The Effect of Working Hours on Occupational Health and Safety Mediated by Work Stress: A Study on Grab Drivers in Kuningan City

Rifky ALFIANSYAH
Faculty of Economics and Business, Gunung Jati Swadaya University, Indonesia.

Abstract
This study aimed to investigate the impact of working hours on the occupational health and safety of online transportation drivers mediated by work-related stress. The research was conducted to reduce the number of accidents involving online transportation drivers. This research employs associative quantitative research based on data that can be calculated to produce an evaluation. Eighty internet transportation drivers in Kuningan City were given questionnaires to complete to gather primary data. The data was analyzed using structural equation modeling (SEM) for model and hypothesis testing with PLS 3.0 statistical software. The results indicate that working hours and stress significantly affect employee occupational safety and health. Additionally, working hours impact work stress. This study found that work stress may mediate the impact of working hours on occupational health and safety. Injuries or illnesses sustained at work may result from the stress experienced by driver-partners due to long working hours. The study’s findings can help Grab and other online drivers organize their working hours to reduce work-related stress and, ideally, maintain safety.

Keywords: Working Hours, Work Stress, Occupational Health and Safety, Grab.

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Rifyalfiansyah3395@gmail.com

INTRODUCTION
The emergence of app-based transportation has transformed the transportation industry in Indonesia, particularly with the increase in online motorcycle taxi drivers (Zahara et al., 2023). Grab is an online motorbike taxi company that operates in almost all Southeast Asian countries except Brunei and Laos. The company has even expanded to other countries. Its strength lies in its partners, who utilize human capital as an asset to remain profitable (Pahlevi, 2022). The rise in motorcycle usage can be attributed to the limited capacity of conventional public transportation to accommodate the transportation demands of a burgeoning population and swift urbanization. Online motorbike taxis are a cost-effective mode of transportation that offers faster travel than other modes in confined spaces or congested roads in urban and rural areas (Chu et al., 2022). Despite the growth and success of the motorcycle taxi industry, it has a negative impact. According to reports by Statista (2022), there has been an increase in occupational accidents among motorbike taxi drivers in most cities and towns in Indonesia; most injuries occur due to traffic accidents. Applying uniform safety standards to all motorbike taxi drivers involved in traffic accidents is challenging due to individual drivers’ absence of safety control measures (Icasiano & Taiehagh, 2021).

Occupational Health and Safety (OHS) aims to create a safe and comfortable working environment that promotes high productivity while reducing the risk of work accidents (Burke et al., 2011). Drivers are responsible for ensuring the safety of their passengers and must prioritize safety by assessing risks and implementing road traffic safety policies (Jakobsen et al., 2023). Francis et al. (2023) research identifies several unsafe and risky driving behaviors, including ignoring road safety rules, speeding, running red lights, and carrying more than two passengers. However, work stress and work hours are the two main factors that cause a decline in health and accident rates. Ride-hailing drivers frequently work under stressful and dangerous conditions. Additionally, driving for more than 10 hours per day, known as fatigued driving, is positively associated with a higher risk of accidents for drivers (Jaydarifard et al., 2023). Awareness of health risks and working conditions can help identify focused solutions. An in-depth understanding of occupational health factors is crucial to minimizing accidents and improving grab drivers’ well-being.
Working hours refer to the time allocated for work, which can be carried out during the day or night, including shift work and extended hours (Rivera et al., 2020). An increasing amount of scientific literature demonstrates the impact of extended and non-standard working hours on various health outcomes, such as acute fatigue and unhealthy behaviors like smoking and a sedentary lifestyle (Johnson & Lipscomb, 2006). However, as with Grab online transportation drivers, many workers and business owners need to be made aware of this. The Ministry of Manpower has limited the working hours of online transportation partners, but some drivers refuse to comply with the regulation (Pradana, 2023).

Hege et al. (2015) stated that extended periods of work while on the road can result in stress, and commercial drivers are exposed to a range of health and safety hazards. Currently, air pollution in urban areas is high due to transportation difficulties and atmospheric dispersion of emissions from road traffic (Heberle et al., 2019). Furthermore, the working conditions of commercial drivers have been linked to various health issues, such as overweight and obesity, fatigue, and sleep disorders; long working hours are significantly associated with short sleep duration (Bannai & Tamakoshi, 2014). Policymakers, industry stakeholders, and road safety organizations should collaborate to develop comprehensive interventions that cover external working conditions and drivers’ psychological well-being (Amoadu et al., 2024).

