THE EFFECT OF WORKING PERIOD, NUTRITIONAL STATUS, AND SMOKING HABITS ON WORK FATIGUE AT PT. ATLANTIC ANUGRAH METALINDO SURABAYA YEAR 2021

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ABSTRACT

Fatigue is one of the K3 (Health) problems and Occupational Safety) which is the cause of work accidents. This study aims to analyze the effect of age, years of service, nutritional status, and smoking habits on work fatigue on workers in the manufacturing and fabrication area of PT. Atlantic Anugrah Metalindo.

This type of research is analytic observational with a cross sectional approach. The sample size is 36 workers in the manufacturing and fabrication area of PT. Atlantic Anugrah Metalindo was taken randomly from a population of 40 workers. Data was collected by measuring work fatigue, height and weight, interviews, and observation. The data obtained were then processed and presented in tabular form and then analyzed statistically using the Spearmen statistical test (α=0.05).

The results of this study indicate that workers who have an age of 66.7% aged 26 to 45 years, 47.2% of work years are more than 10 years, who experience an overweight nutritional status with a severe level of 38.9%, have a smoking habit of 41.7% moderate smokers, workers with a level of work fatigue do not experience fatigue as much as 52.8%, there is no influence of age with a p value = 0.101 (> 0.05) working period with a p value = 0.841 (> 0.05), nutritional status with p value = 0.395 (> 0.05), smoking habit with p value = 0.276 (> 0.05) on work fatigue in the workforce.

It was concluded from this study that there was no effect of age, years of service, nutritional status, and smoking habits on work fatigue in the workforce. Therefore, companies can pay attention to work fatigue by providing attention and counseling to workers regarding efforts to control work fatigue.

Keywords: work fatigue, age, nutritional status, working period, smoking habit

INTRODUCTION

Indonesia is at the stage of the process of socio-economic change that affects the livelihood system of an agrarian society into an industrial society, this is due to technological advances. In general, industrial activities are able to ensure the sustainability of the regional economic development process. Human resources are the most important assets that must be owned and maintained by the company. The role of humans here is very important, namely working to create goals, innovate, and achieve company goals and can meet market needs. (1)

Industrial development can have a positive impact, namely increasing the welfare of life with a steady income. Creating employment opportunities, fulfilling various community needs, and encouraging forward thinking for the people. Industrial development also triggers the absorption of labor, so as to increase per capita income. From 2009 to 2015, the average growth in employment absorption increased by 2.49%. The growth of the industrial

sector had a significant positive effect on employment. So, when the industrial sector experiences an increase in the number of business units, it will be followed by an increase in employment in the industrial sector. (2)

Industrial developments can also have a negative impact, namely a decrease in social interaction between people due to a lot of workers spending time at work. Environmental pollution, agricultural land is decreasing, and population mobility is increasing. Workers spend a lot of time at work, physical factors in the work environment such as temperature, light, noise, smoke, security, accidents, dust, and odors need to be considered in order to create comfort and safety for workers. (3)

Fatigue is one of the K3 (Occupational Health and Safety) problems that can be the cause of work accidents. The term fatigue refers to the weakening of the workforce to carry out an activity, resulting in reduced work capacity and body resistance. The World Health Organization (WHO) predicts that the second killer disease after heart disease is feeling tired. Factors causing fatigue in industry vary widely, one of which is the work environment, if working in uncomfortable conditions over time it will cause fatigue. Apart from the physical factors of the work environment, Suma'mur predicts several main factors that are significant to fatigue which include gender, age, nutritional status, workload, body size of the worker concerned and the time spent at work. (4)

