

## Analysis of Factors Associated with Subjective Fatigue Among Motorcycle Drivers in Online Ojek

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**Abstract** - Background: The number of deaths from traffic accidents is fifth level in Indonesia. 72% traffic accidents in Indonesia involving motorcycles according data in 2011. Fatigue is one of the causes of motorcycle accidents. The development of online ojek is quite rapid and is dominated by motorbikes as a means of transportation so that this development requires attention especially concerning the safety of passengers and their own drivers. The purpose of this study aims to analyze several factors related to subjective fatigue among motorcycle drivers on online ojek. Methods: The study was conducted in Bekasi in 2017 using quantitative methods and cross-sectional research designs. The populations in this study were all motorcycle drivers on online ojek with a sample of 106 respondents taken by accidental sampling technique. Subjective fatigue is measured by the Industrial Fatigue Research Committee (IFRC). The analysis was carried out by univariate and bivariate using Chi-Square Test ( $X^2$ ) Results: The level of subjective fatigue is at low level (50.9%), moderate (42.5%), and only 6.6% at high levels. Respondents were more than 35 years of age, worked less than 10 hours, slept less than 8 hours, had no disease history, and made online ojek as their main job. The results of the bivariate analysis found of disease history that was significantly associated with subjective fatigue ( $p = 0.011$ , OR = 0.3; CI 95% = 0.1-0.7), while the other variables were not related even though the analysis of cross tables there is a tendency to relate. Conclusions and Suggestions: Disease history is a protective factor for the occurrence of subjective fatigue among motorbike drivers on online ojek, so increased awareness of prevention efforts must continue to be encouraged because the results of this study indicate that the community has just behaved healthily after they are sick.

**Keywords:** *subjective fatigue, motorcycle driver, online ojek, traffic accident*

### 1. Background

Traffic accidents are a cause of death in many countries, especially for developing countries. Data released by WHO (World Health Organization) shows that India ranks first in the country with the highest number of deaths due to traffic accidents. Indonesia is ranked fifth but in an increasing number of accidents is ranked first according to the Global Status Report on Road Safety data released by WHO (World Health Organization). The increase in the number of traffic accidents in Indonesia reached more than 80 percent (WHO, 2015).

According to WHO data (2015), 67 percent of traffic accidents are in the productive age (22-50 years). There are around 400,000 accidents under the age of 25 who die on the highway with an average death rate of 1,000 children and adolescents every 12 days. Traffic accidents are a major cause of child mortality in the world, with an age range of 10-24 years. According to the Ministry of

People's Welfare, motorcycle accident accidents reached 120,226 accidents from all traffic accidents in a year. Traffic accidents in Indonesia are mostly (70%) of motorbike riders of productive age (15-59 years) (Autar, 2015). Traffic accidents occur more in men (31.9%) compared to women (19.8%) (Badan Intelijen Negara, 2013)

The number of deaths due to traffic accidents in Indonesia reached 120 people per day. This figure is not much different from in Nigeria, which claims 140 people have died in accidents every day. Meanwhile, the global mortality rate is currently recorded at 1.24 million per year. It is estimated that this figure will increase to 3.6 million per year by 2030 (Firmansyah, 2017).

Based on data from the Ministry of Transportation's Directorate General of Land Transportation, traffic accidents in 2011 reached 72% of traffic accidents in Indonesia involving motorbikes. The number of motorized vehicles involved in accidents from 2010 to 2011 increased by 4% (from 210,701 accidents in 2010 to 203,334 accidents in 2011) (Direktorat Jenderal Perhubungan Darat Kementerian Perhubungan Republik Indonesia. 2012). Based on the National Police Republic of Indonesia National Corps of Traffic Corps data in 2016 - 2017, accidents in Indonesia during the last quarter of 2016 reached 25,187 accidents with 5,510 fatalities, while in 2017 the number of accidents reached 25,157 with 5,610 deaths (Korlantas POLRI, 2017).

