

## The Influence of General Fatigue Levels on The Work Quality of The Officers of The Railway Crossing Doorstop in The Operating Area VII Madiun Region of Nganjuk Regency

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### Abstract

Train wreck is one of the transportation accidents that frequently occur in Indonesia. The remaining problem is the question of the door of the train crossing. Accidents often occur around the door of a train crossing, one of them are caused by the negligence of the officers in guarding the doorstop. This study was carried out in the territory of the regional of Nganjuk, belongs to Oprating Area VII Madiun. The purpose of this study is to describe the influence of General fatigue levels to the officer of railway doorstop from the door doorstop of Wilangan (the officers of trajectory 106) to Baron doorstop (the officers of trajectory 90). This study is descriptive research through surveys, collecting data using interviews, observations with instruments against general fatigue upon complaints (the symptoms) of physical experienced by the officers, identifying tasks and individual factors. From 30 respondents of the officers of railway crossing doorstop, that most of them experienced high fatigue level (very tired) 12 (40%), medium level of fatigue (tired) 7 (23.33%), and low fatigue level (less tired) 11 (36.67%). To overcome the problems above, it was recommended to conduct disciplinary work rotation, given the guidance material on health and safety, to conduct health examination periodically at least once a month, to give the time of leisure and enough rest, to provide incentives for increasing well-being, to give furlough, to change a manually doorstop to automatically one, to fit Closed Circuit Television (CCTV) at the crossing, to motivate the officers to perform work safety and to cretae safe and convenient work environment, the mastery of the working procedures (a clear task descriptions), to facilitate the officers with good working equipments which are suitable with the work environment.

**Keywords:** Fatigue levels, Officers of the railway crossing doorstop

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### 1. INTRODUCTION

In the effort to maintain their continuity and existence, human being are required to work and to be productive, as the duty and obligation of every individual is to realize their ideals and desires. Working is essentially required by human beings to preserve their life. But on the other hand, working with technologies whatever the simplest technology is, in fact it always has a health and safety risk (Markkanen, Pia K. 2004). Workers community need to get special attention, because every job has risks to the safety and health of the workers concerned. The risk can be a disease related to employments, occupational diseases or accidents, which in turn can decrease work productivity (Sutrisno and Kusmawan Ruswandi 2007). Safety and occupational health are all activities to ensure and protect the safety and health of workers through the efforts of prevention of accidents and occupational diseases (Government Regulation Number 50 year 2012).

The purpose of the safety and occupational health: 1) in order that any labors got a guarantee of safety and occupational health both physically, socially, and psychologically. 2) to make sure any work supplies and equipments are used as well as possible. 3) ro ensure all the results of the production can be secured well. 4) to realize collateral of the maintenance and improvement of health nutrition for the workers. 5) in order to increase the excitement, the harmony of the work and labor participation. 6) to avoid health problems caused by environment or working conditions. 7) to secure that every labor feels safe and protected in the work (Anwar Prabu Mangkunegara, 2002). Fatigue shows varying conditions of each individual, but it all boils down to loss of efficiency and decrease the working capacity and endurance of the body (Tarwaka, 2004). Work fatigue is a complex criteria. It is not only concerns the physiological and psychological fatigue but predominantly to do with a decline in physical performance, there is a feeling of fatigue, decreasing of motivation and decreasing of work productivity (Ambar, 2006).

There are two types of fatigues: 1) Muscular fatigue. The phenomenon of decreased muscle performance after the pressure through a physical for a certain time. In physiology, it is called muscular fatigue. The symptoms that appear is not only the reduced pressure of physical, but also increasingly to low movement. In the end this physical fatigue can lead to a number of disadvantages things, such as weakening the ability of labor in idleness and increased errors in work activities, so fat it affects to the work productivity. 2) General fatigue. The main symptoms of the fatigue is a feeling jaded. All activities being interrupted and hampered by the emergence of symptoms of the fatigue. The lack of passion for working either physical or psychical, everything felt heavy and feel sleepy (A.M. Sugeng Budiono, 2003). Nganjuk regency belongs to work areas of operating area VII Madiun of "PT. Kereta Api Persero", throughout the territory of Nganjuk especially from west to east there is a railway line which divides several main streets, so there are many doorstep of railway crossing used to avoid accidents between trains and other vehicles. The doors are guarded by a guard (officer). Railway crossing doorman was someone assigned by "PT Kereta Api" to keep the railway crossing, the post is in charge of closing the highway lanes when it gets the signal that there will be a passing train, signaled the driver that crossing in a safe condition and open it again after the train passes (Transport minister regulation number: PM. 60 year 2012.).

