

Factors Related to Work Fatigue Among Traffic Police

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ABSTRACT

Work fatigue is a significant problem related to occupational health and safety since fatigue is a cause of work accidents which are very dangerous for workers. Data reported by the ILO stated that up to two million workers died every year due to accidents caused by work fatigue. This study aims to determine the factors related to work fatigue among Traffic police. This was a quantitative study with an analytical survey method and a cross-sectional research design. The population in this study involved all Traffic Police in Jambi Police Resort. The study samples were selected using total sampling technique involving 40 people. The results of the study revealed that 80% of respondents experienced moderate level of fatigue and 20% of respondents experienced mild level of fatigue. The results of statistical test showed that there was a relationship between age ($p=0.003$) and years of service ($p=0.014$) with the level of work fatigue. Furthermore, there was no relationship between nutritional status, history of disease, and workload with work fatigue. It can be concluded that there was a relationship between age and years of service with the level of work fatigue among traffic police. It is expected that respondents perform muscle stretching within rest hours.

Keywords : *Work Fatigue, Traffic Police.*

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INTRODUCTION

Based on Law no. 1 of 1970 concerning Occupational Safety, Occupational Health and Safety (K3) policy aims to prevent accidents and illness due to work. In addition, K3 also functions to protect all production sources so as to be used effectively¹. Occupational Health and Safety (K3) refers to all activities to guarantee and protect the safety and health of workers through preventive efforts towards work accidents and work-related diseases². According to OHSAS 18001: 2007 Occupational Health and Safety (K3) refers to all conditions and factors that can have an impact on the health and safety of workers as well as other people (contractors, suppliers, visitors and guests) in the workplace³.

The growth in the number of workers in Indonesia continues to increase every year, and this is not matched by efforts to protect the health and safety of workers. This lead to a high

number of work accidents in Indonesia⁴. The International Labor Organization (2018) noted that an average of 6,000 people died every day due to work-related diseases and work accidents or equivalent to 2.2 million people per year⁵. The ILO further reported that up to two million workers died every year due to accidents caused by work fatigue⁶. Meanwhile, in Indonesia, based on data derived from the Directorate General of Labor Inspection (2012), it was stated that there were 847 work accidents and 36% of the total were caused by fatigue⁷. In a study conducted by Verawati, 2017, it was explained that out of 58,115 samples, 32.8% of them experienced fatigue, and work accident due to fatigue had a direct impact on the level of labor productivity⁸. Therefore, the level of labor productivity is strongly influenced by human factors, such as sleep problems and biological needs⁶.

Work fatigue is a problem often faced by workers. Work fatigue greatly affects health

and can decrease productivity if it is not cared for properly⁹. The level of fatigue due to work experienced by workers may cause discomfort, reduce performance and increase errors in work duties¹⁰. Work fatigue are caused by various aspects, including individual factors (age, gender, nutritional status and history of disease), work factors (workload, work shifts, work attitude, length of work, and years of service) and environmental factors (heat, noise, and lighting pressure)¹¹.

The result of a study conducted by Utami et al (2018) among aluminum smelting household industry workers showed that 7 workers (23.3%) had a mild level of fatigue and 23 workers (76.7%) had a high level of fatigue. This study also found that there was a significant relationship between age and years of service with work fatigue¹². Age will affect the condition of the body. Someone who is still young will be able to do heavy work and vice versa, an old age may decrease the ability to do heavy work. An old worker will feel tired quickly and not move agile when carrying out his works, and this will further affect performance. In addition, years of service will have a positive effect. Longer years of service will create more experience in doing jobs. On the other hand, it can also have a negative effect since the longer the years of service, the more tired, bored and exposed to the hazards posed by the work environment a person will be¹³.

One of the occupations with the potential to experience work burnout is traffic police. The traffic police is a unit tasked with maintaining security, providing protection and creating traffic order in accordance with statutory regulations. Since there is a need to prevent work accidents caused by work fatigue among traffic police, this study aims to find out the factors related to work fatigue among traffic police.

