CORRELATION OF NOISE AND WORK STRESS AMONG WORKERS AT PRODUCTION WORKER PT. SEMEN TONASA PANGKEP

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ABSTRACT

Work fatigue is one of the problems that is often experienced by workers in the production of PT Semen Tonasa in the district of Pangkep is PT. Semen Tonasa is the largest cement producer in Eastern Indonesia, where production activities are quite high and continuous. This can cause workers to easily experience work fatigue so as to reduce work productivity. The purpose of this study is to determine the relationship of noise dan work stress with work fatigue in the production workers. This type of research is an observational analytic crosssectional study approach. Data collection began on July 29 to August 4, 2019 on 52 workers as samples taken by simple random sampling technique. The results showed that as many as 23 respondents (44,2%) not experienced work fatigue and 29 respondents (55.8%) experienced work fatigue. Statistical test results show that there is a relationship of noise (p = 0.0974), work stress (p = 0.018 with the work fatigue among workers at production worker PT. Semen Tonasa Pangkep. Based on the results of research that has been done, it is recommended that the production company PT. Semen Tonasa should adjust the division of tasks with the physical abilities and work capacity of workers, control noise at work, arrange working hours with adequate rest periods and provide counseling about the dangers of work fatigue to workers.

Keywords: Fatigue, noise, stress, age, work period, workload.

INTRODUCTION

Protection of labor is one of the important goals for a formal or informal industry/company. However, not many workplaces have implemented occupational safety and health. The company demands high responsibility and professionalism from the workers to increase the professionalism and productivity of the company, but it is not supported by protection of work which eventually causes various problems for health, one of which is fatigue for workers.

Fatigue is a state that is accompanied by a decrease in efficiency and endurance at work. Fatigue shows different conditions of each individual, but all lead to a loss of efficiency and a decrease in work capacity and failure is a mechanism of body protection so that the body avoids further damage, resulting in recovery (Yung, 2016).

Data from the International Labor Organization (ILO) states that around 32 percent of workers report that they experience fatigue that is affected by their work. Complaints of severe fatigue among workers around the world range from 18.3-27%. The prevalence rate of fatigue in the industry has been reported as much as 45% (ILO, 2016).

A worker who is suffering from fatigue is potentially dangerous to themselves and others, and the highest level of disaster occurrence is usually found among workers who suffer from fatigue. Some of the most serious accidents in the last 3 decades have been linked to worker losses. An oil spill from Exxon Valdez in the United States, the worst nuclear power accident

in the world occurred at Chernobyl on April 25, 1986 in Ukraine and an accident at Three Mile Island in Pennsylvania. This accident together with many transportation accidents on the roads caused by human fatigue (Yazdi & Khosro, 2015).

According to a survey in Korea, overall fatigue increased from 17.8% in 2006 to 26.7% in 2010 (ILO, 2016). The incidence of fatigue in Japan and China also shows quite high numbers. In Japan deaths due to work fatigue increased to break through 1,456 cases in 2015 (International Kompas, 2016). In China, according to Occupational Safety and Health Service data (2013), death cases caused by work fatigue reached 600,000.

In Indonesia in 2012, an average of 847 workplace accidents occurred on average, 36% were due to high levels of fatigue (Indonesian Ministry of Health, 2014). More than 65% of workers in Indonesia come to company polyclinics with complaints of work fatigue. Factors causing fatigue in the industry vary greatly, namely intensity and length of physical and mental work, environment (climate, lighting, noise, vibration etc.), Circadian rhythm, Physical Problems (responsibility and concern for conflict), reality and health and nutritional conditions. Work environment that does not meet the requirements, for example noise is one of the factors that can cause health problems. Noise that is not well controlled, can cause in the form of increased labor fatigue (Suma'mur, 2009). The results of work fatigue research conducted by Andriani (2016) on workers at PT. X Jakarta shows that there is a relationship between noise and age with work fatigue.

According to research conducted by Eka by measuring fatigue in 205 workers as well as noise intensity measurements at PT. Iskandar Indah Printing Textile Surakarta with a concentration of research in the weaving section, the riching section and the administration section. There are different noise intensities between the weaving (99.12 db), riching (68.23 db) and administration (67.4 db) sections with different levels of fatigue. In the weaving section which has a noise intensity exceeding the threshold value the worker experiences moderate fatigue, whereas in the riching and administration section which has a noise intensity less than the threshold value the worker experiences mild fatigue. This study shows a relationship between noise and work fatigue (Eka et al., 2014).

Psychosocial factors such as work stress have a significant relationship with fatigue, when work demands a lot of things to do and very little time, there will be an overload on the job (job overload), fatigue in humans is a process that accumulates various factors that cause and can cause tension (stress) experienced by the human body. According to the results of research conducted by Jacobs et al., (2015) on employees of the human resources department at PT Bank Sulut Manado Branch regarding work stress there are employees who experience work stress as much as 42.5% with mild stress category. Work fatigue in employees is that 62.5% experienced work fatigue consisting of 57.5% in the category of mild work fatigue and 5% in the moderate level. There is a significant relationship between work stress and work fatigue, where respondents who experience work stress have a 5 times greater chance of getting work fatigue.