Working as a doorstep officer of the railway crossing is not a simple job and is not without risk. This job entails a great responsibility, because one error occurs can risk the numerous human lives. Accident that was involving "Mutiara Timur Train" heading for Surabaya-Banyuwangi with two trucks and a car box occurred on Monday, July 21<sup>st</sup>, 2014 at 09.55 a.m. (Western Indonesia Time), was caused of the negligence of the officers / the guard of railway doorstep (Rahadian Bagus, 2014). Another case dealing with the accident at a railway crossing, the Police Resort of Kediri Town made sure the cause of the crash at the doorstep of the trajectory of Diponegoro Street, Kediri, on Sunday, 27<sup>th</sup> June 2010 at 20:49 p.m. (Western Indonesia Time), due to the negligence of the doorstep guard of the trajectory, the officer fell asleep while the train passing (Hari Tri Wasono, 2010). As a job bearer, of course, the doorstep officers/guards must be ready to work at any time and in any weather conditions, no matter day or night, heat or rain. Because every day transportation continues to operate to meet human needs. In the demands of the task that tends to be monotonous every day, railroad crossing doorstep officers where in one post have 3 permanent officers and 1 reserve officer, divided into 3 work shifts in 24 hours each day, namely: 1) At 6:00 a.m. to 2:00 p.m. (Western Indonesia Time). 2) At 2.00 p.m-10.00 p.m. (Western Indonesia Time). 3) At 10:00 p.m. to 6:00 a.m. (Western Indonesia Time). In Nganjuk area of East Java Indonesia there are 8 doorstops with a total of 30 officers/ guards.

There are several factors that cause train accidents, namely: 1) Technical factors that are more caused by human negligence in the field. 2) Infrastructure factors, this factor is related to the first factor, the lack of infrastructure affects the optimization of security controls in the field, the absence of safeguards at railroad crossings doorstep, besides the condition of the railroad tracks. 3) Factors of policy makers, there is the impression that the government is less serious in handling the problem of trains. 4) Factors of human error are caused by the lack of discipline of road users, engineers and doorstep officers/ guards. Problems that often occur at railway crossings doorstep do not only occur due to technical factors, but also due to human error or human negligence. A fact that each individual has limitations regarding of time, ability, energy, and mind. Data from the Directorate General of Railways said that from the 147 cases of railroad accidents occurred during 2008, 33% were caused by human errors from railroad doorstep officers. Human error or a form of error made by humans (Muh. Syaifullah, 2010). General fatigue is basically one of the threats that can be experienced by railroad crossing doorstep officers whose tasks that tend to be monotonous every day, from work shifts that are carried out and all the effects of general fatigue that are also experienced outside the task, and even with individual factors from each officer, the railroad crossing doorstep officers have the potential to experience general fatigue (AM Sugeng Budiono, 2003).

## **2. METHODS**

### **2.1 Type and Design of Research**

The type of research used in this study is descriptive research, aimed at describing or explaining a situation, describing the factor of human error (fatigue) based on the processes in the body, namely general fatigue on railway crossing doorstep officers in area operations VII Madiun, regency of Nganjuk, East Java, Indonesia (Soekidjo Notoatmodjo, 2005). This descriptive study was carried out by survey methods, using data collection instruments, questionnaires (interviews) and observations. The survey method is a method of research conducted by taking certain samples from

one population. The approach in this study was cross-sectional because the cause and effect variables that occur in the research object were measured simultaneously (point time approach) (Sugiyono, 2014).

## **2.2 Population**

The population in this study were all railway crossing doorstep officers in Nganjuk regency, East Java, Indonesia as respondents, namely DAOP VII Madiun working area. There are 8 crossing gates with a total number of officers were 30 personels (as respondents), so that as respondents in this study taken the total population (overall) of railroad crossing doorstep officers/guards in operational region VII Madiun of Nganjuk regency from Wilangan crossing gates to Baron crossing gates.

## **2.3 Research variable**

The independent variable is a variable whose value determines another variable. In this study the independent variable was the level of work fatigue experienced by railroad crossing doorstep officers. The dependent variable is the observed factor to determine whether there is an impact caused by the independent variable. In this study the dependent variable was the railroad crossing doorstep officers. Interfering variables are factors that are measured and observed to reveal whether these factors also influence the independent and bound variables. In this study the disturbing variables were individual factors (age, years of service, marital status, health status and nutritional status) and the daily duties of railroad crossing doorstep officers.