METHOD

This was a quantitative study with an analytical survey method and a cross-sectional research design. The study samples were selected using total sampling technique. The study samples involved 40 traffic police officers. Primary data were collected with characteristic interview techniques to respondents. Work fatigue was assessed using the Industrial Fatigue Research Committee (IFRC) questionnaire regarding symptoms of

subjective fatigue with a total of 30 items which consisted of 10 questions regarding the weakening of activities, 10 questions regarding the weakening of motivation, 10 questions regarding physical fatigue. In addition, weight and height measurements were performed to find out the Body Mass Index, the year the respondent started working, and whether the respondents had certain disease or not. The researchers also checked the workers' pulse using a pulse oximeter to determine workload. This study was conducted in June-November 2022. Data analysis in this study used two methods, namely, Univariate analysis to determine the frequency and distribution of the variables under study and Bivariate analysis to analyze the relationship between the independent variables and the dependent variable.

RESULTS

Table 1. Distribution of Work Fatigue Frequency, Age, Nutritional Status, History of Disease, Workload and Years of Service.

Variable	n	%	
Work Fatigue	Mild	32	80.0
	Moderate	8	20.0
Age	≥ 35 years	29	72.5
	<35 years	11	27.5
Nutritional Status	Not Normal	25	62.5
	Normal	15	37.5
History of Disease	Had	6	15.0
	Didn't Have	34	85.0
Workload	High	33	82.5
	Low	7	17.5
Years of Service	> 10 years	22	55.0
	≤ 10 years	18	45.0
Total		40	100.0

Based on data presented in Table 1 regarding frequency distribution of respondents, it was shown that 80% of respondents experienced moderate level of fatigue and 20% respondents experienced mild level of fatigue. The results of the study on the assessment of work fatigue risk factor variables showed that the highest age frequency distribution was in the ≥35 years category by 72.5%. Furthermore, most of respondents had an abnormal nutritional status by 62.5% and most of respondents did not have a history of disease by 85.0%. Furthermore, most of respondents had moderate level of workload by 82.5% and 55.0% of respondents had working period of >10 years.

Table 2. Relationship between Age and Work Fatigue.

Variable	Work Fatigue				Total	PR	(95% CI)	p-value
	Moderate		Mild					
	n	%	n	%				
Age								
≥35 years	27	93.1	2	6.9	29	2.04	1.06-3.94	0.003
<35 years	5	45.5	6	54.5	11			
Total	32		8		40			

Based on data presented in Table 2 regarding relationship between age and work fatigue, it was shown that among respondents aged ≥35 years, 27 respondents (93.1%) experienced moderate level of fatigue, and 2 respondents (6.9%) experienced mild level of fatigue. It is also known that among respondents aged <35 years, 5 respondents (45.5%) experienced moderate level fatigue involved

and 6 respondents (54.5%) experienced mild level of fatigue. The result of bivariate analysis using chi-square showed that there was a significant relationship between age and work fatigue with a p-value of 0.003. Such finding indicated that Traffic Police aged ≥ 35 years had a 2.04 times risk (PR=2.04, 95% CI, 1.06-3.94) of experiencing moderate level of work fatigue compared to those aged <35 years.

Table 3. Relationship between Nutritional Status and Work Fatigue.

Variable	Work Fatigue				Total	PR	(95% CI)	p-value
	Moderate		Mild					
	n	%	n	%				
Nutritional Status								
Abnormal	19	76.0	6	24.0	25	0.87	0.65-1.18	0.686
Normal	13	86.7	2	13.3	15			
Total	32		8		40			

Based on data presented in Table 3 regarding relationship between nutritional status and work fatigue, it was shown that among traffic police who had an abnormal nutritional status, 19 respondents (76.0%) experienced a moderate level of fatigue and 6 respondents (24.0%) experienced mild level of fatigue. On the other hand, among respondents who had a normal nutritional status, 13

respondents (86.7%) experienced moderate level of fatigue and 2 respondents (13.3%) experienced mild level of fatigue. The result of the chi-square analysis obtained a p value=0.686 with a PR value=0.87 (0.65 – 1.18) which indicated that there was no significant relationship between nutritional status and the level of work fatigue among Traffic Police.

Table 4. Relationship between History of Disease and Work Fatigue.

