

Original Research Article

## Relationship of Age and Workload towards Working Fatigue at Porters in Paotere Port, Makassar City

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**Abstract:** The causes of fatigue vary widely which are influenced by workload, work environment, physical problems and health conditions. It can also be influenced by individual factors such as age, health status, nutritional status, diet, and gender. More than 65% of workers in Indonesia come to company polyclinics complaining of work fatigue. This study aims to analyze how much influence age and workload on the fatigue of porters in Paotere Port, Makassar City. This research is an analytic observational study with cross sectional design, the sample of porters with a total sample of 42 respondents using purposive sampling technique. Data obtained using a questionnaire, measuring the workload of porters. The statistical test used was chi square. The results showed that the independent variables associated with work fatigue ( $p < 0.05$ ) were age ( $p = 0.015$ ) and workload ( $p = 0.036$ ). The manager should place porters with the age and workload according to their respective abilities.

**Keywords:** Age, Porters, Workload, Work fatigue.

## INTRODUCTION

Fatigue is a problem that needs attention. All types of work, both formal and informal, cause work fatigue. Fatigue from work will reduce performance and increase work errors. A decrease in performance is tantamount to a decrease in work productivity. If the productivity level of a workforce is disturbed due to physical or psychological fatigue, the company will feel the resulting impact in the form of a decrease in company productivity.

Basically, productivity is influenced by three factors, namely workload, work capacity, and additional load due to the work environment. Workload is usually related to physical, mental and social loads that affect labor. Meanwhile, work capacity relates to the ability to complete work at a certain time. And the additional burden due to the work environment includes physical, chemical, and labor factors which include biological, physiological, and psychological factors [7].

Data from the International Labor Organization (ILO) in 2003 [3] shows that each year there are more than 250 million accidents at work and more than 160 million workers become sick due to hazards in the workplace. What's more, 1.2 million workers die from accidents and illnesses at work. The annual average total loss reaches 280 trillion rupiah. Data from the ILO states that almost every year as many as 2 million workers die from work accidents caused by fatigue. The study stated that from 58,115 samples, 32.8% of them suffered from fatigue.

The factors that cause fatigue that is often experienced by workers consist of two factors, namely external and internal factors. Internal factors include age, gender, psychological condition, health condition, nutritional status, years of service while external factors include environmental conditions, work load, working time, and work attitude. If these

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factors are not addressed it will have an impact on decreased work motivation, low performance, low quality of work, lots of mistakes, work productivity injuries and work-related accidents [8].

The results of research conducted by Russeng [5] show that there is a significant relationship between age, workload and length of work with work fatigue in workers in the paving block production unit CV. Makassar City Excavation Source. Another study conducted by Marco *et al.* 2014 at the Bitung Ocean Port found a significant relationship between age, workload and work fatigue in loading and unloading workers at the Bitung Ocean Port. Individual factors such as age, years of service, work load and nutritional status also greatly influence the occurrence of work fatigue [4].

The results of research conducted by Fandrik [2] in Tapaktuan Port, South Aceh Regency, found a relationship between individual worker factors such as age, years of service and nutritional status on work fatigue. At an older age, there is a decrease in muscle strength, but this condition is balanced with better emotional stability compared to younger workers which can have positive consequences in doing work [6].

Ervita [1] research results in port of Soekarno Hatta Makassar found that there was a relationship between age, years of service, nutritional status and workload on work fatigue of porters. Physical activity and workload in lifting jobs cause work fatigue due to heavy force loads, haul distances and frequency of lifting while other factors that cause fatigue are hot working temperatures, as well as long distances between home and work [9].

Based on the results of the initial survey of the loading and unloading workers, most of the goods transported by ships to Paotere Port are commodities such as rice, coffee, garlic, cement etc. Most loading and unloading activities use human labor and the work is carried out by moving goods from ship to vehicle or vice versa. The loading and unloading work is carried out using a wholesale system, working according to the agreement with the service user. The loading and unloading work only uses the power of the workers without the help of assistive devices; this can result in work fatigue. In addition, researchers also received reports from workers regarding complaints in the form of head and limb pain and mostly occurred in workers who were thin and old. Based on the things mentioned above, we are interested in researching the relationship between age and workload on work fatigue for porters of Port of Paotere Makassar.

## **MATERIALS AND METHODS**

### ***Location and time of research***

This research was conducted at Paotere Port, Makassar City, South Sulawesi. In March 2020.

### ***Types of research***

This type of research is analytical research with cross sectional design.

### **Population and Sample**

The population in this study were all porters of porters at Paotere Port, Makassar City. The total sample of 42 respondents with male gender and age 22-55 years.

### **Data Collection**

The data collection method used in this research is direct interviews using a questionnaire and the measurement of the workload of workers is obtained by measuring the pulse time of the workers using a stopwatch.

### **Data Analysis**

The data analysis used in this research is univariate analysis which is used to describe the characteristics of the research subjects. Expressed in table and narrative form to determine the proportion of each variable. Bivariate analysis using the chi square test to see the effect of two variables, namely between the independent variable and the dependent variable of work fatigue.

## RESULT

### Respondent Characteristics

**Table-1: Characteristics of Respondents for Porters at Paotere Port, Makassar City, 2020**

Respondent Characteristics	Frequency	Percentage %	
Age	26-30 year	12	28,6
	31-40 year	9	21,4
	41-50 year	14	33,3
	51-55 year	7	16,7
	Total	42	100
Gender	Female	0	0
	Male	42	100
	Total	42	100

The data in table 1 shows the characteristics of the respondents based on age and gender. The distribution according to age shows that the respondents aged 26-30 years are 12 respondents (28.6%), respondents aged 31-40 years are 9 respondents (21.4%), respondents aged 41-50 years are 14 respondents (33.3%) and respondents aged 51-55 years were 7 respondents (16.7%). While the distribution of respondents based on gender shows that male gender is 42 respondents (100%) and female gender is 0%.

