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Research Article

Determinant Factors Related Word Fatigue in Workers at PT. Makassar Indonesian Ship Industry

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Abstract

Work fatigue is one of the occupational health and safety issues that can be a risk factor for accidents at work. fatigue can be caused by several factors both internal and external factors, including body work attitude, neck work attitude, leg work attitude, upper arm work attitude, forearm work attitude, wrist work attitude. This type of research is observational analytic with cross sectional study design. the target population in this study all workers who work in the hull, engine and shaft, dock and pipe at PT. Makassar's Indonesian ship industry with a total of 61 people. the method of taking samples in this study uses total sampling. Data analysis method uses the chi-square test. The results showed that there was a significant relationship between the variable work attitude (body) with p value = 0.01, while there was no relationship in the variable work attitude (neck) with a value of p value = 0.898 while the variable work attitude (feet) with a p value value = 0.002 has a relationship with work fatigue and work attitude (upper arm) p value = 0.030, and work attitude (forearm) p value = 0.424 has no relationship with work fatigue, work attitude (wrist) with a value of p value = 0,000 , has a relationship with work fatigue in workers in the hull, engine and shaft, dock and pipe at PT. Makassar Indonesian ship industry. Further research is suggested to be able to examine other factors suspected to be related to work fatigue and not examined in this study, and is expected to use better and more accurate measurement tools for further research so that the results of the research can be more accurate and better.

Key word: *Engine, Saft, Dock And Pipe, work fatique, workers.*

Introduction

According to the International Labor Organization (ILO) every year as many as two million workers die due to work accidents caused by changing factors. In this study excluded from 58,115 samples, 32.8% in coverage was better, while problematic workers were related to an increase factor, so it would increase directly at the level of income increase[1,2]. PT. ArwanaAnugrah Ceramics with the Chi-Square statistical test results obtained a p-value = 0,0001, which means related to work relationships by increasing work for employees of the production department of PT. Arwana Anugrah Keramik, Tbk. As many as 41 employees of PT. Arwana Anugrah Keramik, Tbk has a risky work attitude[3,4,8].

Based on this background, the researcher is interested in conducting research "Effect of Work Attitude (Body, Neck, Legs, Upper Arm, Forearm, Wrist) on factors related to work effort at PT. Makassar Indonesian Ship Industry in the Hull, Engine and Shaft, Dock and Pipe sections[5,6]. Occupational Safety and Health (K3) is a program created by a company to prevent work-related accidents and occupational diseases, analyze work that causes accidents and illnesses caused by work caused by disasters and occupational diseases[7,10]. The work accident data is based on preliminary data collection at PT. The Indonesian Ship Industry (Persero) Makassar number of work accidents in 2014 were 3 people, in 2015 there were 8 people, in 2016 1 person, in 2017 there were 6 people and in 2018 1 people and in 2019

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(March) 1 person[8,11].

Based on work accident data at PT. During the period of 2014 to 2019, the Indonesian Ship Industry experiences work accident incidents in every unit, namely in the Hull, Engine and Axle, Dock and Pipe sections. Work accidents show a number that is not too large but needs to be evaluated for PT. Makassar Indonesian Ship Industry in order to achieve Zero Accident[12]. Based on the results of preliminary data obtained at PT. The Indonesian Ship Industry in the Machinery and Axle section has 12 workers, 22 in the Hull section, 12 in the Dock section and 15 in the Pipe section. In addition, working time at PT. Makassar Indonesian Ship Industry starts at 07.00 am to 17.00[13,18]. The average age of workers there ranges between 30-60 years, where as said Tarwaka (2014) that physical strength from the age of 25 years will begin to decline. And their tenure is 10 to 20 years. While the level of education of workers there starting from elementary, middle, and high schoo[14,20].

From the results of observations in the hull, machinery and shaft in PT. The Indonesian Ship Industry level of fatigue of workers there is quite high, because workers there work for 8 hours minus 1 hour of rest, praying, and eating[15,16,17]. It is said to be quite high because, the workers work nonstop because of the hull section. Therefore, workers when they want to take a break to eat, or pray must be carried out alternately.

