RISK FACTORS ANALYSIS OF WORK FATIGUE AMONG ONLINE MOTORCYCLE DRIVERS IN SOUTH TANGERANG CITY

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ABSTRACT
Online motorcycle taxi drivers are one the road users, it is important to obey traffic regulations. In UU No. 22 2009 it is mentioned that the driver of the vehicle must be conscious and not distracted because of tiredness, this situation can cause traffic accidents if forced to keep driving. The purpose of this study is to analyze what factors are related to work fatigue that occurs in online drivers in South Tangerang City in 2022. The research method used in this study is a literature review. The data used are secondary data from scientific articles/journals, books, and documents. Search literature on internet sites such as Scopus, Google Scholar, Garuda, and College Journals. The research was conducted on 3 international articles and 2 national articles. The results of the study based on these five articles, after summarizing the findings of ten (10) risk factors related to work fatigue in online motorcycle taxi drivers, namely age, duration of work, total distance achieved, history of illness, length of sleep, over time, work stress, lack of physical activity, and marital status. This research is recommended for companies to further improve the welfare of online motorcycle taxi drivers by reducing income deductions, calculating basic costs and authorized capital issued by online motorcycle taxi drivers, there are some complaints by online motorcycle taxi drivers, namely working unhealthy in pursuit of bonuses, this has an impact on working hours that are too high so that it can cause work fatigue for online motorcycle taxi drivers.

Keywords: risk factors, work fatigue, ojek online

INTRODUCTION
Traffic is used to help people to carry out their daily activities. Traffic conditions are expected to be smooth and safe to make it easier for users. One of the problems that occur is traffic violations caused by road users. Everyone who crosses the highway is expected to be orderly and obey traffic rules(1).

The online motorcycle taxi driver is one of the road users, he needs to comply with traffic regulations(2). In Law no. 22 of 2009, it is stated that the driver of the vehicle must be conscious and not affected by one's attention because one of them is tired. After all, things like this can cause traffic accidents if forced to keep driving(3).

Accidents are one of the major causes of death in the world. Data from the Global Status Report on Road Safety 2018 states, that the number of deaths that occur in traffic per year has reached 1.35 million people in the world, this contributes to the death rate in non-communicable diseases and the incidence of injuries is increasing. Currently, one of the causes of death for children and young adults at the age of 5 – 29 years is caused by traffic accident injuries. There is a difference in the death rate due to traffic accidents between developing and developed countries. In low-income countries, the risk of death from traffic accidents is three times higher than in high-income countries. The highest death rate for road users in Indonesia is in the category of 2 and 3-wheel motorcycle riders as much as 74%(4).
According to the latest data from the Central Statistics Agency Indonesia in 2019 regarding the number of accidents in Indonesia, as many as 116,411 people had accidents, of which 25,671 people died, 12,475 people suffered serious injuries, 137,342 people suffered minor injuries and material losses reached 254,779,000 rupiahs\(^5\). Meanwhile, in Banten Province, the proportion of injuries caused by traffic accidents was 2.42%. The proportion of traffic accidents is the most important while riding a motorbike as much as 70.24%, the second is when riding a motorbike or a motorbike passenger as much as 20.71\(^6\).

No accident happens without a cause. Accidents must be investigated so that the root cause of the accident can be found and it can also be a preventive measure so that these accidents do not continue to occur\(^7\). The causes of traffic accidents can be influenced by three factors, namely humans, vehicles, and the environment (physical and socio-economic)\(^8\).

The problem of fatigue is included in the human factor, a natural thing faced by all workers in carrying out their duties\(^9\). Several studies on work fatigue generate several kinds of conclusions. Based on the results of the study showed that there was a positive and significant relationship between age, sleep duration, marital status, physical condition, working hours, sufficient rest, physical activity, work stress, work productivity, and work fatigue on online motorcycle taxis\(^10\)-\(^17\).

Online motorcycle taxi drivers should have flexible working hours or be able to manage their work hours and not burden online motorcycle taxi drivers\(^18\). But there are several problems that online motorcycle taxi drivers often complain about, namely, they tend to work unhealthy in pursuit of bonuses, this has an impact on working hours that are too high. The next problem is the income which turns out to be not as big as advertised, this is because the operational expenses are quite high and must be borne by the driver himself\(^19\).

Based on traffic accident data throughout 2017, there were 79\% of online motorcycle taxi drivers experienced traffic accidents. Around 130 thousand of the approximately 167,000 traffic accidents were experienced by motorcycle taxi drivers\(^20\).

Drivers who experience fatigue are usually characterized by sleepiness, lack of concentration, and slow responsiveness, this can cause drivers to be less alert. The response speed of a driver who is not tired is about 0.4 - 0.8 seconds, but if the driver is tired it will be slow\(^21\).

According to Law no. 22 of 2009, it is stated that motorcycle drivers who drive their vehicles for 4 (four) hours in a row are required to rest for at least half an hour. Online motorcycle taxi drivers are expected to be able to regulate their working hours and rest hours because drivers are entitled to get sufficient rest, limiting driving time, especially at midnight and early morning\(^22\).