**Table-2: Distribution of Respondents Based on Workload of Porters at Paotere Port, Makassar City in 2020**

Workload	Frequency	Percentage %
Light	4	9,5
Heavy	38	90,5
Total	42	100

The data in table 2 shows that of the 42 respondents, the number of respondents who had a light workload was 4 respondents (9.5%) and those who had a heavy workload were 38 respondents (90.5%).

### *The relationship between worker age and work fatigue on porters at Paotere Port, Makassar City*

**Table-3: The Relationship between Age and Work Fatigue of Porters at Paotere Port, Makassar City in 2020**

		Work Fatigue		Total	p
		Tired	Not tired		
Age	26-30 year	3	8	35	0,015
		27,3%	72,7%	100%	
	31-40 year	1	2	7	
		80,0%	20,0%	100%	
	41-50 year	11	3	14	
		78,6%	21,4%	100%	
51-55 year	6	1	7		
	85,7%	14,3%	100%		
Total		28	14	42	
		76,2%	23,8%	100%	

Table 3 shows that of the 42 respondents, 27.3% aged 26-30 years experienced work fatigue 80.0% aged 31-40 years experienced work fatigue, 78.6% aged 41-50 years experienced work fatigue and 85, 7% of 51-55 years old experienced work fatigue. Based on the results of the chi square test, the obtained p value = 0.015 and  $\alpha$  0.05 because the p value <  $\alpha$  (0.05), meaning that the test results are significantly significant. Statistics or there is a relationship between worker age and work fatigue among porters at Paotere Port, Makassar City.

**The relationship between workload and work fatigue on porters at Paotere Port, Makassar City****Table-4: The Relationship between Workload and Work Fatigue of Porters at Paotere Port, Makassar City in 2020**

		Work Fatigue		Total	p
		Tired	Not tired		
Workload	Light	31	7	38	0,036
		81,57%	18,43%	100%	
	Heavy	1	3	4	
		25%	75%	100%	
Total		32	10	42	
		76,2%	23,8%	100%	

Table 4 shows that of the 42 respondents, 81.57% with heavy workloads experienced work fatigue and 25% with light workloads experienced work fatigue. Based on the results of the fisher exact test, the value of  $p = 0.036$  and  $\alpha 0.05$  was obtained because the value of  $p < \alpha (0.05)$ , this means that  $H_a$  is accepted and  $H_o$  is rejected, meaning that the test results are statistically significant or there is a relationship between workload and work fatigue. for porters at the Port of Paotere, Makassar City.

## DISCUSSION

The age of the porters varies from young to old. Older workers feel faster at work. Along with the increasing age of workers, there will be a degeneration process of the organs, so that in this case the ability of the organs will decrease. By decreasing the ability of the organs, this will cause the workforce to experience fatigue more easily. In detail, the risk factors for the incidence of work fatigue on transport workers at the Paotere Makassar port are further explained as follows:

The results of this study indicate that the age of the workers has a significant effect on the potential for fatigue in porters in Paotere Makassar. Age is one of the important variables in health research. Human age is counted from birth to birthday. A young person is able to do hard work and vice versa if someone is elderly, his ability to do hard work decreases. This research is in line with the research conducted by Marco *et al.* [4] at the Bitung Ocean port. The age of workers is very influential on the stamina and labor of the workers, because increasing age will be followed by a degeneration process of the organs, so that in this case the ability of the organs will decrease. By decreasing the ability of the organs, this will cause the workforce to experience fatigue more easily. Older workers will feel tired quickly and cannot move freely when carrying out their duties, thus affecting their performance. The ability to do a good job of each individual is different and can also be affected by age.

Workload is a condition of work with job descriptions that must be completed within a certain time limit. Every job a person does is a workload for him; these loads depend on how the person works, so it is called a workload. Working as porters at the Port of Paotere Makassar is classified as a job that relies on physical strength to carry out their work. The workload in this study is the level of workload obtained by measuring the pulse of workers and expressed in units of beats / minute. The workload in this study is divided into 2 categories, namely the heavy category if a worker has a pulse of  $\geq 100$  beats / minute and the light category if it is  $< 100$  beats / minute.

The results of this study indicate an influence between workload and work fatigue. Heavy physical activity is carried out within 6 working days by porters of the Port of Paotere Makassar. However, workers usually do not take time off because they want to get work done quickly. Jobs that are done faster than the target will receive a bonus and can find new jobs quickly too.

The results of this study are in line with research conducted by Ervita [1] which states that the results of this study have a relationship between workload and work fatigue due to the unequal distribution of work for workers. Excessive workload will have an impact on the ability of workers to complete their work. From this research, it can be seen that every workload must be in accordance with physical abilities, cognitive abilities, and human limitations who accept the workload. The weight of the workload received by a worker can be used to determine how long a worker can do his job with his/her abilities. Where the heavier the workload, the shorter the working time to work without fatigue and physiological disturbances.

## CONCLUSION

There is a relationship between age and work fatigue in porters and there is a relationship between workload and work fatigue for porters at Paotere Port, Makassar City. The manager should place porters with the age and workload according to their respective abilities.

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