Method

This type of research is observational analytic with cross sectional study design. the target population in this study all workers who work in the hull, engine and shaft, dock and pipe at PT. Makassar's Indonesian ship industry with a total of 61 people. the method of taking samples in this study uses total sampling. In this study the measurement of work fatigue is done by measuring the feeling of fatigue using the Fatigue Measurement Tool Quizzer (KAUPK2)[4,8,11]Data analysis method uses the chi-square test.

Result

Table 1: Relationship between Work Attitude and Work Fatigue in Workers at PT. Makassar Indonesian Ship Industry 2019

Work Attitude of the Agency	Work Fatigue				Total		p Value
	Not Tired		Tired				
	N	%	N	%	N	%	
No Risk	14	70,0	6	30,0	20	100	
At Risk	13	31,7	28	68,3	41	100	0,011
Total	27	44,3	34	55,7	61	100	

According Table 1, shows that 61 workers with no risky body work attitude who are not tired as many as 14 workers (70.0%) and tired as many as 6 workers (30.0)%, while for work attitude risky bodies are not tired 13 workers (31.7%), and tired of 28 workers (68.3%).

Table 2 : Relationship between Neck Work Attitude and Work Fatigue in Workers at the at PT. Makassar Indonesian Ship Industry 2019

Neck work attitude	Work Fatigue				Total		*p Value*
	Not Tired		Tired				
	n	%	N	%	N	%	
No Risk	9	40,9	13	59,1	22	100	
At Risk	18	46,2	21	53,8	39	100	**0.898**
Total	**27**	**44,3**	**34**	**55,7**	**61**	**100**	

Table 3: Relationship between Working Legs and Work Fatigue in Workers at PT. Makassar Indonesian Ship Industry 2019

foot work attitude	Work Fatigue				Total		p Value
	Not Tired		Tired				
	N	%	N	%	n	%	
No Risk	19	67,9	9	32,1	28	100	
At Risk	8	24,2	25	75,8	33	100	0.002
Total	27	44,3	34	55,7	61	100	

According table 3 about the relationship between working attitude of the feet with work fatigue in workers in the Hull, Machine and Axle, Dock and Pipes at PT. Makassar Indonesian Ship Industry, shows that 61 workers with no risk foot work attitude who are not tired as many as 19 workers (67.9%) and tired as many as 9 workers (32.1)%, while for the attitude of working leg legs who are not tired as much as 8 workers (24.2%) and tired as many as 25 workers (75.8)%.

Table 4: Relationship of Forearm Work Attitude with Work Fatigue in Workers at PT. Makassar Indonesian Ship Industry 2019

Forearm Work Attitude	Work Fatigue				Total		*p Value*
	Not Tired		Tired				
	n	%	n	%	n	%	
No Risk	8	57,1	6	42,9	14	100	
At Risk	19	40,4	28	59,6	47	100	**0.424**
Total	**27**	**44,3**	**34**	**55,7**	61	100	

According Table 4 about the relationship between forearm work attitude with work fatigue in workers in the hull, machinery and shaft, dock and pipe at PT.

Table 5 : Relationship of Upper Arm Work Attitude with Work Fatigue in Workers

at PT. Makassar Indonesian Ship Industri 2019

Upper Arm Work Attitude	Work Fatigue				Total		p value
	Not Tired		Tired				
	N	%	N	%	n	%	
No Risk	23	54,8	19	45,2	42	100	
At Risk	4	21,1	15	78,9	19	100	0.030
Total	27	44,3	34	55,7	61	100	

Table 5 shows that 61 workers with an upper arm work pose no risk who are not tired as many as 23 workers (54.8%)

Table 6 : Relationship between Wrist Hand Attitude and Work Fatigue in Pipes at PT. Makassar Indonesian Ship Industry 2019

Wrist Attitude	Work Fatigue				Total		p value
	Not Tired		Tired				
	N	%	N	%	n	%	
No Risk	19	76,0	6	24,0	25	100	
At Risk	8	22,2	28	77,8	36	100	0.000
Total	27	44,3	34	55,7	61	100	

Table 6 shows that 61 workers with no risky wrist work attitude who are not tired as many as 19 workers (76.0%) and tired as many as 6 workers (24.0%), while for the wrist work attitude are at risk who are not tired as many as 8 workers (22.2%) and tired as many as 28 workers (77.8%).

