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Length Of Standing, Working Period And Nutritional Status To The Level Of Fatigue In Ticketing Of The Semarang Trans Bus

Devira Putri Maharani[1*], Bayu Yoni Setyo Nugroho[1]

[1]Faculty of Health, Dian Nuswantoro University,Semarang

[*]Corresponding author: 411202003162@mhs.dinus.ac.id

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ABSTRACT

Background: Work fatigue is experienced by labor influenced by differences in the state of the physical and mental body, in work activities standing more energy expenditure is quite large compared to the sitting position. This research is based on work fatigue that has been experienced by the Fleet Ticket Officers (PTA) of Trans Semarang Bus who have been working in a standing position and serving the public with 5S (Smile, Greeting, Greeting, Polite, Courteous). So the purpose of this study is to determine the relationship of length of standing, tenure and nutritional status to job fatigue in Fleet Ticketing Officers, this study is a quantitative study with a cross sectional approach. The instruments in this study were the Industrial Fatigue Research Committee (IFRC) questionnaire, measuring height with a stature meter height tool and weight using a Han River Type F1006-1 digitan scale. **Methods:** This study used purposive sampling method which totaled 70 workers. Data analysis in the study used the Spearman ranks test. The findings of the study of the working period of respondents with ≤ 4 years there were 53 people (75.7%), for ≥ 4 years 17 people (24.3%). **Results**: The results showed that the nutritional status of most Fleet Ticketing Officer workers experienced Overweight as many as 37 people (52.%) and normal 33 people (47.1%). Based on the length of standing, it is known that the number of respondents who experience standing ≤ 4 hours is 49 people (70%), if those who experience standing ≥ 4 hours are 21 people (30%). Based on the results of fatigue, it can be seen that respondents who experience low fatigue are 46 people (65.7%), while those who experience moderate fatigue are 24 people (34.3%). The results of statistical tests showed no relationship between length of standing, tenure and nutritional status to fatigue in Ticketing Officers of Trans Semarang Bus Fleet.

Keywords: Fleet Ticketing Officers, Fatigue, Bus Rapid Transit, Length Of Standing, Working Period

INTRODUCTION

Residents in Semarang City have high mobility, a city that is the center to be visited because it is the center point between cities around Semarang. This city is a place of activity or activities that make it one of the most populous cities, can be evidenced from the roads that have been built. The congestion is greatly increased due to the activities of individuals who use their respective vehicles (Andriyanti & Mudiyono, 2019). The Semarang City Government provides public transportation services for the needs of the community in order to improve the welfare of the community and can show the progress of the city of Semarang, seen from the transportation facilities and infrastructure that support the area (Andriyanti & Mudiyono, 2019). Bus Rapid Transit (BRT) is a transportation that has been maximized with the needs of the community with high quality, speed adjusted comfortably, affordable ticket prices (Nasrulloh, 2010). BRT applies to buses with a fast, comfortable, safe and precise system by reviewing the infrastructure (Purwanto, Hidayat, & Pranoto, 2018), with the existence of this bus aims to reduce the use of own vehicles so as to reduce congestion in the Semarang environment.

The operation of BRT in Semarang City has 8 corridors which are divided into Corridor I with Mangkang Terminal – Penggaron Terminal, Corridor II with Terboyo Terminal – Sisemut Ungaran Terminal, Corridor III with Tanjung Emas Port – Elisabeth, Corridor IV with Cupann Terminal – Tawang Station, Corridor V majoring in Anjasmoro (PRPP) – Meteseh, Corridor VI majoring in Undip Tembalang – Unnes Sekaran, Corridor VII majoring in Genuk – City Hall, and Corridor VIII Terminal Cangkiran – Simpang Lima run by drivers and Fleet Ticket Officers who always serve BRT passengers from ticket purchases to directing the desired destination. A PTA responsibility of carrying out the 5 S principle service (smile, greeting, greeting, politeness, courtesy), Carrying out ticket sales according to the specified tariff, Ensuring service users have Trans Semarang Bus tickets, Recording and storing ticket sales transactions as evidence of passengers, Ensuring service users enter and exit the fleet safely, Providing information needed by service users, both about the route, stops, transit and and other information related to BRT Trans Semarang and when doing work with a posture that stands continuously so that it can experience fatigue. In standing work activities are more tiring than sitting work positions, because in standing positions workers expend a lot of energy, in physical and mental conditions affect each other in the activities of workers.(Surakarta, 2016).

