

## The Psychological Influence of Workload, Long Work, And Nutritional Status with Work Fatigue on the Level of Work Productivity

Nurul Pratiwi Army<sup>1\*</sup>, Lalu Muhammad Saleh<sup>2</sup>, Yahya Thamrin<sup>2</sup>,

Received: 15- June -2023  
Revised: 12- July -2023  
Accepted: 02- August -2023

<sup>1</sup>Postgraduate Student Department of Occupational Health and Safety, Faculty of Public Health, Hasanuddin University, Makassar, South Sulawesi, Indonesia

<sup>2</sup>Lecturer Department of Occupational Health and Safety, Faculty of Public Health, Hasanuddin University, Makassar, South Sulawesi, Indonesia  
E-mail:pratiwiarmy@gmail.com

### Abstract

Fatigue can significantly affect the mental and physical health of workers and can decrease productivity. Productivity refers to the ability to produce goods and services to improve the quality and quantity of work generated by a company. This study aims to analyze the influence of long work, Workload, and Body Mass Index (BMI) on work fatigue and work productivity among employees at PT Gapura Angkasa Makassar. Quantitative research using a cross-sectional method and employing a proportional random sampling technique with 123 respondents. Data collection instruments include Microtoise, Weighing Scale, NASA-TLX and IFRC/KAUPK2 Questionnaire for interviews and observations. Data analysis for this study involves using Path Analysis and SPSS. Based on the multivariate analysis, the following direct effects were found: Work Duration has a significant direct effect on fatigue ( $p=0.001$ ), Mental Workload has a significant direct effect on fatigue ( $p=0.001$ ), Work Duration has a significant direct effect on Work Productivity ( $p=0.036$ ), Mental Workload has a significant direct effect on Work Productivity ( $p=0.013$ ), and Body Mass Index (IMT) has a significant direct effect on Work Productivity ( $p=0.018$ ). There are also indirect effects observed: Work Duration, Mental Workload, and IMT have an indirect effect on Work Productivity through fatigue ( $p=0.001$ ). Based on this research, it can be concluded that Work Duration, Mental Workload, and IMT have a direct influence on fatigue, and there is an indirect influence of Work Duration and Mental Workload on Work Productivity through fatigue. Employees are encouraged to prioritize their health, pay attention to their diet and get sufficient rest, in order to be more productive in their work.

**Keywords:**-Work Productivity, Work Fatigue, Mental Workload, Psychological impact

### INTRODUCTION

Fatigue can significantly affect the health of workers and can reduce productivity. Investigations in several countries show that fatigue significantly contributes to work accidents (Pompa, 2022). If the level of employee productivity is higher, it can positively impact the company (Shandra. et al., 2022). Work productivity is a comparison between output and input which must have added value and better output processing techniques. Productivity means producing goods and services from various resources or production factors that increase the quality and quantity of jobs companies produce (Dinantarav & Oktaviani, 2019). An employee has a time limit in doing his job, the limit of someone working is 6-10 hours, and the rest is used to rest or do hobbies to relieve boredom. If an employee extends the working period or time beyond his ability, fatigue symptoms will arise, reducing efficiency, effectiveness, and productivity and decreasing the quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting research entitled "The Psychological Influence of Workload, Length of Work, and Nutritional

Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees", and the rest is used to rest or do hobbies to relieve boredom. If an employee extends the working period or time beyond his ability, fatigue symptoms will arise, reducing efficiency, effectiveness, and productivity and decreasing the quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting research entitled "The Psychological Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees", and the rest is used to rest or do hobbies to relieve boredom. If an employee extends the working period or time beyond his ability, fatigue symptoms will arise, reducing efficiency, increment in mental strain and pressure, lower effectiveness, and productivity, and decreasing the quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting a research entitled "The Psychological Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees" If an employee extends the working period or time beyond his ability, symptoms of fatigue will arise and reduce efficiency, effectiveness, productivity and decrease the quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting a research entitled "The Psychological Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees" If an employee extends the working period or time beyond his ability, symptoms of fatigue will arise and reduce efficiency, effectiveness, productivity and decrease the quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting research entitled "The Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees" productivity and decreased quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting research entitled "The Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees" productivity and decreased quality of work (Suma'mur, 2014). Workers who experience fatigue will negatively contribute to worker safety performance, decrease productivity levels, lower work quality, and increase the risk of work accidents and deaths [2,3,4]. From this problem, researchers are interested in conducting a research entitled "The Psychological Influence of Workload, Length of Work, and Nutritional Status with Work Fatigue on the Level of Work Productivity in Pt. Gapura Angkasa Makassar Employees "