Variable	Work Fatigue				Total	PR	(95% CI)	p-value
	Moderate		Mild					
	n	%	n	%				
History of Disease								
Had	5	83.3	1	16.7	6	1.04	0.70-1.56	1.000
Didn't Have	27	79.4	7	20.6	34			
Total	32		8		40			

Based on data presented in Table 4 regarding relationship between history of disease and work fatigue, it was shown that among traffic police who had a history of mild

fatigue, and 1 respondent (16.7%) experienced level of fatigue. On the other hand, among respondents who did not have a history of disease, 27 respondents (79.4%) experienced moderate level of fatigue, while 7 respondents

(20.6%) experienced mild level of fatigue. Based on the result of chi-square analysis, it was obtained a p value=1.000 ($p > 0.05$) with a PR value=1.04 (0.70-1.56) which indicated that

there was no significant relationship between history of disease and the level of work fatigue among Traffic police.

Table 5. Relationship between Workload and Work Fatigue.

Variable	Work Fatigue				Total	PR	(95% CI)	p-value
	Moderate		Mild					
	n	%	n	%				
Workload								
Moderate	28	84.8	5	15.2	33	1.48	0.76-2.86	0.128
Low	4	57.1	3	42.9	7			
Total	32		8		40			

Based on data presented in Table 5 regarding relationship between workload and work fatigue, it was shown that among respondents who had moderate level of workload, 28 respondents (84.4%) experienced moderate level of fatigue and 5 respondents (15.2%) experienced mild level of fatigue. On the other hand, among respondents who had low

level of workload, 4 respondents (57.1%) experienced moderate level of fatigue and 3 respondents (42.9%) experienced mild level of fatigue. Statistical test result showed that there was no significant relationship between workload and the level of work fatigue (p -value=0.128, PR=.48 (0.76-2.86)).

Table 6. Relationship between Years of Service and Work Fatigue.

Variable	Work Fatigue				Total	PR	(95% CI)	p-value
	Moderate		Mild					
	n	%	n	%				
Years of Service								
>10 years	21	95.5	1	4.5	22	1.56	1.06-2.28	0.014
≤10 years	11	61.1	7	38.9	18			
Total	32		8		40			

Based on data presented in Table 6 regarding relationship between years of service and work fatigue, it was shown that among respondents with >10 years of service, 21 respondents (95.5%) experienced moderate level of fatigue and 1 respondent (4.5%) experienced mild level of fatigue. On the other hand, among respondents with ≤10 years of service, 11 respondents (61.1%) experienced moderate level of fatigue and 7 respondents (38.9%) experienced mild level of fatigue. Based on the result of chi-square analysis, it was obtained a p value=0.014 ($p < 0.05$) which indicated that there was a relationship between years of service and work fatigue among Traffic Police. In addition, it was obtained a PR value=1.56 (1.06-2.28) which indicated that respondents who have worked >10 years were 1.56 times more at risk of experiencing high level of fatigue compared to those who have worked ≤ 10 years.

DISCUSSION

Age and Work Fatigue among Traffic police. Based on the results of the study, it was shown that 27 of 29 traffic police aged ≥35 years experienced moderate level of fatigue. Meanwhile, there were 11 traffic police aged <35 years who experienced low level of fatigue. It was obtained a p-value of 0.003, which indicated there was a relationship between age and the level of work fatigue among Traffic Police in Jambi Police Resort.

Several studies showed evidence that age was related to work fatigue. A study conducted by Andrianus Evander Kondi and Herlina among nurses at Awal Bross Hospital, Bekasi obtained a p-value of 0.001 (< 0.05), which indicated that there was a significant relationship between age and work fatigue among nurses⁸.

To avoid age-related burnout, management should balance the workload

based on the age of the workers. This aims to ensure that workers do not complain about excessive activities at work. Older workers should not get too many hard works due to a decline in their physical condition. This should become a concern to avoid more strenuous physical activity because older workers are not too agile in carrying out certain activities compared to young workers¹⁴.