Fatigue is a common condition experienced by most workers after doing work. When there is a difference between the physical and mental state of the body, it will result in a decrease in work motivation and affect the strength of the body's endurance.(Waldani, 2020) If this situation occurs for a long time, it can affect the health condition of the workforce and the productivity of course work. Work fatigue can affect the decline in performance when workers perform activities, not only in physical fatigue but also psychological fatigue such as confusion, lack of focus, and frustration. Fatigue that is not prevented will have an impact on the work environment, such as the occurrence of occupational diseases and work-

related accidents that lead to work-related injuries mortality. According to the International Labor Organization (ILO), as many as 2,78 million workers die every year due to work accidents and occupational dseases (Maharani, Wahyuni, & Widjasena,2021). One of the causes of occupational accidents and occupational diseases is Work Fatigue.

Some other factors that can affect occupational fatigue are the age of the workers, gender, work environment, working period and food intake for the worker's energy needs. Food intake can be related to the nutritional status of workers who have the potential to cause fatigue. Inadequate or excessive worker nutrition causes a decrease in the degree of worker health. In the reality of the work of Fleet Ticket Officers (PTA) has a very short break time in the bus garage there are also only a few stalls and sometimes even none, so workers buy food that is available.

The purpose of this study was to determine how the relationship between length of standing, tenure and nutritional status with the level of fatigue in Fleet Ticket Officers (PTA) on Trans Semarang Buses, there are no researchers who have conducted research on Fleet Ticket Officer (PTA) workers.

Method

This type of research is quantitative research with a cross sectional approach. The research was conducted on each bus trans Semarang corridor 3, 4, 7 and 8. The research was conducted with data collection time in September 2023. The study population is the entire total bus corridor 3,4,7,8 which is 70 buses. Sampling counted as many as 70 workers, because each bus has 2 PTA who work with a shift system carried out by Purposive Sampling (Florian, 2021). This method uses selected criteria, the sample selection criteria are divided into inclusion and exclusion criteria. The instruments used in this study are electric scales, height measurements to determine Nutritional Status (Body Mass Index) by dividing body weight (Kg) by the square of height in meters (m^2). The calculation results are categorized into if <18.5 (underweight), if 18.5-22.9 (Normal), overweight if 23 – 29.9 and if >70 (obese). IFRC (Industrial Fatigue Research Committee) Questionnaire sheet containing 30 questions and scored using a Likert scale with a score of 1-4 so that the total score can be categorized as low fatigue level if 30-52, moderate if 53-75, high if 76-98 and very high if 99-120. Measurement of work fatigue levels using the Industrial Fatigue Research Committee (IFRC) questionnaire which contains 30 questions and is scored using a Likert scale with a score of 1-4 so that the total score can be categorized as low fatigue levels if 30-52, moderate if 53-75, high if 76-98 and very high if 99-120 (Tarwaka & Bakri, 2016). In the research questionnaire there is a respondent's identity which contains name, age, last education and gender. This study was conducted with bivariate analysis used Spearman's ranks correlation test between length of standing, tenure and nutritional status to the level of worker fatigue.