## **2.4 Research sites**

The location of the study was in the operational area VII Madiun of Nganjuk regency, East Java, Indonesia, starting from the doorstep of Wilangan District area to Baron District area.

## **2.5 Data collection technique**

**Interviews** are used as data collection techniques if the researcher conducts a preliminary study to find the problems being studied and to know things from respondents in-depth (Sugiyono, 2014). Interviews are conversations with specific intentions. The conversation is carried out by two parties, namely the interviewer who asks questions and the interviewee who provides answers to questions (Moleong, J., Lexi, 2007). In this study the interview was the main tool for digging up information on respondents (railway crossing doorstep officers). By conducting in-depth interviews researchers can explore what is known and experienced by respondents in the past or present, and things that are hidden in the respondent. In the interview process researchers are equipped with interview guidelines, used to remind researchers of aspects that must be discussed as well as a checklist of whether the relevant aspects have been discussed or asked (Poerwandari, E.K., 2005). Interviews in this study were conducted directly against respondents. The interview process begins with making an agreement beforehand with the respondent about the time that researchers can use to conduct interviews, so that the activities of the respondents are not interrupted and the researcher has the flexibility to explore the information needed. With the agreement of the interview respondents it was conducted for two weeks, with the first week span being carried out as a preliminary study and rapport process. Then in the second week is the process of collecting data by observation and interview. The interview begins with the researcher opening the conversation, introducing himself and conveying the aims and objectives of the study. Then proceed with the delivery of the questions listed in the interview guidelines. The researcher also added a number of questions outside the interview guidelines in response to respondents' answers which according to researchers need to be explained further. In addition, the researcher also recorded important things conveyed by respondents in the interview. Direct interviews with respondents, namely regarding work shifts, division of work shifts, number of guards and daily assignments accompanied by questionnaires whose contents are directly related to respondents include individual factors, description of physical complaints of fatigue and questionnaire of job fatigue measure (Hardiani Waskito, 2015).

**Observation** is a data collection technique that requires researchers to go directly to the field to observe matters related to problems in research such as places, actors, activities, time, events and others that are related to those investigated by researchers (Almanshur Fauzan, Ghony Djunaidi, 2012).

The reason for using the observation method is to support the results of the interview data, through observations it is expected that some forms of facial expressions, body movements or body language can be observed or detected so that it is able to provide checks and rechecks on the information submitted by respondents in interviews. In addition, observations are needed to observe the activities that take place and the behavior of respondents that appear when the research takes place (Haris Herdiansyah, 2012). Data collection techniques with observations were used regarding the behavior of respondents, work processes, and respondents being observed were not too large (Sugiyono, 2013). Direct observations in the field regarding the conditions of the work environment at the railroad crossing door stop in operation area VII Madiun, Nganjuk regency, from the crossing doorstep of Wilangan to the crossing doorstep Baron.

### **2.6 Calculation of Body Mass Index.**

According to Gibson, R.S., (2005): Calculation of the Body Mass Index for nutritional status, calculated by using the Body Mass Index by measuring Body Mass Index = Body Weight (kg) / (Height (cm) / 100)<sup>2</sup>, with the following categories:

1. Excess nutrition if the Body Mass Index > 25.0
2. Good nutrition if the Body Mass Index ranges from 18.5 - 25.0.
3. Moderate nutrition if the Body Mass Index ranges from 17.5 - 18.5.
4. Poor nutrition if BMI ranges from <17.5.

Questionnaire of Job Fatigue Measurement to determine the respondents fatigue levels was measured by summing the scores of the questionnaire questions, questions with the answer "Yes, often", the score was 3, for the answer "Yes, rarely", the score was 2, and for the "Never" answer, score 1. While the highest total score is 51 and the lowest is 17. Based on the number of scores obtained, it can be seen that the level of work fatigue is categorized as follows:

1. Less tired, if the respondent gets an answer score of < 20.
2. Tired, if the respondent gets an answer score between 20-35.
3. Very tired, if the respondent gets an answer score > 35.