Based on BPJS Employment data, in 2019 there were 77,295 workplace accidents (Sultan, 2019), in Indonesia every day on average there were 414 work accidents, 27.8% due to high fatigue, approx. 9.5% or 39 people have disabilities. According to the International Labor Organization (ILO) in 2014 every year the fatigue factor is the cause of workers dying due to work accidents with as many as two million workers. In this study, there were 18,828 of 58,115 samples, with a percentage (32.8%) experiencing fatigue. In Indonesia, more than 65% of workers visited the company's polyclinic with the same complaint, namely work fatigue. Based on the work accident data above, the industry in Indonesia must take corrective action to eliminate the work accident. (5)

Based on a preliminary survey conducted by researchers, on January 15, 2021, from 15 workers in the manufacturing and fabrication department of PT. Atlantic Anugrah Metalindo taken at random. It was found that 40% of the workforce had a working period of more than 5 years, 27% of the workforce were severely overweight, and 33% of the workforce were heavy smokers. The importance of this research is that in the area of manufacturing and fabrication, from these results there are several labor problems with problems that interfere with the workforce, namely work fatigue caused by various factors and one of them is individual factors, namely years of work, nutritional status and smoking habits.

METHODS

This research is an analytic observational with a cross sectional approach. The sample size is 36 workers taken by simple random sampling from 40 workers. Data were collected through observation, interviews and measurements. The data collected was processed and analyzed using the SPSS program through the Spearmen test.

RESULT

Tabel 1. Distribution of Worker Frequency by Age at PT. Atlantic Anugrah Metalindo Year 2021

No	Age	Frequency	Perentage (%)
1.	26-35 tahun	6	16,7
2.	36-45 tahun	24	66,7
3.	46-55 tahun	6	16,7
Total		36	100

Most of the workers in the manufacturing and fabrication section of PT Atlantic Anugrah Metalindo are aged 36 to 45 years, namely 24 people with a percentage of 66.7%, 26 to 35 years and 46 to 55 years, namely 6 people with a percentage of 16.7 %.

Tabel 2. Distribution of Worker Frequency by Period of Service at PT. Atlantic Anugrah Metalindo 2021

No	Period of Service	Frequency	Percentage (%)
1.	< 5 tahun	9	25
2.	5-10 tahun	10	27,8
3.	> 10 tahun	17	47,2
Total		36	100

Most of the workers in the manufacturing and fabrication division of PT Atlantic Anugrah Metalindo have more than 10 years of service, namely 47.2%, 27.8% 5 to 10 years, and 25% less than 5 years.

Tabel 3. Distribution of Worker Frequency by Nutritional Status at PT. Atlantic Anugrah Metalindo 2021

No	Nutritional Status	Frequency	Percentage (%)
1.	Severely underweight	0	0
2.	Mildly underweight	1	2,8
3.	Normal weight	10	27,8
4.	Mildly overweight	11	30,6
5.	Overweight level	14	38,9
Total		36	100

The frequency distribution of workers in the manufacturing and fabrication division of PT Atlantic Anugrah Metalindo has a nutritional status of severe overweight as much as 38.9%, mild overweight as much as 30.6%, normal weight as much as 27.8%, underweight light weight level as much as 2.8%, and no one was severely underweight.

Tabel 4. Distribution of Worker Frequency by Smoking Habits at PT. Atlantic Anugrah Metalindo 2021

No	Smoking Habits	Frequency	Percentage (%)
1.	Light Smoker	13	36,1
2.	Medium Smoker	15	41,7
3.	Heavy Smoker	8	22,2
Total		36	100

The frequency distribution of workers in the manufacturing and fabrication section of PT Atlantic Anugrah Metalindo has a smoking habit of heavy weight, which is 38.9%, moderately overweight, as much as 30.6%, normal weight as much as 27.8%, underweight mild level of body weight as much as 2.8%, and no one experienced severe level of underweight.