Results and Discussion

Trans Semarang Bus is a transportation service located in the Semarang City area, the Bus Rapid Trans (BRT) manager is managed by the Semarang City UPTD Public Service Agency (BLU). For this study took data on BRT Trans Semarang Corridors 3, 4, 7 and 8. This study chose corridor 3 with the direction of the Port – Elisabeth because of the fast route conditions,

Corridor 4 Cangkiran – Tantular with the longest route of almost 1.5 hours, Corridor 7 Genuk – City Hall route conditions that are often affected by congestion, Corridor 8 Simpang Lima – Cangkiran with road conditions on the route turning and up and down. Trans Semarang BRT provides services every day, starting to release the fleet at 05.30 WIB until the last service at 17.45 WIB, then the fleet returns to their respective garages.

This research was conducted in November 2023 on the Ticket Fleet Officer (PTA) of Trans Semarang Bus by using the Characteristic Data Questionnaire Instrument, Industrial Fatigue Research Committee (IFRC) questionnaire, measuring height using a stature meter brand height tool and weight using a digital scale with Han River Type F1006-1 to determine the nutritional status of the PTA and the level of work fatigue in each individual worker

1.1 Research Results Respondent Characteristics

Table 1. Respondent Characteristics

Variable	Category	Frequency (f)	Percentage (%)
Gender	Male	49	70
	Female	21	30
Last Education	SMA/SMK/MI	60	85.7
	COLLEGE	10	14.3
Age	≤ 27 years	42	60
	>27 years	28	40

Based on Table 1 shows the characteristics of 70 PTA officer respondents 49 people (70%) are male and 21 people (30%) are female. Based on the last education of PTA high school / vocational / MI 60 people (85.7), College High 10 people (14.3). Based on the age group of respondents with age ≤ 27 years there are 42 people (60%), for > 27 years there are 28 people (40%) age can affect the age of the workforce enough to determine the success in doing a job, both physical and non-physical in nature (Rahmadi Islam, 2018).

1.2 Univariate Analysis

Based on the research that has been done, the resulting univariate distribution of Semarang Tran Bus Fleet Ticketing Officers.

Table 2. Univariate distribution based on length of service, nutritional status, length of standing and work fatigue in ticketing officers of the Semarang Trans Bus Fleet.

Variable	Category	Frequency (f)	Percentage (%)
Working Period	≤ 4 years	53	75,7
	> 4 years	17	24,3
Nutritional Status	Normal	33	47,1
	Overweight	37	52,9
Standing time	≤ 4 hours	49	70
	>4 hours	21	30
Fatigue	Low	46	65,7
	Medium	24	34,3

Based on Table 2, the working period of respondents with ≤ 4 years is 53 people (75.7%), for > 4 years 17 people (24.3%). The results showed that the nutritional status of most PTA workers was Overweight as many as 37 people (52.%) and normal 33 people (47.1%). Based on the length of standing, it is known that the number of respondents who experience standing ≤ 4 hours is 49 people (70%), if those who experience standing > 4 hours are 21 people (30%). The length of the worker's standing position varies due to the situation and conditions of the route of each corridor. Based on the results of fatigue using the IFRC instrument, it can be seen that 46 respondents (65.7%) experienced low fatigue, while 24 people (34.3%) experienced moderate fatigue.

1.3 Bivariate Analysis

1.3.1 Long standing

Table 3. relationship between Length of standing with Work Fatigue

	Work Fatigue (IFRC)
Length Of Standing	Significance 0.517
	Correlation – 0.078

Table 3 shows that there is no relationship between Long standing and work fatigue because the p value is 0.517 (p ≥ 0.05) with a very weak correlation level.

1.3.2 Working Period

Table 4. the relationship between Working Period and Work Fatigue

		Work Fatigue (IFRC)
Working Period		Significance 0.208
		Correlation 0.152

Based on Table 4 shows that there is no relationship between working periode and work fatigue because the p value is 0.208 (p ≥ 0.05) with a very weak correlation level.

1.3.3 Nutritional Status (Body Mass Index)

Table 5. relationship between BMI and Work Fatigue

		Work Fatigue (IFRC)
BMI		Significance 0.734
		Correlation -0.041

Table 5 shows that there is no relationship between Body Mass Index and work fatigue because the p value is 0.374 (p ≥ 0.05) with a very weak correlation level.