## RESEARCH METHOD

This type of research is analytic observational with a cross-sectional research design. The sampling used a proportional random sampling technique with 123 respondents. The data collection instruments were stadiometers, scales, NASA-TLX questionnaires, and IFRC/KAUPK2 questionnaires for interviews and observations. Data analysis in this study uses path analysis (Path Analysis). Measuring mental workload, length of work, work fatigue and work productivity used a questionnaire and measuring Body Mass Index (BMI) used scales and a microtome. Data were processed using the SPSS and AMOS applications to see the direct and indirect effects of the intervening variables using path analysis. The results of this study are presented in the form of tables and narratives. This research has received approval from the health research ethics commission (KEPK) Faculty of Public Health, Hasanuddin University, with protocol number: 10223062035 and letter number: 2138/UN4.14.1/TP.01.02/2023.

## RESULTS

**Table 1. Respondents Univariate Test Results  
PT employees Gapura Angkasa Makassar**

Variable	Frequency		Percentage	
	(n)		(%)	
<b>Length of working</b>				
Abnormal (>8 hours)	113		91,9	
Normal ( $\leq$ 8 hours)	10		8,1	
<b>Workload</b>				
Low (21-40)	23		18,7	
Moderate (41-60)	44		35,8	
Height (61-80)	56		45,5	
<b>BMI</b>				
Underweight	33		26,8	
Normal	73		59,3	
Obesity	17		13,9	
<b>Work Fatigue</b>				
Low	23		18,7	
Currently	39		31,7	
Tall	54		43,9	
Very high	7		5,7	
<b>Work productivity</b>				
Good	28		22,8	
Not good	95		77,2	

Based on the results of the study in Table 4.1 Frequency of the characteristics of the respondents at PT. Gapura Angkasa Makassar, namely 123 people. The frequency distribution of length of work showed the abnormal length of work or more than 8 hours, namely 113 respondents or 91.9%, compared to the category of the standard length of work, namely ten respondents or 8.1%, for the highest workload category was the workload category that as many as 56 respondents or 45.5%.

Based on the table above for the BMI variable, most respondents are in the Normal BMI category, namely 73 respondents or 59.3%, compared to respondents with abnormal BMI (underweight and obesity), namely 50 respondents or 40.7%. For the work fatigue variable, most respondents were in the high work fatigue category. Namely, 54 respondents or 43.9%, and minor work fatigue was as high as seven or 5.7%. Moreover, the highest work productivity variable, namely in the category of poor productivity, namely 95 respondents or 77.2%, compared to good work productivity, namely 28 respondents or 22.8%.

**Table 2. Cross-tabulation of workload, length of work, BMI and work fatigue with work productivity of employees at PT. Sky Arch in 2023**

Characteristics of Respondents	Work productivity				Total	
	Not good		Good			
	n	%	n	%	n	%
<b>Workload</b>						
Low	22	17,9	1	0,8	23	18,7
Currently	34	27,6	10	8,1	44	35,8
Tall	39	31,7	17	13,8	56	45,5
<b>Work Fatigue</b>						
Low	22	17,9	1	0,8	23	18,7
Currently	25	20,3	14	11,4	39	31,7

Tall	42	34,1	12	9,8	54	43,9
Very high	6	4,9	1	0,8	7	5,7

Based on the results of the study in table 4.2, it shows that out of 123 respondents, most respondents experienced a high category workload with poor work productivity, namely 39 respondents or 31.7% of respondents, and high work fatigue with poor productivity, namely 42 respondents. or by 34.1%.