Tabel 5. Distribution of Work Fatigue Frequency at PT. Atlantic Anugrah Metalindo 2021

No	Kebiasaan Merokok	Frequency	Percentage (%)
1.	Normal	19	52,8
2.	Light Work Fatigue	16	44,4
3.	Smokers Moderate Work Fatigue	1	2,8
4.	Heavy Work Fatigue	0	0
Total		36	100

Tabel 6. Effect of Age on Work Fatigue at PT. Atlantic Anugrah Metalindo Year 2021

No	Age	Work Fatigue								Total		P value
		Normal		Mild		Medium		Severe				
		n	%	N	%	N	%	N	%	n	%	
1.	26-35 years	5	83%	1	16,7%	0	0%	0	0%	6	100%	0,101
2.	36-45 years	12	50%	11	45,8%	1	4,4%	0	0%	24	100%	
3.	46-55 years	2	33,3%	4	66,7%	0	0	0	0%	6	100%	

Table IV.6 can be seen that from 36 workers (100%), workers aged 36 to 45 years who experience work fatigue in the normal category as many as 12 people with a percentage of 50%, 11 people with mild with a percentage

of 45.8%, and moderate as many as 1 person with a percentage of 4.2%. There are 5 workers aged 26 to 35 years who experience normal work fatigue with a percentage of 83.3% and 1 person mild with a percentage of 16.7%. Workers aged 46 to 55 years who experience normal work fatigue are 2 people with a percentage of 33.3% and mild as many as 4 people with a percentage of 66.7%.

Tabel 7. Effect of Working Period on Work Fatigue at PT. Atlantic Anugrah Metalindo Year 2021

No	Working perid	Work Fatigue								Total		Pvalue
		Normal		Mild		Medium		Severe				
		n	%	N	%	N	%	N	%	n	%	
1.	<5 tahun	3	44,4%	5	55,6%	0	0%	0	0%	8	100%	0,841
2.	5-10 tahun	7	70%	3	20%	1	10%	0	0%	11	100%	
3.	>10 tahun	8	47,1%	9	52,9%	0	0	0	0%	17	100%	

Table IV.7 can be seen that of 36 workers (100%), workers with a working period of more than 10 years experienced work fatigue in the normal category as many as 3 people with a percentage of 44.4% and 5 people with mild with a percentage of 55.6%. Workers with a working period of 5 to 10 years who do not experience fatigue or normal as many as 7 people with a percentage of 70%, who experience a mild level of work fatigue as many as 3 people with a percentage of 20%, and 1 person with a percentage of 10% experiencing moderate level of fatigue.

Tabel 8. Effect of smoking on Work Fatigue at PT. Atlantic Anugrah Metalindo Year 2021

No	Status Gizi	Kelelahan Kerja								Total		Pvalue
		Normal		Mild		Medium		Severe				
		n	%	N	%	N	%	N	%	n	%	
1.	Severely underwweight	0	83%	0	0%	0	0%	0	0%	0	0%	0,395
2.	underweight mild levels	0	50%	1	3%	0	0%	0	0%	1	100%	
3.	Normal weight	5	60%	4	30%	1	10%	0	0%	10	100%	
4.	overweight light level	4	36,4%	7	63,6%	0	0%	0	0%	11	100%	
5.	Overweight	9	64,3%	5	35,7%	0	0%	0	0%	14	100%	

Table IV.8 can be seen that from 36 workers (100%), workers with nutritional status who are included in the category of severe overweight tend to experience normal work fatigue as many as 9 people with a percentage of 64.3%, and 5 people experiencing mild fatigue. with a percentage of 35.7%. Workers with nutritional status in the mild overweight category experienced normal work fatigue as many as 4 people with a percentage of 36.4%, and those who experienced light work fatigue as many as 7 people with a percentage of 63.6%. Workers with nutritional status in the normal weight category experienced normal work fatigue as many as 5 people with a percentage of 60%, workers with mild fatigue with a percentage of 4 people with a percentage of 30%, and 1 person experiencing moderate fatigue with a percentage of 10%. Workers with light weight nutritional status are 1 person with a percentage of 3%.