South Tangerang City is a buffer city from DKI Jakarta which is the center of government, trade, and industry, this results in high labor competition. Online motorcycle taxi drivers work hard
from morning to early morning to meet customer needs in mobilization\textsuperscript{(16)}. Continuous work in addition to increasing stress levels, and being physically ill, can also increase the risk of accidents\textsuperscript{(23)}.

This study is intended to analyze what factors are related to work fatigue that occurs in online motorcycle taxi drivers in South Tangerang City in 2022.

**METHOD**

The research method used in this study is a literature review. The data used are secondary data from scientific articles/journals, books, and documents. Search literature on internet sites with the main keywords risk factors, work fatigue, and online motorcycle taxis. The researcher's inclusion criteria are; 1) National/international journals with the main result being fatigue; 2) Research that examines the relationship between job burnout and online motorcycle taxi drivers and their different risk factors; 3) Work fatigue with subjective work fatigue type; 4) The research study design is quantitative, including descriptive, correlational and cross-sectional; 5) Published in English and Indonesian, and 6) Year of publication for the last 5 years (2017 – 2022). Meanwhile, the exclusion criteria are 1) Research that does not show fatigue as an outcome; 2) The population and samples are taxi drivers, truck drivers, bus drivers, train drivers, and car drivers.

**RESULTS AND DISCUSSION**

Based on the internet/website, 5 articles have been found that have been adapted to the research topic. Below is an article screening flow chart:
## Table 1. Extraction of Research Articles

<table>
<thead>
<tr>
<th>Number</th>
<th>Author</th>
<th>Article Title</th>
<th>Publication Year</th>
<th>Variable</th>
<th>Research Method</th>
<th>Result</th>
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<tbody>
<tr>
<td>1.</td>
<td>Tiara Nurhafizha &amp; Indri Hapsari Susilowati, Akbar Maulana, and Muhammmad Fitrah Habibullah</td>
<td>Safety and Fatigue Risk Factors among Online Motorcyclists in Depok City, Indonesia</td>
<td>2018</td>
<td>Independent variables: near miss incidents, distraction factors, driver's age, duration of work and rest, total distance traveled, and perceived musculoskeletal complaints.</td>
<td>This research uses observational research which studies the data both qualitatively and quantitatively. The data was obtained through observation and interviews with drivers.</td>
<td>The results of this study include 43% of respondents who have experienced near-accident incidents. Factors that increase the risk of near misses and accidents include fatigue, uncomfortable helmets, uncomfortable motorcycles, using gadgets while driving, and others. In this study, it was found that 62.85% (44 people) experienced fatigue while driving. The highest factor is fatigue. Based on these data, it can be assumed that fatigue is one of the most influential factors in a driver's ability to drive safely.</td>
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<td>2.</td>
<td>Luqman Effendi and Tryana Syadiah</td>
<td>Analysis of Factors Associated with Subjective Fatigue Among Motorcyclists in Online Ojek</td>
<td>2018</td>
<td>Independent variable: age, sleep duration, disease history, work duration, and employment status.</td>
<td>This research is descriptive-analytic. The study design used was a cross-sectional study using primary data and research instruments collected by interview method.</td>
<td>The results of this study are online motorcycle taxi drivers who experience low subjective fatigue of as much as 50.9%, moderate as much as 42.5%, and high as 6.6%. The majority of respondents in this study were 35 years old, worked less than 10 hours, slept no less than 8 hours, did not have a history of illness, and made online motorcycle taxis their main job. After the chi-square test, the results of the history of the disease were related to the incidence of subjective fatigue while the other variables were not related.</td>
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<td>3.</td>
<td>Agnes Ferusgel, Aquina Widya, Ani Deswita Chaniago, and Maria</td>
<td>Risk Factors of an Online Motorcycle Taxi (Ojek Online)</td>
<td>2019</td>
<td>Independent variables: age, years of service, duration of work,</td>
<td>This study is a descriptive-analytic study and this research is supported</td>
<td>The results of this study indicate that at most 10 respondents (25%) in the age category 25-28 years and at least 4 respondents (10%) in the age category 41-45 years. All respondents several 40</td>
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<td>4.</td>
<td>Agustina and Lupita</td>
<td>Factors Associated with Work Fatigue Levels for Online Ojek Drivers in the East Jakarta Region in 2019</td>
<td>2019</td>
<td>Independent variables: age, length of sleep, years of service, duration of work.</td>
<td>This research is non-experimental research with a descriptive survey design, using quantitative methods and a cross-sectional approach.</td>
<td>The results in this study indicate that most respondents are aged 26-35 years, namely 29 people (31.8%), the most respondents' sleep duration is &lt; 8 hours, namely 52 people (57.1%), and the most respondent's working period is &lt; 3 years, namely 63 people (69.2%), the most respondents' work duration was &gt; 8 hours, namely 52 people (57.1%), respondents with excess time were 52 people (57.1%) and respondents who experienced high levels of fatigue were 49 people (53.8%). Research variables related to work fatigue on online motorcycle taxi drivers in the East Jakarta area are length of sleep (p-value =</td>
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<td>5.</td>
<td>Josua Aditya Manuel, I Made Ady Wirawan</td>
<td>Fatigue Risk Factors for Online Ojek Drivers in Greater Jakarta and Denpasar</td>
<td>2020</td>
<td>Independent variables: age, gender, work area, nutritional status, sleep duration, marital status, physical activity, work duration/day, working hours/week, rest duration, other work, type of motorcycle, and work stress.</td>
<td>This research is a cross-sectional study with an analytical quantitative approach. Then the data were analyzed using SPSS Statistics 22.0. Data presented descriptively, analytically using the prevalence ratio (PR) of the independent variable, and multivariate using multiple logistic regression tests. forward LR.</td>
<td>The results showed that 68.1% of online motorcycle taxi drivers experienced fatigue. Multivariable analysis showed that the risk factors associated with fatigue among online motorcycle taxi drivers were work stress, lack of physical activity, sleep duration &lt; 7 hours, marital status, and age &lt; 30 years. Meanwhile, work area, nutritional status, rest duration, and other occupations were not proven to be associated with work fatigue.</td>
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Source: Tertiary Data, 2022

