana Anugrah Perkasa). This is because of the limited tools provided in the asphalt demolition process. Workers destroy the asphalt manually by using a hammer, resulting in a heavy workload. The researchers inline show that there is a relationship between workload and work fatigue (Oesman and Simanjuntak, 2011).

The relationship of the workload with work fatigue is influenced by the ability of each different worker even though workers work in the same place and with the same educational background. The ability of someone else despite having the same education and experience and working at the same job, this difference is due to the capacity of that person is different (Notoatmojo, 2003). Judging from the cases above, the researcher suggests that the company provides more tools (forklifts) to reduce the workload received by workers and makes it easier in the work process and adds to HR (Human Resources) so that the production process can run well. The severity of the workload received by a worker can be used to determine how long a worker can carry out work by the ability or work capacity concerned. The heavier the workload, the shorter one's work time to experience fatigue.

4.3 Nutritional Status

Based on the results of the study obtained statistical test results indicate that there is a significant relationship between the nutritional status of workers with work fatigue in workers (p-value = 0,000). This study is in line with Mentari et al., (2012) conducted on oil palm harvesters, there is a significant relationship between nutritional status and work fatigue experienced by respondents, this is due to inadequate consumption with body needs so that the body can feel tired, lazy, and productivity decreases. Excessive nutritional status causes less than optimal performance or decreased working power and when malnutrition can also cause energy output that is not proportional to the nutritional intake received (Almatsier, 2005). The problem of abnormal nutrition (excess or deficiency) at the age of 18 years and over is an important problem that can support the work and must be considered. This is because there is a risk of certain diseases that will arise and cause a person to experience fatigue quickly and will affect one's productivity.

Based on the results in this study, workers who have nutritional status are at risk of experiencing high levels of fatigue compared to workers who have no risk nutritional status. This is because the nutritional status of workers there is more abnormal so that workers experience an absence of balance between energy consumption in the body and energy supply which will reduce maximum work muscle so that the intensity of work activities will decrease and the body will feel more tired due to imbalance energy needs in the human body.

Based on the observation that it was found that the food provided by the company canteen only provided food without regard to adequate levels of nutrition that were not in accordance with the body's needs or the content of nutrients that were not appropriate. Researchers suggest that companies should pay more attention to healthy food for workers with nutritional levels that are in accordance with workers' needs. Good nutrition can help workers stay healthy and avoid work fatigue and other health risks that can affect the performance and productivity of workers rarely visited by health workers.

5 CONCLUSIONS

The results of this study indicate there is a relationship between age, workload, and nutritional status with the work fatigued Cable Product Plan Section in PT. JJ-Lapp Cable SMI factory in 2019.

6 SUGGESTION

Remedial action is needed as the company facilitates workers to carry out work health checks on work fatigue company clinics or health services to minimize the occurrence of fatigue in workers and suppress the accident rate as a result of work (CAC) caused by work fatigue. The company provides aids in the form of (Forklift) in the amount more to reduce the workload received by workers and make it easier in the work process. The company must provide healthy food for workers' nutritional levels that are following the needs of workers or meet balanced nutrition for workers.

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