Nutritional Status and Work Fatigue among Traffic police. Based on a study conducted among Traffic Police in Jambi Police Resort, it was found that 25 of 40 respondents (62.5%) had an abnormal Body Mass Index (BMI), and 19 respondents experienced moderate level of fatigue. Meanwhile, 13 of 15 respondents with normal nutritional status experienced moderate level of fatigue. It was obtained a p-value of 0.686, which indicated that there was no relationship between nutritional status and work fatigue among Traffic Police in Jambi Police Resort.

Such finding is in line with a study conducted by Apriliani et al, 2019 entitled factors related to work fatigue among fire-fighters in the South Jakarta fire and rescue department with a p-value of 0.921 (> 0.05)¹⁵. Good nutritional status by consuming the right amount of calories at the right time and having good nutrition can have a positive effect on work performance. If an employee has insufficient calorie intake, of course he will tire more quickly than other employee with sufficient calorie intake¹⁶.

Relationship between History of Disease and Work Fatigue among Traffic police. Based on the study findings, it can be seen that 6 of 40 respondents had a history of disease, and 5 of them experienced moderate level of fatigue. In the category of having no history of disease, 27 of 34 people experienced moderate level of fatigue. It was found a p-value of 1.000, which indicated that there was no relationship between history of disease and the level of work fatigue among Traffic Police.

The study finding is in line with the result of a study conducted by Dewi Gurusinga, Anita Camelia, and Imelda G Purba entitled analysis of factors related to work fatigue among sugar factory operators of PT. pN VII Cinta Manis in 2013 with a p-value = 0.195, which indicated that there was no relationship between history of disease and work fatigue among sugar factory operators at PT. PN VII

Cinta Manis¹⁷.

Suma'mur (2014) states that a person's health can certainly lead to work fatigue based on the history of the disease experienced. Diseases that can affect fatigue include heart disease, hypertension, asthma, kidney disease, low blood pressure, lung disease, and diabetes mellitus.

Relationship between Workload and Work Fatigue among Traffic police. Based on the study findings, it was found that 33 of 40 respondents (82.5%) had a pulse of >100 beats/minute in the moderate category, and 28 of them experienced moderate level of fatigue. Furthermore, 7 respondents (17.5%) had a pulse of <100 beats/minute in the mild category, and 4 of them experienced moderate level of fatigue.

Based on the results of a study conducted by Safira et al (2020) entitled work fatigue among workers at PT. Indonesia Power Unit Generation and Generation Services (UPJP) of Priok, it was found that there was no relationship between workload and work fatigue with a p value=0.100 ($p>0.05$)¹⁸.

There are many factors that determine the workload of a worker, such as the physical and psychological environment that may affect individual performance. Too much workload can lead to mental and physical fatigue as well as emotional reactions such as irritability¹⁸.

Relationship between Years of Service and Work Fatigue among Traffic police. Based on the study findings, there were 22 out of 40 Traffic Police who 10 years of service which involved in old category and 18 respondents were involved in the new category with ≤ 10 years of service. The p-value was $0.014 < 0.05$ which indicated that there was a relationship between years of service and work fatigue among Traffic Police.

Several theories state that years of service can affect the incidence of work fatigue, which can have both positive and negative impacts. However, the study finding regarding years of service is in line with the theory which states that years of service has a negative effect due to a limit to one's body's resistance to work processes which results in fatigue and boredom among workers¹⁹. Another study conducted among engineering service workers at PT. PLN (PERSERO) ULP Batulicin, Tanah Bumbu District in 2021 also found that there was a relationship between years of service and work

fatigue. The results of statistical test using chi-square obtained a p-value = 0.006 ($p < 0.05$)²⁰.

CONCLUSION

Based on the study conducted among the Traffic Police, it was found that 80% of the traffic police experienced moderate level of fatigue. Furthermore, there was a relationship between age and years of service with work fatigue among Traffic Police. Future research may assess the risk factors for work fatigue and work stress among the police officers in different divisions. It is expected that respondents perform muscle stretching within rest hours and when they start to feel excessive fatigue, They may be able to take a short break at the weekend to recover their physical and mental health due to the high workload and create a positive work environment that allows respondents to avoid the boredom of monotonous work and to be passionate about the work to be done.

CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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