Based on the results of the RISKESDAS study (2013), national injury prevalence was 8.2 percent, with the highest prevalence found in South Sulawesi (12.8%) and the lowest in Jambi (4.5%). Comparison of the results of Riskesdas 2007 with Riskesdas 2013 shows the tendency of increasing the prevalence of injury from 7.5 percent to 8.2 percent. One job that has a high risk of accidents is working as an online motorcycle taxi driver (Trihono, 2013).

Online ojek are motorcycle taxis that use technology by utilizing applications on smartphones that make it easier for service users to call motorcycle taxi drivers. Not only in terms of being a means of transporting people and / or goods, but can also be used to buy goods and even order food. In the global community, especially in big cities with very dense activities and also the problem of road congestion, this online ojek is here to facilitate the public in carrying out their daily activities by advancing advanced technology.

Fatigue of online ojek drivers is one of the factors in the accident. Fatigue can be interpreted as a subjective feeling, but it is with weakness and has a gradual nature. Unlike weakness, fatigue can be overcome with periods of rest. In addition, work fatigue is a pattern that arises in a situation that generally occurs in workers, where workers are no longer able to do work those results in a decrease in work productivity due to employment factors (Kuswana, 2016).

Fatigue can occur as a result of various factors that may be related to work, lifestyle, or a combination of both. Such as age, travel time, disease history, sleep time, and employment status. People who experience work fatigue usually experience symptoms that indicate weakening of activities, weakening motivation, and showing physical fatigue due to psychological effects that have short or long-term effects. The long-term health effects, including heart disease, diabetes, high blood pressure, digestive disorders, low fertility, anxiety and / depression. In addition, travel time is also a factor of fatigue if the travel time is longer than the work time in general (6-10 hours) (Kuswana, 2016).

## 2. Research methods

This research is descriptive analytic, which is to analyze several factors related to subjective fatigue among motorcycle drivers online ojek in Bekasi in 2017. Research design with cross-sectional study using primary data with research instruments in the form of questionnaires and collected by interview method. Population in this research is all of the online ojek motorcycle drivers in Bekasi with approximately 300 people. With an uncertain population, the sample size was determined using the formula Lameshow (1990) for Estimated Proportion (Different Proportion Hypothesis Test) (Sabri and Hastono, 2014) and obtained a sample of 106 people who obtained it using Accidental Sampling technique.

The subjective fatigue questionnaire (Subject Self Rating Test) comes from the Industrial Fatigue Research Committee (IFRC) which contains 30 questions where questions number 1 to 10 regarding activity attenuation, questions number 11 to 20 for motivation attenuation, and questions number 21 to 30 for fatigue physical. Each question is scored with a Likert scale (Saputra, 2016).

The age of an online motorcycle taxi driver is calculated from the respondent's birth until the time of the research and for the purposes of bivariate analysis using the median cut of point. The length of time to sleep based on standard sleep is 8 hours per day, while the history of the disease based on whether or not the disease has been affected. Variable Travel time is calculated from the length of the driver riding a motorcycle in a day and found 10 hours as the cut of point using the median. Job status in this study is divided into 2 categories, namely as a main job or a part time job (Sutalaksana, 2016).

This study was analyzed with univariate and bivariate statistic analysis techniques. Univariate analysis aims to explain or describe the characteristics of each research variable (Notoatmodjo, 2012) and bivariate analysis is carried out to determine the relationship between independent variables and dependent variables. The statistical test used is Chi-square using 95% confidence degree with  $\alpha$  (0.05).

## 3. Results and Discussion

The results of the study of the incidence of fatigue in online ojek motorcycle drivers showed that out of 106 people most of the respondents experienced low fatigue as much as 50.9% of respondents, then respondents who experienced moderate fatigue were 42.5% of respondents, and respondents who experienced high fatigue were 6.6% respondent.