Tabel 9. Effect of Smoking Habits on Work Fatigue at PT. Atlantic Anugrah Metalindo Year 2021

No	Smoking Habits	Work Fatigue								Total		Pvalue
		Normal		Mild		Medium		Severe				
		n	%	N	%	N	%	N	%	n	%	
1.	Light smoker	7	61,5%	4	30,8%	1	7,7%	0	0%	13	100%	0,276
2.	Moderate Smokers	7	46,7%	8	53,3%	0	0%	0	0%	15	100%	
3.	Heavy smokers	4	50%	4	50%	0	0	0	0%	8	100%	

Table IV.9 shows that out of 36 workers (100%), workers with the category of moderate smokers tend to experience normal work fatigue as many as 7 people with a percentage of 46.7% and 8 people experiencing light work fatigue with a percentage of 53.3%. Workers in the light smoker category experienced normal fatigue as many as 7 people with a percentage of 61.5%, and those who experienced light work fatigue with a percentage of 4 people with a percentage of 30.8%. Workers in the category of heavy smokers experience normal work fatigue as many as 4 people with a percentage of 50% and those who experience light work fatigue as many as 4 people with a percentage of 50%.

DISCUSSION

The absence of the effect of age on work fatigue can occur because the average age of workers is 36 to 45 years, so that at that age is still classified as a productive age even though there is a decrease in the ability of organs or muscles. A person's age is directly proportional to the physical work capacity to some extent. Fatigue can occur due to monotonous work conditions. Working conditions that are repetitive or monotonous, can cause boredom, and make employees feel tired and bored. However, it can also be caused by the workload felt by employees, as well as environmental conditions such as a hot working climate and noise from the production machines used. A work environment with noise that exceeds the threshold can be one of the factors causing work fatigue. (6)

The absence of the effect of working period on work fatigue can be caused because the work period describes the length of work that has been passed for years and the ability of a person's body to adapt and accept a job is different. As for another reason, the longer a person works, the higher the level of adaptation to fatigue. This is because the level of endurance he experiences affects the feeling of being used to the work being done. Work experience can also distinguish the effect of working conditions on the impact that arises on himself. The length of service period is because workers feel comfortable with a work environment that is supported by wise leaders and can work according to their expertise. Reduction of psychological and physiological functions can be eliminated with recovery efforts. (7)

The absence of influence of nutritional status on work fatigue, can be caused by the influence of other factors, namely the workload of workers is high and exceeds the ability of workers. This can occur due to the influence of other factors, such as a non-ergonomic work position, causing workers to feel tired. The number of calories needed to do work must be met from the food and drinks consumed. If the nutritional intake is not sufficient, the ability of the workforce to work will be reduced and they will get tired more easily. (8)

The results of this study are in line with previous research conducted by Febriyanto (2019) where the study stated that smoking had no effect on work fatigue caused by other factors such as gender, workload, alcohol drinking habits, drug abuse and musculoskeletal disorders. (9)

CONCLUSION

Workers who have an age of 66.7% are 26 to 45 years old and 16.7% are 26 to 35 years old and 46 to 55 years old. Workers who have a working period of 47.2% more than 10 years, 27.8% 5 to 10 years and 25% less than 5 years. Workers who experience nutritional status of severe overweight as much as 38.9%, moderately overweight 30.6%, normal weight 27.8%, mildly underweight 2.8%, and none of the respondents experienced severe level of underweight. Workers who have a smoking habit are 41.7% moderate smokers, 36.1% light smokers, and 22.2% heavy smokers. Workers with work fatigue levels who do not experience fatigue are 52.8%, mild fatigu are 44.4%, moderate work fatigue are 2.8%.There is no effect of age on work fatigue with a significant value of $p = 0.101$, years of service on work fatigue in workers with a significant value of $p = 0.841$, nutritional status on work fatigue in workers with a significant value of $p = 0.395$, and smoking habits on work fatigue in the workforce with a significant value of $p = 0.276$

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