Grab drivers experiencing high levels of job-related stress may feel uncertain about how to earn enough to meet their needs. Stress is a prevalent modern phenomenon that affects almost everyone. Researchers generally conceptualize it as the body’s response to demands that exceed an individual’s adaptive capacity (Ge et al., 2014). Job stress is the result of an imbalance between the personal characteristics of the worker and the demands of the job. It can hurt the individual (Poó et al., 2018). Bawa & Srivastav’s (2013) study found that demographic factors, such as traffic congestion and climatic conditions, were the primary causes of stress in the studied taxi drivers. Besides that, interpersonal conflicts at work can generate social stress, which is associated with risky driving behavior and fatal road accidents (Havârneanu et al., 2019). Beigi et al. (2022) research explains coping strategies as efforts to manage, master, minimize, reduce, or tolerate the demands created by stressful experiences. Focusing on the work stress experienced by Grab drivers enables a better understanding of how work stress can affect drivers’ health.

Overall, many studies use working hours as an independent variable as a factor, such as previous research conducted by (Bengngu et al., 2019; M. Siahaan et al., 2020; Natiqiyah & Idris, 2022). The research suggests that working hours have a positive and significant impact on Grab drivers’ productivity and job satisfaction. However, the empirical literature must provide sufficient evidence to prove whether work stress mediates the relationship between working hours and drivers’ occupational health and safety. Therefore, the author employs job stress as an intervening variable to mediate other variables. The dependent variable is occupational safety and health, which focuses on the numerous cases of work accidents among grab drivers. Referring to the phenomena and research problems described above and the identified research gap, the study titled 'The Effect of Working Hours on Occupational Health and Safety Mediated by Work Stress: A Study on Grab Drivers in Kuningan City' Requires additional research.

METHODS
This research uses associative quantitative research based on data that can be calculated to produce an assessment (Sugiyono, 2014). It is an example of associative research, which aims to examine the relationship or influence of the independent variable on the dependent variable. The study focuses on online motorcycle taxi drivers, specifically those working for Grab in Kuningan City. The population size is still being determined as no definite measurements have been made. Ferdinand (2002) recommends a sample size of at least four or five times the total number of variable questions or items used in the study. Thus, N = 5 × Q, where N represents the sample size, and Q stands for questions. The study included a total of 16 question indicators. So, the sample used was 80 samples of online grab transportation drivers.
Non-probability sampling techniques were employed in this research due to the unknown number of population members. According to Sugiyono (2019), non-probability sampling techniques only allow certain elements or members of the population to be selected as samples. These techniques include systematic, quota, incidental, purposive, saturated, and snowball sampling. The sampling method used in this study is purposive sampling. Purposive sampling is defined by Sugiyono (2019) as a technique that involves specific considerations. Numerical data was collected through distributed questionnaires. Given a sufficient number of samples, the survey results will be used as primary data to represent the respondents' perspectives on the topic under study in a real-life context.

Data analysis and interpretation aim to answer research questions and reveal certain phenomena. Using PLS 3.0 statistical software, Structural Equation Modeling (SEM) was utilized to analyze the data and evaluate hypotheses. The two primary parameters constructed are for testing construct validity (convergent and discriminant validity) and construct internal consistency (reliability). Afterward, bootstrapping testing was conducted to obtain test results for each hypothesis.

RESULT AND DISCUSSION
Data Analysis Result
1. Validity

<table>
<thead>
<tr>
<th>Variable</th>
<th>Inner Loading Value</th>
<th>Outer Loading Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Hours</td>
<td>0.844</td>
<td>0.884</td>
</tr>
<tr>
<td>Work Stress</td>
<td>0.831</td>
<td>0.672</td>
</tr>
<tr>
<td>Occupational Health and</td>
<td>0.860</td>
<td>0.893</td>
</tr>
<tr>
<td>Safety</td>
<td>0.881</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.881</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.893</td>
<td></td>
</tr>
<tr>
<td></td>
<td>0.572</td>
<td></td>
</tr>
</tbody>
</table>

The presented outer loading value table shows that each reflective indicator construct for every variable in the questionnaire has a value above 0.5. To measure indicator validity, use the outer loading value. An outer loading value above 0.7 indicates that the indicator can be used. An outer loading value above 0.5 is considered acceptable, while factors with a loading value of less than 0.5 should be eliminated (Chin, 1988).

<table>
<thead>
<tr>
<th>Variable</th>
<th>Average Variance Extracted (AVE)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Working Hours</td>
<td>0.743</td>
</tr>
<tr>
<td>Work Stress</td>
<td>0.606</td>
</tr>
<tr>
<td>Occupational Health and</td>
<td>0.572</td>
</tr>
<tr>
<td>Safety</td>
<td></td>
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</tbody>
</table>

The variables have the following values: working hours 0.743, work stress 0.606, and occupational health and safety 0.572. Based on the Average Variance Extracted (AVE) results above, it is evident that all reflective constructs used in this study have produced values above 0.5. According to Barati et al. (2019), an AVE value above 0.5 is acceptable for reflective constructs. If the AVE value
is less than 0.4, it should be removed from the model. It is essential to ensure the validity of the variable.