The results showed that the average age of online motorcycle taxi drivers was 34.34 years with a standard deviation of 8,357 years, a median value of 34.50 years, and a youngest age of 18 years and the oldest age of 56 years. The average sleep time of an ojek driver online is 6.79 hours with a standard deviation of 1,660 hours, a median value of 8 hours, and a minimum sleep time of 3 hours and a maximum sleep time of 12 hours. Most of the respondents did not have a history of the disease as much as 69.8% and at least respondents who had a history of the disease as much as 30.2% of respondents. Most of the respondents who had a history of digestive disorders as much as 65.6% of respondents and at least respondents who had a history of disease diabetes and heart as many as 3.1% of respondents. that the average travel time of online motorcycle taxi drivers is 10.45 hours with a standard deviation of 3.623 hours, a median value of 10 hours, and a minimum travel time of 4 hours and a maximum

travel time of 20 hours. 5% of respondents and at least the type of online motorcycle taxi job is a part-time job of 42.5% of respondents.

**Table 1**  
**Recapitulation of Analysis of Factors Related to Subjective Fatigue on Online Motorcycle Ojek Drivers in Bekasi in 2017**

Age (Years)	Subjective Fatigue				Total		OR (95%CI)	P Value
	Moderate		Low		n	%		
	n	%	n	%	n	%		
>34	24	45,3	29	54,7	32	100,0		0,560
≤34	28	52,8	25	47,2	74	100,0		
<b>Long Sleeping</b>								
<8 hours	26	50,0	26	50,0	52	100,0		1,000
≥8 hours	26	48,1	28	51,9	54	100,0		
<b>History of Illness</b>								
Yes	22	68,8	10	31,3	32	100,0	0,3 (0,1-0,7)	0,011
No	30	40,5	44	59,5	74	100,0		
<b>Travelling time (hours)</b>								
≥ 10	30	44,8	37	55,2	67	100,0		0,315
< 10	22	56,4	17	43,6	39	100,0		
<b>Job Status</b>								
Main	30	49,2	31	50,8	61	100,0		1,000
Second	22	48,9	23	51,1	45	100,0		

Based on Table 1 it can be explained that the variables of disease history are significantly associated with subjective fatigue on motorcycle taxi drivers online. Medium level subjective fatigue is more in respondents who have a history of disease compared to those with no history of disease. However, because the OR value is 0.3, the disease history is not a risk factor but is a protective factor against subjective fatigue. Variable length of sleep and job status there is no significant relationship with subjective fatigue, but there is a tendency where subjective fatigue is more prevalent in respondents who have less sleep, than 8 hours and job status as the main job. Age variables and travel time variables are contrary to the hypothesis that moderate fatigue occurs at a younger age than old age and travel time is less than 10 hours compared to more than 10 hours.

#### a. Age

The results of the study between age with fatigue in online motorcycle taxi drivers in Bekasi are in line with Saputra (2016) study that there was no significant relationship between the age of respondents with work fatigue level ( $p = 0.691$ ) in employees at the Musi Rawas Regency South Sumatra Plantation Service. But it is not in line with Fadel (2014) study that there is a relationship between age and work fatigue ( $p = 0.013$ ) in the driver of BBM transportation at TBBM PT .ertamina Parepare. This difference occurs because the age of online motorcycle taxi drivers is mostly young, while the age of the driver of fuel transportation in TBBM PT. Pertamina is mostly old. In addition, the fatigue between motorcycle taxi drivers and BBM transportation drivers is different. The

results of this study are not in accordance with the theory because it is caused by several factors including the number of samples is still too little. In addition, respondents who were  $\leq 34$  years old were more likely to work longer and had been online motorbike drivers longer than the age of  $> 34$  years. Usually a younger age can not control themselves in using time inefficiently, so that fatigue is more experienced by online motorcycle taxi drivers aged  $\leq 34$  years.

### **b. Long Sleeping**

The results of the study between sleep duration and fatigue in online motorcycle taxi drivers in Bekasi are in line with the results of Fadel (2014) study that there was no relationship between sleep duration and work exhaustion ( $p = 0.070$ ) on drivers carrying fuel at TBBM PT. Pertamina Pertamina Parepare. The duration of the bed of an ojek driver online with the driver transporting fuel in TBBM PT Pertamina Parepare many sleep  $< 8$  hours. This may be due to inadequate or poor quality sleep due to sleep disorders such as sleep apnea. If you sleep soundly even though for a short time will reduce fatigue compared to sleeping with enough time or longer but often waking or not going to sleep will still experience fatigue. According to Kuswana theory (2016) that sleep quality can be a factor of fatigue. So that online motorcycle taxi drivers with  $< 8$  hours of sleep experience more fatigue than sleep time  $\geq 8$  hours.