### **2.7 Data analysis method**

**Data processing was done by:** a) coding, was giving the code to the data that has been obtained by categorizing the data into primary data and secondary data. b) editing, was examining data to find out whether the data is good enough to be prepared in the next process. c) tabulation of data, was data from various sources resulting from the conduct of surveys, interviews and measurement results arranged in table form according to each data obtained.

**Data Analysis:** data analysis used was evaluative descriptive analysis, by evaluating general fatigue factors on the quality of work of respondents in the operational area VII Madiun, Nganjuk regency. Based on the sample used that was total sampling, so in this study the analysis used was descriptive analysis (Sugiono, 2000).

## **3. RESULT**

Based on the research that had been done on the respondents starting from the crossing of the Wilangan crossing doorstep (Railway doorstep post 106) to the Baron crossing doorstep (Railway doorstep post 90), there were 8 doorstops with a total of 30 officers (respondents) and with work shifts as many as 3 shifts, namely shift 1 (06.00 a.m.- 2.00 p.m. Western Indonesia Time), shift 2 (2.00 p.m.-10.00 p.m. Western Indonesia Time) and shift 3 (10.00 p.m.- 06.00 a.m. Western Indonesia Time), obtained the following results:

### **3.1 General fatigue levels**

Based on table 1. It was known that out of 30 respondents, 11 respondents experienced fatigue with a high level of fatigue (very tired) with a proportion of 36.67%, 7 respondents experienced fatigue with moderate fatigue (tired) with a proportion of 23.33%, and 12 respondents experienced fatigue with a low level of fatigue (less tired) with a proportion of 40%.

Table 1. Distribution of General Fatigue Levels

No	Faitgue Level	Frequency	Percentage (%)
1.	Very tired	12	40
2.	Tired	7	23.33
3.	Less tired	11	36.67
Total		30	100

### 3.2 General fatigue levels based on age

The number of respondents who experienced several levels of fatigue based on age were as follows: Table 2. Distribution of Age Fatigue Levels

No	Age	Fatigue level						Jumlah	%
		Very tired		Tired		Less tired			
		∑	%	∑	%	∑	%		
1.	22 – 32	-	-	-	-	11	36.67	11	36.67
2.	33 – 43	-	-	7	23.33	-	-	7	23.33
3.	44 – 54	12	40	-	-	-	-	12	36.67
Total		12	40	7	23.33	11	36.67	30	100

Based on table 2. It was known that out of 30 respondents, 11 respondents with ages 22-32 years experienced fatigue with low fatigue (fatigued) with a proportion of 36.67%, 7 respondents aged 33-43 years experienced fatigue with a degree of fatigue moderate (tired) with a proportion of 23.33%, 12 respondents aged 44-54 years experienced fatigue with a high level of fatigue (very tired) with a proportion of 40%.

### 3.3 General fatigue levels based on tenure

The number of respondents who experienced several levels of fatigue based on tenure were as follows: Table 3. Distribution of Fatigue Levels Based on Tenure

No	Tenure	Fatigue levels						Total	%
		Very tired		Tired		Less tired			
		∑	%	∑	%	∑	%		
1.	1 – 10	-	-	-	-	11	36.67	11	36.67
2.	11 – 21	-	-	7	23.33	-	-	7	23.33
3.	22 – 32	12	40	-	-	-	-	12	40
Total		12	40	7	23.33	11	36.67	30	100

Based on table 3. It was known that out of 30 respondents, 11 respondents with tenure of 1-10 years experienced fatigue with low fatigue (less tired) with a proportion of 36.67%, 7 respondents with 11-21 years of tenure experienced fatigue with moderate fatigue with a proportion of 23.33%, and 12 respondents with 22-32 years of tenure experienced fatigue with a high level of fatigue (very tired) with a proportion of 40%.

### 3.4 General fatigue levels based on marital status

The number of respondents who experienced several levels of fatigue based on marital status were as follows: Table 4. Distribution of Fatigue Levels Based on Marriage Status

No	Marriage Status	Fatigue levels						Total	%
		Very tired		Tired		Less tired			
		∑	%	∑	%	∑	%		
1.	Married	12	40	7	23.33	8	26.67	27	90
2.	Unmarried	-	-	-	-	3	10	3	10
Total		12	40	7	23.33	11	36.67	30	100

Based on table 4. It was known that out of 30 respondents, 12 married respondents experienced fatigue with high levels of fatigue (very tired) with a proportion of 40%, 7 married officers experienced fatigue with moderate fatigue (tired) with a proportion of 23, 33%, 8 married respondents experienced fatigue with a low level of fatigue (fatigue) with a proportion of 26.67%, and 3 unmarried respondents experienced fatigue with moderate fatigue with a proportion of 10%.