METHODOLOGY

This type of research uses analytic observational methods, namely research directed to explain a situation or circumstance. The researcher tries to look for the relationship between work intensity and work stress with work fatigue to determine whether there is a relationship between variables.

Respondents in this study were employees who were in the production of PT Semen Tonasa Pangkep. The research instrument in conducting this research was the researcher himself with additional instruments in the form of a sound level meter questionnaire and reaction timer for data collection carried out by means of taking interviews by using a structured questionnaire. Analysis of the data through the steps of the data collection stage, the reduction stage, the presentation stage, the conclusion drawing stage.

This study uses a cross sectional approach, because the independent variables (risk factors) and the dependent variables (effects) or cases that occur in the research object are measured or collected simultaneously (at the same time) (eka et al., 2014).

RESULTS

Table 1: Distribution of Respondents Based on Respondent Characteristics

Respondent Characteristics	n	%
Age		
25-30 years old	19	36,5
31-40 years old	26	50,0
40-50 years old	7	13,5
Education		
Bachelor	12	23,1
High School	18	34,6
Vocational School	22	43,3

Source: Primary Data, 2019

Table 2: Noise Measurement Results in the Production Section of PT. Semen Tonasa

Measurement location	Noise Intensity	Information
Area A	93,3	>NAB
Area B	91	>NAB
Area C	75	<NAB

Source: Primary Data, 2019

Table 3: Distribution of Respondents Based on Noise Intensity

Noise Intensity	N	%
<NAB	25	48,1
>NAB	27	51,9

Source: Primary Data, 2019

Table 4: Distribution of Respondents Based on Work Stress Measurement

Job Stress	N	%
Normal	18	34,6
Experiencing stress	34	65,4

Source: Primary Data, 2019

The results showed that respondents based on the most age groups were in the age group ranging from 31-40 years, which were 26 respondents (50.0%) and the lowest were respondents with an age group of 41-50 years ie only as many as 7 respondents (13.5 %). The education level of the most respondents was the Vocational School level which was 22 respondents (42.3%) and the lowest was Bachelor degree which was 12 respondents (23.1%).

Table 5: Relationship between Noise, Work Stress and Age Variables with Work Fatigue in Production Workers of PT Semen Tonasa

Respondents Characteristics	Work Fatigue		N % Uji X2 (*p*)		
	Normal	Abnormal			
Noise					
>NAB	11	14	25	48,1	0,974
<NAB	12	15	27	51,9	
Job Stress					
Normal	12	6	18	34,6	0,018
Experiencing Stress	11	23	34	65,4	
Age					
Young	18	22	40	77,0	0,838
Old	5	7	12	23,0	

Source: Primary Data, 2019

The results showed that the percentage of respondents who experienced more work fatigue in workers exposed to noise intensity <NAB by 15 respondents (55.6%) compared to workers exposed to noise intensity >NAB by 14 respondents (56.0%). Based on Chi Square statistical tests by looking at the Pearson Chi Square value shows the value of p = 0.974. Thus, it is said that there is a relationship between noise with fatigue Workers of PT. Semen Tonasa (Table 5).

The results showed that of the 52 respondents obtained the percentage of respondents who experienced work fatigue mostly in workers suffering from work stress 23 respondents (67.6%) compared to respondents who did not experience work stress as many as 6 respondents (33.3%). Based on Chi Square statistical tests by looking at the Pearson Chi Square value shows the value of p = 0.018. Thus it is said that there is a relationship between work stress with work fatigue Workers of PT. Semen Tonasa (Table 5).

DISCUSSION

Based on the results of the study showed that respondents who experienced heavy work fatigue and light workload were the most. From the results of the study also showed that of respondents who experienced mild work fatigue there were many who had mild work fatigue (Eka et al., 2014). Based on Chi Square statistical tests show that there is a relationship between noise and work fatigue of production workers of PT. Semen Tonasa. the level of work stress felt by workers, the higher the work fatigue of workers. Based on the results of research conducted by Julianti regarding the relationship between individual factors with work factors with objective fatigue in workers exposed to noise at PT Barata Indonesia in 2011 stated that there is a significant relationship between workload and work fatigue (Widyastuti, 2017).

The results of research conducted by Pelders & Nelson (2019) on workers in four gold mines and one platinum mine in 5 provinces of southern Africa revealed that stress contributes to fatigue. There are 62 workers out of 309 workers who suffer from mild stress experience fatigue. Workers who experienced high levels of stress amounted to 181 people and 72 of them experienced fatigue. The results of this study are in line with research conducted by Widyastuti (2017) showing there is a relationship between work stress and work fatigue (Sig. 2-sided = 0,000). The conclusion from this study that there is a tendency for the relationship between work stress and work fatigue, the higher

CONCLUSION

Based on the discussion of the results of the study and adjusted for the purpose of the study, the conclusions that can be drawn are the variables related to the work fatigue of the production workers of PT. Semen Tonasa is a variable workload, work stress and Workload. Based on these results, it is recommended that the production company PT. Semen Tonasa should adjust the division of tasks with the physical abilities and work capacity of workers, control noise at work, arrange working hours with adequate rest periods and provide counseling about the dangers of work fatigue to workers.

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