**Table 3. Path Analysis Tabulation Results for Employees  
PT. Gapura Angkasa Makassar in 2023**

Relationship Path	Estimates	SE	P. Value	Remarks
Workload→Work productivity	.386	.155	013	Significant
Fatigue_Work→Work productivity	-.452	.113	001	Significant

Based on table 3, it is obtained that there is an effect of workload on work productivity, p-value 0.013 <0.05, estimated value of 0.386. there is an effect of work fatigue on work productivity p-value 0.001 <0.05 with an estimated value of -0.452

## DISCUSSION

### 1. Effect of Workload on Work Productivity

Based on research conducted on employees of PT. Gapura Angkasa Makassar obtained a p-value of 0.013 <0.05 which means that workload affects work productivity with an estimated value of 0.386 which means the effect is positive. This shows that workload positively affects work productivity, where the lower the workload of employees, the more work productivity will increase.

This research is in line with that conducted by Poerwanto and Gunawan (2018), where the results of measurements and calculations show an average score of total mental workload at PT. Kokapura Avia is higher (75.06 > 74.1734941) than the mental load at PT. Space Gapura. According to the manager of PT. Kokapura Avia is very well understood and made possible because of frequent delays from previous flights, so it has an effect and a chain on the next service that accompanies it. [7].

### 2. The Effect of Work Fatigue on Work Productivity

Based on research conducted on employees of PT. Gapura Angkasa Makassar obtained a p-value of 0.001 <0.05 which means that there is an effect of work fatigue on work productivity with an estimated value of -0.452 which means the effect is negative. This shows that work fatigue hurts work productivity; the higher the employee fatigue, the lower the productivity.

This research is in line with research conducted by (Verawati & Lince, 2017), where the association value was found to be 0.398 in the value range of 0.26-0.50, which means it has a moderate level of relationship. This shows a relationship between work fatigue and labour productivity at the CV Sumber Barokah crackers factory in the packaging section. This research is not in line with that conducted by Nurdiawati (2020), where the analysis results show no relationship between subjective fatigue complaints and work productivity among workers at PT. KHI Pipe Industries in 2019.

## CONCLUSIONS AND SUGGESTIONS

Workload and fatigue affect the work productivity of the employees of PT. Gapura Angkasa Makassar. The excessive workload given by the company and very busy work activities resulted in the emergence of fatigue and consecutive mental pressure felt by employees, which impacted employee productivity. Employees need to pay more attention to their health conditions and be able to make good use of the time off given.

## REFERENCES

1. Dinantara, M. D., Duddy, M., & Oktaviani, D. (2019). The Influence of Compensation on Employee Work Productivity at PT. Alfabet Berkat Citrabuana. *Jurnal Ilmiah Manajemen Sumber Daya Manusia*, 3(1), 99–107.
2. Nurdiawati, E., & Safira, R. A. D. (2020). The Relationship Between Subjective Fatigue Complaints, Age, and Work Experience with Work Productivity in Workers. *Faletehan Health Journal*, 7(02), 113–118.
3. Poerwanto, E., & Gunawan. (2018). Mental Workload Analysis of Ground Handling Workers at Adisutjipto Airport to Support Flight Safety. *Jurnal Angkasa*, 7(2), 115–126.
4. Pump, P., Khatib, S., Dan, S., Aia, S., Di, P., & Padang, K. (2022).
5. Shandra, S. V., & David, H. S. (2022). The Influence of Work Motivation and Compensation on Employee Productivity at PT Sat Nusapersada Tbk. *Jurnal Ilmiah, Universitas Putera Batam*
6. Suma'mur, P. K. (2014). *Occupational Safety and Health: Management and Implementation of OSH in the Workplace*. Surakarta: Harapan Press.
7. Verawati, L. (2016). The Relationship Between Subjective Fatigue Levels and Work Productivity in Packaging Workers at CV Sumber Barokah. *The Indonesian Journal of Occupational Safety and Health*, 5(1), 51–60.

## CONFLICT OF INTEREST

The author declares no conflict of interest

## FUNDING INFORMATION

This research received funding from the Hasanuddin University reserach and community service institute (LPPM) in the Chancellor Decree Number 2138/UN4.14.1/TP.01.02/2023.

## ACKNOWLEDGMENT

Author thank to the employees of PT Gapura Angkasa for being prepared to be respondents in this study and thanks also to the manager of PT Gapura Angkasa for giving permission to conduct research at this company, the authors thank the Faculty of Public Health, Hasanuddin University for facilitating the tool measure in this study.