### 3.5 General fatigue levels based on health status

The number of respondents who experienced several levels of fatigue based on health status were as follows: Table 5. Distribution of Fatigue Levels Based on Health Status

No	Health Status	Fatigue levels						Total	%
		Very tired		Tired		Less tired			
		$\Sigma$	%	$\Sigma$	%	$\Sigma$	%		
1.	Have history of illness	1	3.33	1	3.33	-	-	2	6,67
2.	No history of illness	11	36.67	6	20	11	36.67	28	93,33
Total		12	40	7	23.33	11	36.67	30	100

Based on table 5. It was known that out of 30 respondents, 1 respondent who had a history of illness experienced fatigue with a high level of fatigue (very tired) with a proportion of 3.33%, 1 respondent who had a history of fatigue with moderate fatigue with a proportion of 3.33%, 11 respondents who did not have a history of illness experienced high levels of fatigue (very tired) with a proportion of 36.67%, 7 respondents who did not have a history of illness experienced fatigue with moderate fatigue with a proportion of 23.33%, and 11 respondents who did not have a history of illness experienced fatigue with a low level of fatigue (less tired) with a proportion of 36.67%.

### 3.6 General fatigue levels based on nutritional status

The number of respondents who experienced several levels of fatigue based on nutritional status were as follows: Table 6. Distribution of Fatigue Levels Based on Nutritional Status

No	Nutritional status	Fatigue levels						Total	%
		Very tired		Tyred		Less tired			
		$\Sigma$	%	$\Sigma$	%	$\Sigma$	%		
1.	Excessive Nutrition	7	23.33	2	6.67	-	-	9	30
2.	Good Nutrition	5	16.67	3	10	11	36.67	19	63,33
3.	Medium Nutrition	-	-	2	6.67	-	-	2	6,67
4.	Less Nutrition	-	-	-	-	-	-	-	-
Total		12	40	7	23.33	11	36.67	30	100

Based on table 6. It was known that out of 30 respondents, 7 respondents with excessive nutrition experienced fatigue with a high level of fatigue (very tired) with a proportion of 23.33%, 5 respondents with good nutrition experienced fatigue with high fatigue (very tired) with proportion of 16.67%, 2 respondents with excessive nutrition experienced fatigue with moderate levels (tired) with a proportion of 6.67%, 2 respondents with medium nutrition experienced fatigue with moderate fatigue (tired) with a proportion of 6.67% and 11 respondents with good nutrition experienced fatigue with a low level of fatigue (less tired) with a proportion of 36.67%.

### 3.7 The tasks of railway crossing doorstep officers

Based on the results of observations at the place of the guard post, it is known the tasks of doostop officers: 1) The respondents must arrive 15 minutes before the time of handover from the previous guard officer to the next guard officer. 2) When the handover take place, it must consider the situation and conditions at that time and fill in the handover book and sign it. For example: the occurance of late trains, damages and so on. 3) Check and examine the chart/list of train trips installed at the post guard substation. 4) 15 minutes before the train passes the respondent must be ready to close the door and pay attention to the situation (condition) of the highway, so that congestion does not occur. 5) If the crossing is equipped with bells, the respondent must pay attention to the sound of the bell, so that the

respondent is sure of where the train will pass and is ready to close the door. 6) Respondents must pay attention to the slogans shown by the train when the train passes (including S21, S31, S39). 7) Respondents must maintain the cleanliness of the guard posts and existing equipments, railways and asphalt roads that are crossed, so that when the train or public transportation passes is not disturbed. 8) As long as there is no passing train, the respondent must clean the environment around the post, the right / left as far as 100-200 m), if there are deficiencies or damage to the crossing equipment, the respondent must immediately report to his supervisor to immediately be forwarded by the authorities. 10) The forwarded reports must be completed with evidence stating when the report is made (reported) to other agencies. 11) Respondents are strictly forbidden to open the door before the train passes by anyone's request or order, unless there is a direct command from the supervisor in charge. 12) At night, the handsein lights, as well as the flashlight must be really bright, so that the green, white, as well as the red rays that lead to the public vehicle can be seen clearly by the drivers. 13) Respondents are not allowed to leave the post guard or represent others without the permission of their direct supervisor. 14) Try to stop the train by installing a slogan 31/500 m before railway crossing, if there is a traffic jam at the railway crossing when the train will pass.