The entire article states that in his research, work fatigue is still found in online motorcycle taxi drivers while doing their jobs. Based on the articles that have been found, it was found articles that have a relationship with work fatigue among online motorcycle taxi drivers.
Based on these five articles, after summarizing the findings of ten (10) risk factors related to work fatigue in online motorcycle taxi drivers, namely age, duration of work, total distance traveled, history of illness, length of sleep, over time, work stress, lack of physical activity, marital status.

This is following what was described by Mahawati et al. that there are several factors including risk factors from work fatigue, the factors are divided into two (2), namely internal and external factors\(^\text{(24)}\). Internal factors include age, gender, nutritional status, health status, and the psychological state of the workforce. Meanwhile, external factors include workload, years of service, and work environment. If adjusted for this study, the internal factors are age, history of illness, length of sleep, work stress, lack of physical activity, and marital status while the external factors are work duration, total distance traveled, and overtime.

Fatigue can interfere with the driver's focus while driving, the age of the driver can also result in direct and indirect focus (because fatigue will quickly arise\(^\text{(13)}\). Some physical capacities such as vision, hearing, and reaction speed decrease after 40. The older a person is, the level of physical fitness decreases because physical conditions decline, causing fatigue to occur more quickly than in younger workers\(^\text{(25)}\).

In addition, according to research conducted by Effendi and Syadiah, it is stated that there are factors related to the occurrence of fatigue, namely a history of illness, the effects of this fatigue can have an impact quickly or in the long term because fatigue can cause more severe disease when the immune system is weakened. Long-term effects can lead to heart disease, diabetes, hypertension, digestive disorders, decreased fertility, and even anxiety/depression\(^\text{(26)}\).

The disconnection of working time for drivers leads to susceptibility to poor sleep quality regulation. Insufficient sleep quality can increase fatigue. The worse the sleep quality of the driver, the higher the work fatigue\(^\text{(27)}\).

Job stress has the potential to encourage or interfere with the implementation of work, depending on the level of stress. If they are too stressed, online motorcycle taxi drivers tend to lose the ability to control themselves, which eventually affects their driving behavior and become distracted and take rash actions\(^\text{(25)}\).

Online motorcycle taxi drivers who do not do physical activity have a greater risk of experiencing fatigue compared to those who do physical activity\(^\text{(16)}\).

The maximum working duration is 8 hours a day or 40 hours per week. Extending working time more than ability will result in online motorcycle taxi drivers experiencing fatigue while driving and resting and the total distance traveled in a day can also cause drivers to experience fatigue. Some of the drivers experience an imbalance of these factors which can result in increased fatigue\(^\text{(26)}\). This fatigue can be overcome if online motorcycle taxi drivers pay attention to the ability of the body, meaning that the energy expended does not exceed the income by paying attention to the limitations. Such as working
time must be regular, meaning that work hours must be arranged, and rest periods so as not to overtime\(^9\).

**CONCLUSION AND SUGGESTIONS**

Based on these five articles, after summarizing the findings of ten (10) risk factors related to work fatigue in online motorcycle taxi drivers, namely age, duration of work, total distance traveled, history of illness, length of sleep, over time, work stress, lack of physical activity, status marry

This study recommends for companies to further improve the welfare of online motorcycle taxi drivers by reducing online motorcycle taxi drivers' income cuts and taking into account the basic costs and basic capital issued by online motorcycle taxi drivers because there are several problems that online motorcycle taxi drivers often complain about, namely, they tend to work unhealthy for the sake of chasing bonuses, this has an impact on working hours that are too high so that it can cause work fatigue for online motorcycle taxi drivers.

**REFERENCES**


19. Ayuwuragil K. 5 Masalah Kesejahteraan yang Dikeluhkan Sopir Ojek “Online” [Internet]. CNN