1.4 Discussion

1.4.1 Relationship between Length of Standing and Work Fatigue in Ticeting Officers of Trans Semarang Bus Fleet

The results showed that out of 70 respondents, the results of statistical tests using Spearman ranks obtained a value of p = 0.517 (p> 0.05) which indicates insignificant then not correlated with a very weak relationship (r = -0.079), between the length of standing with the level of fatigue of workers. It is interpreted as the more excessive standing time, the fatigue will decrease. According to healthy links, if the work is required to stand for a long time, for a working time of 8 hours a day, the highest ratio for standing is 45full minutes every hour. This ideal time can also be interspersed with other movements, such as stretching, sitting, and moving or walking within a certain period of time. So for the length of time standing on PTA is enough standards that exist in Health so that if PTA stands for only 4 hours it will not affect work fatigue.

In the research that has been done, respondents with age ≤ 27 years are more numerous, so it can be known that workers are still young and strong in standing for a long time, the opinion of Wirosuhardjo (1996: 302) which states that the age level of the workforce affects one's work productivity because when the age level is still productive it affects the physical abilities of the workforce.(Rahmadi Islam, 2018)

1.4.2 Relationship between Work Period and Work Fatigue in Ticeting Officers of Trans Semarang Bus Fleet

The results showed that of the 70 respondents obtained the results of statistical tests using Spearman ranks, obtained a value of p = 0.208 (p>0.05) which indicates insignificant, so it does not correlate with a very weak relationship (r = 0.152), between the working period and the level of fatigue of workers. It is interpreted as the more excessive working period, the fatigue will decrease. So for the working period in PTA in line with research conducted by Rayi Trinofiandy (2018) there is no significant relationship between tenure and the level of work fatigue. This is because people who have a long working period will feel accustomed to the workload they do so that it does not cause work fatigue anymore for them.(Maharani et al., 2021).

1.4.3 Relationship between Body Mass Index and Work Fatigue in Ticketing Officers of Trans Semarang Bus Fleet

Based on the correlation test using Spearman ranks, the value of p = 0.734 (p>0.05) was obtained, which showed that it was not significant, so it did not correlate with a very weak relationship (r = - 0.041), between Body Mass Index and the level of fatigue of workers. It is interpreted as the more excessive Body Mass Index, the more fatigue will decrease. So for Body Mass Index in Fleet Ticketing Officers is not in line with research (Sari & Muniroh, 2017) which states that more nutritional status has a higher risk of experiencing work fatigue. In the results of table 2 more Fleet Ticketing Officers who are overweight because the environment in the bus garage that sells food is more on iced drinks, foods that contain excess oil, not on healthy foods that meet the needs of the body should be. Mass accumulation fat that occurs in the body due to the high consumption of foods high in carbohydrates and fat. When consumption is higher than use, it can cause storage to no longer be able to accommodate it, so that these nutrients are stored in places that should not be or can become a pile of fat in several organs such as vital organs. This can certainly reduce the normal function of these organs (Sari & Muniroh, 2017).

Conclusion

Based on the results of research on Ticket Officers of the Trans Semarang Bus Fleet, it can be concluded that the independent variables (length of standing, working period and nutritional status (Body Mass Index) on the dependent variable (Work Fatigue) do not have a significant value and have a very weak correlation.

1.1 There is no relationship between length of standing with Work Fatigue in Ticeting Officers of Trans Semarang Bus Fleet with the results showing p = 0.517 (p> 0.05) and (r = - 0.079).

1.2 There is no relationship between working period and work fatigue in Ticketing Officers of the Semarang Tras Bus Fleet with the results showing a value of p = 0.208 (p> 0.05) and (r = 0.152)

1.3 There is no relationship between Body Mass Index (BMI) and Work Fatigue in Ticketing Officers of Trans Semarang Bus Fleet with the results showing a value of p = 0.734 (p> 0.05) and (r = - 0.041)

Conflict of Interest

The authors declare that they have no conflict of interest

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