## **4. DISCUSSION**

### ***4.1 General fatigue levels***

Based on table 1. It was known that out of 30 railroad crossing door respondents, there are 12 respondents with high levels of fatigue (very tired), 7 respondents experience moderate levels of fatigue, 11 respondents with low fatigue (less tired). The levels of fatigue is basically a feeling that arises as a result of work activities or individual factors from railroad crossing doorstep officers. The levels of fatigue can also cause complaints (symptoms) of physical fatigue that can interfere with work productivity. And generally fatigue is influenced by three factors, namely: workload, additional workload, and individual factors (A.M. Sugeng Budiono, 2003).

### ***4.2 General fatigue levels based on age***

Based on table 2. It was known that out of 30 respondents, 11 respondents aged 22-32 years experienced low fatigue level (less tired), 7 respondents aged 33-43 years experienced moderate fatigue (tired), 12 respondents aged 44-54 years experienced high levels of fatigue (very tired). The higher the age, the higher the feeling of fatigue is felt, because basically when humans get older the muscle strength will decrease. The influence of age on work fatigue occurs due to physiological functions of the body that can change because age factors affect the body's resistance and work capacity. A young person is able to do heavy work, on the contrary, if someone is getting older then the ability to do heavy work will decrease, because he feels tired quickly and does not move nimbly when carrying out his duties, so that it affect his performance (Suma'mur, 2014).

### ***4.3 General fatigue levels based on tenure***

Based on table 3. It was known that the longer the tenure of the respondent, the higher the level of fatigue. It was shown that the level of high fatigue experienced by respondents with a working period of 22-32 years are 12 respondents. The longer a person works, the more saturated it will be, so that it can affect the level of fatigue experienced, and fatigue that occurs continuously can result in chronic fatigue (Resayana, 2008). But the longer tenure owned by someone, they can have more experience than those who work with a short tenure. People who work for long time are accustomed to the work they do, so that it does not cause work fatigue for themselves (Setyawati, 2010).

### ***4.4 General fatigue levels based on marital status***

Based on table 4. It was known that there were 11 respondents who experienced high levels fatigue with marital status was married, and 3 respondents who were less tired were known to be unmarried, logically person's marital status could also affect the level of fatigue. Married people will experience fatigue faster than unmarried people because resting time is not utilized optimally. Furthermore, the condition of their family also needs to get sufficient attention. Married workers is required to fulfill responsibilities not only in terms of work but also in matters of family affairs, so that the risk of experiencing work fatigue will also increase (Inta H., 2012). In this study some of respondents who were married, experienced a low level of fatigue, this was possible because in the results of the study it was known that other individual factors owned by respondents who were married were known to be in the age group who were still young and had tenure about 2-4 years.

#### **4.5 General levels of fatigue based on health status**

Based on table 5. It was known that the majority of respondents who experienced high levels of fatigue were respondents who did not have a history of disease, this was because respondents who experienced high fatigue were aged between 44-54 and worked between 22-32 years and also this was affected by the added burden of other work outside the task as a railroad crossing doorstop officer/guard, as well as the distance of residence with a relatively far from their workplace. This can affect the respondents' health status and can cause work-related illnesses, for example if it is known that the distance between the respondents' residence and the work place is relatively far away and the respondents riding motorbike to reach the workplace, can cause the respondent to suffer from lung disease. In lung disease, oxygen (O<sub>2</sub>) and carbon dioxide (CO<sub>2</sub>) are disrupted so that many are buried which eventually will cause a person to experience fatigue quickly (Pearce, Evelyn C., 2006). Health status can affect work fatigue which can be seen from a history of illness. Some diseases that can affect fatigue, namely: a) Heart disease b) Kidney disease c) Asthma d) Low blood pressure e) Hypertension (Suma'mur, 2009).

#### **4.6 Level of fatigue based on nutritional status**

Based on table 6. It was known that respondents who were of good nutritional status, moderate or less nutrition all experienced general fatigue. It was known that 7 respondents with excessive nutritional status experienced fatigue with high fatigue category (very tired), 5 respondents with good nutritional status experienced high levels of fatigue (very tired), 3 respondents with good nutritional status experienced moderate fatigue, 11 respondents with good nutrition experienced fatigue with low levels of fatigue (less fatigue) and 2 respondents with medium nutritional status experienced fatigue with moderate fatigue. Basically nutritional status is one of the factors that influence the level of fatigue because nutritional status influences health and work power (Sritomo Wignjosoebroto, 2000).