Discussion

Work fatigue is a process of decreasing efficiency, work performance and reduced strength or physical endurance of the body to continue the activities that must be carried out[18,19,22]. In this study the measurement of work fatigue is done by measuring the feeling of fatigue using the Fatigue Measurement Tool Quizzer (KAUPK2)[4,8,11]. Based on bivariate analysis, it can be described as follows: Relationship between Work Attitude and Work Fatigue: Work attitude on the part of the body is measured using the REBA method.

Relationship between Neck Work Attitude and Work Fatigue With the statistical test results using the chi-square obtained p value = 0.898 because the value> 0.05 then Ha is rejected and H0 is accepted, which means there is no influence between Neck Work Attitudes towards work fatigue in workers in the Stomach, Machine and Axle, Dock and Pipe at PT. Makassar Indonesian Ship Industry.Relationship between Leg

Work Attitudes and Work Fatigue With the results of statistical tests using the chi-square obtained p = 0.002 because the value <0.05 then Ha is accepted and Ho is rejected, which means there is a relationship between working attitude of the feet to work fatigue in workers in the hull, machine and shaft, dock and Pipe at PT. Makassar Indonesian Ship Industry[23].

Relationship between Upper Arm Work Attitude and Work Fatigue Statistical test results using chi-square obtained p value = 0.030 because the value <0.05 then Ha is accepted and Ho is rejected, which means there is a relationship between the Upper Arm Work Attitude towards Work Fatigue in workers in the Stomach, Machine and Axle, Dock and Pipe at PT. Makassar Indonesian Ship Industry.

Relationship between Forearm Work Attitude and Work Fatigue Next is the assessment of the position of the forearm. Forearm positions that have the lowest risk at a flexion position of 60 ° -100 ° are given a value of 1 and a risky position at a flexion position <60 ° or flexion> 100 ° are given a value of 2. This is evidenced by the greater score for each risky posture. With the statistical test results using chi-square obtained p value = 0.424 because the value <0.05 then Ha is rejected and Ho is accepted, which means there is no relationship between the Forearm Work Attitudes towards work fatigue in workers in the Stomach, Machine and Shaft, Dock and Pipe at PT. Makassar Indonesian Ship Industry. Relationship between Wrist Attitude and Work Fatigue. The final working attitude on the use of the REBA method is the wrist. The position of the wrist that has the smallest risk is in the position of flexion or extension at an angle of 0-150 that gets a score of 1. The position at risk is the position of the wrist flexion or extension at an angle of> 150.

The results of the study using the chi-square test found that the value of p value = 0,000 (p <0.05) showed that there was a significant relationship between wrist work attitude and work fatigue. The results of this study are in line with research conducted by Ekawati (2014), which states that there is a significant relationship between work attitude (wrist) with work fatigue, with a p value in the study of 0.043 (p value <0.05).

Conclusions

1. There is a significant relationship to work (body) attitude with work fatigue =p value = 0.011 (<0.05).
2. There is no significant relationship to the work attitude of the neck with work fatigue as seen from 61 workers, p value = 0.898 (<0.05).
3. There is a significant relationship to the work attitude of the feet with work fatigue as seen from 61 workers, p value = 0.002 (<0.05).
4. There is a significant relationship to upper arm work attitude with work fatigue p value = 0.030 (<0.05).
5. There is no significant relationship to the forearm work attitude with work fatigue p value = 0.424 (<0.05).
6. There is a significant relationship to wrist work attitude with work fatigue as seen p value = 0,000 (<0.05).

Ethical Clearance: taken from Comitee ethical Universitas Muslim of Indonesia Makssar

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Conflict of Interest - The author declares no conflict interest regard

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