### **c. History of Illness**

The results of the study of the relationship between the history of fatigue disease in online motorcycle taxi drivers in Bekasi is in line with Saputra (2016) study that there is a relationship between history of fatigue disease ( $p = 0.003$ ) in employees at the Plantation Office of Musi Rawas District, South Sumatra. This result is not in line with Syahlefi (2014) study that there is no relationship between health status / history of illness with fatigue level ( $p > 0.05$ ) on the CV Makmur 1 bus driver Medan - Pekanbaru department. Bus drivers CV. Prosperity is mostly in good health and has no history of illness, while there are several people who have a history of illness in online motorcycle taxi drivers.

The results of this study are consistent with the theory that health status can affect work fatigue which can be seen from the history of the illness. Fatigue is a normal response to physical exertion or stress, but can also be a sign of physical disruption. Fatigue makes it possible to become a mild disease, such as the common cold, as part of a behavioral response that occurs when the immune system is fighting infection. The effects of fatigue can be short or long term. Long-term health effects, including heart disease, diabetes, high blood pressure, digestive disorders, low fertility, anxiety and / or depression (Suma'mur, 2014; Kuswana, 2016).

### **d. Traveling Time**

The results of the study between travel time with fatigue on online motorcycle taxi drivers in Bekasi is not in line with Fadel (2014) study which states that there is a relationship between driving duration with work exhaustion ( $p = 0.001$ ) on drivers transporting fuel at TBBM PT. Pertamina Pertamina Parepare. The travel time for the driver to transport fuel at TBBM PT. Pertamina Parepare is longer ( $> 9$  hours / day), while the travel time for more online motorcycle taxi drivers takes  $< 10$  hours with a lot of moderate fatigue.

The results of this study are not in accordance with the theory because it is caused by several factors including too few samples. Lack of understanding of respondents in filling out the questionnaire, the possibility of traveling time  $\geq 10$  hours is not really on a motorcycle continuously but is calculated by the time the respondent stopped / rested and calculated how long the respondent left the house. So that online motorcycle taxi drivers take  $<10$  hours and travel time  $\geq 10$  hours is not a determining factor in the occurrence of subjective fatigue among motorcycle taxi drivers online.

#### **e. Job Status**

The results of the research between job status and fatigue on online motorcycle taxi drivers in Bekasi have no significant relationship. This may be due to the status of the main job or part time can experience fatigue if a job is monotonous which makes you tired and results in fatigue. As in Satalaksana theory (2006), that is in employment status can affect fatigue depending on how heavy the work is done and whether the work is monotonous or not. The monotonous work can cause fatigue, although the workload may not be much. Online motorcycle taxi drivers with the main job status experience more fatigue compared to odd jobs. The possibility of the main job status being an online motorbike taxi is more monotonous which makes you bored and stressed out because of being chased by the target and tired of waiting not to get passengers.

### **4. Conclusions**

Based on the results and discussion of research on the analysis of factors related to fatigue on motorcycle taxi drivers online in Bekasi in 2017, it can be concluded:

- a. Subjective fatigue of motorcycle taxi drivers online is still at a low level
- b. Online motorcycle taxi drivers are dominated by young age, sleep for 8 hours / day, no disease history, travel time of more than 10 hours / day, and become the main job
- c. There was a significant relationship between the history of the disease and the level of subjective fatigue and there was no significant relationship between age, sleep duration, travel time, and employment status with subjective fatigue
- d. Healthy behavior among motorcycle taxi drivers just started to look after experiencing illness

Based on the conclusions can be suggested:

- a. For online ojek drivers, it is necessary to increase awareness to behave healthily from the start without having to wait for the pain to come.
- b. For further research, it is necessary to carry out ongoing research on the prevention of workplace accidents and work-related diseases to be monitored so that the safety and health of online motorcycle taxi drivers can be maintained and continue to increase.

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