Good nutritional status with right calorie intake in right time will have a positive effect on the work power of workers. And on the contrary, if excessive nutritional status or lack and caloric intake that is not in accordance with the amount or time is not right, it will cause low work resilience or slowing motion so that it becomes an obstacle for workers to carry out their activities, namely officers become easily tired (Supariasa, 2002). Health nutrition status and work power are closely related to one's nutritional level. The body needs substances from food for body maintenance, repair of cell and tissue damage. Food substances are needed to work and increase commensurate with the heavier work (Suma'mur, 2009). Clinically there is a relationship between a person's nutritional status and overall body performance, people who are in poor nutritional conditions in terms of food intake in the body less or excess than normal, it will be easier to experience work fatigue (Oentoro, S., 2004). In this study, respondents with good nutritional status still experience fatigue with a high level of fatigue, because in the results of the study it is known that other individual factors possessed by respondents who are well-nourished allow for the occurrence of general fatigue in those respondents who are known to be well-nourished high fatigue (very tired) having an age ranging from 44-54 years and having a tenure of 22-32 years.

#### **4.7 The duties of railroad crossing doorstop officers/guards**

The railway crossing doorstop is guarded by doorstop officers (respondents). Respondents have assignments: 1). Standby at the railway crossing doorstop whether there is schedule of train passes or not. 2). Always monitor traffic conditions and train trips. 3). Operate crossing doorstop and other work equipments. Regulate or temporarily stop vehicles that will cross the railroad track. 4). Take emergency action in the case that railroad crossing equipment does not function (Land Transportation Director General Regulation Number: SK. 770 / KA.401 / DRJD / 2005). Based on the respondents' duties as a railway crossing doorstop officer/guard that was successfully identified and observed, it was found that the tasks carried out by respondents who guarded each shift even on the same days. In doing the routine work, the officers/guards possibly feel bored. One of work effects that needs attention is the emergence of boredom of work and work fatigue, especially those who work on repetitive, less varied and less challenging work. Boredom caused by incompatibility of workload with potential and interest of workers can be the cause of an officers' illness. Job boredom, the causes can vary, one of which is a routine or work that is felt monotonous, because it always has to be done every day in the same form.

Boredom has an impact on productivity or performance, which in turn is also a problem. If it is not handled immediately, initially boredom can reduce productivity, over time it can potentially lead to workplace accidents.



Boredom is related to work discomfort and routine tasks. Job boredom is a complex and individual thing. Not all individuals can survive to the type of work that is repetitive or the same job. Job boredom is a source of fundamental frustration for officers. Officers who feel bored with a routine and simple job will be potential to make a mistake and slow in working. Officers who feel very bored with their jobs will experience a tension, weakness, anger, difficulty concentrating or difficult to work effectively. Many factors can cause an officer to be bored, indifferent, and not passionate about doing this work, among others are does not fit into his job, does not know how to do a good job, lacks incentives, an unpleasant work environment, and others. Boredom can occur in officers who work in a monotonous, repetitive, or not interesting activities. But sometime boredom can also be caused by things that were originally considered exciting. Factors that influence work boredom include individual factors, work environment factors, and work factors themselves. A job in order not to cause boredom, is not only determined by the abilities and skills possessed by officers, but also influenced by mastery of work procedures, clear job descriptions, clear job requirements to support the job description, appropriate work equipments or suitable with the work environment, and so on (Anitawidanti Hafni, 2010).

## 6. CONCLUSION

Based on the results of the research and discussion it can be concluded as follows:

- From 30 respondents, 40% of respondents experienced high levels of fatigue (very tired), moderate fatigue (tired) or 23.33% of respondents, and low fatigue (less tired) or 36.67% of respondents.
- Individual factors of respondents who experienced high levels of fatigue, namely: a) Age 33-43 years. b) 22-32 years of tenure. c) Married status, that is 40% of respondents. d) Does not have a history of illness is 36.67% of respondents. e) Excessive nutrition. f) Monotonous tasks and have heavy physical workloads. g) All respondents experienced fatigue with various levels influenced by the tasks and individual factors of the respondents. There is an influence between the general fatigue levels of the respondents' and the work quality.

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