2. Reliability Test

<table>
<thead>
<tr>
<th>Table 3 Reliability Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cronbach's Alpha</td>
</tr>
<tr>
<td>Working Hours</td>
</tr>
<tr>
<td>Work Stress</td>
</tr>
<tr>
<td>Occupational Health and Safety</td>
</tr>
</tbody>
</table>

A construct is considered reliable if Cronbach’s alpha value exceeds 0.7. Similarly, the composite reliability (Rho c) value is said to be reliable if it is more significant than 0.7 (Hair et al., 2017; Henseler et al., 2016; Sarstedt et al., 2017)

3. Path Coefficient

4. Test the hypothesis

<table>
<thead>
<tr>
<th>Table 4. Direct Effect Test Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypothesis</td>
</tr>
<tr>
<td>H1</td>
</tr>
<tr>
<td>H2</td>
</tr>
<tr>
<td>H3</td>
</tr>
</tbody>
</table>

Based on Hair et al. (2014), structural model coefficient analysis is carried out to analyze a hypothesis by analyzing which relationships between variables have a significant relationship. The
hypothesis testing in this study was done by looking at the T-statistics and P-values. The hypothesis is accepted if the T-statistic is more significant than 1.96 and the P-value is less than 0.05.

**Effect of Work Hour on Work Stress**

The research findings indicate that working hours significantly affect the work stress of Grab online transportation drivers, which is statistically supported (T-Statistic of 31.182 > 1.96 or a P-value of 0.000 < 0.05). The data indicates a correlation between working hours and work stress. Proper organization of drivers' working hours can reduce work stress, while poor organization can increase it.

According to previous research by Lukas et al. (2019) and Tulhusnah and Puryantoro (2018), work stress is affected by working hours. Drivers who work without adequate rest can experience adverse effects such as fatigue, lack of concentration, and an increased risk of accidents. Prioritizing rest and avoiding overworking is essential to ensure the driver's and others' safety on the road. Working hours are one of the four organizational factors that can cause employee stress (Robbin, 2006).

**Effect of Work Hours on Occupational Health and Safety**

The research findings indicate that working hours significantly affect Grab online transportation drivers’ occupational health and safety, which is statistically supported (T-Statistic of 4.796 > 1.96 or a P-value of 0.002 < 0.05). The data indicates a correlation between working hours and occupational health and safety Ramadani (2021) research. Drivers with regular working hours can minimize road accidents and health deterioration. However, excessive working hours can pose a risk of accidents and illnesses for drivers.

**Effect of Work Stress on Occupational Health and Safety**

The research findings indicate that work stress significantly affects the Occupational Health and Safety of Grab online transportation drivers, which is statistically supported (T-Statistic of 3.078 > 1.96 or a P-value of 0.004 < 0.05). The data indicates a correlation between work stress and occupational health and safety. Minimal work stress can help prevent road accidents. In contrast, high levels of work stress experienced by drivers can increase the likelihood of accidents.

According to Kinnunen-Amoroso & Liira (2016) and Rudyarti (2021), in previous research, Occupational health and safety are affected by work stress. The experience of work-related stress among drivers can be understood as a reaction to internal and external stressors, resulting in psychological, physiological, and behavioral responses. It is important to note that these stressors may be related to the nature of the work itself. High workloads and demands may lead to decreased employee productivity and increased stress levels, resulting in a higher risk of illness that may harm drivers and passengers.

<table>
<thead>
<tr>
<th>Hypothesis</th>
<th>Relationship</th>
<th>Path Coefficients</th>
<th>T-Statistics</th>
<th>P Values</th>
<th>Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>H4</td>
<td>Work Hour -&gt; Work Stress, -&gt; Occupational Health and Safety</td>
<td>0.348</td>
<td>2.920</td>
<td>0.004</td>
<td>Supported</td>
</tr>
</tbody>
</table>

**The Effect of Work Stress Mediates Working Hours on Occupational Health and Safety**

The research findings show that work stress can mediate the working hours variable on Grab online transportation drivers' occupational health and safety, which is statistically supported (T-Statistic of 2.920 > 1.96 or P-Value of 0.004 < 0.05). It is important to note that an increased risk of injury or illness does not necessarily indicate that a job is more hazardous. The hypothesis is that the resulting impact is simply due to the stress and fatigue experienced by the workers.

In line with research conducted by Persaud H & Williams S (2017), this text explains the negative consequences of long working hours. These consequences may include the prevalence and incidence of occupational diseases, stress-related illnesses, and injuries that result from long working hours. According to WONG et al. (2019) research, it is essential to focus on measuring working time and its...
correlation with acute and chronic adverse health effects to establish threshold limits in the workplace. It will help to reduce stress and fatigue in drivers.

CONCLUSION
This study provides information on the occupational health and safety consequences of working hours and work stress experienced by Grab ride-hailing drivers. The study findings confirm that working hours and work-related stress significantly affect occupational health and safety. Excessive working hours can increase the risk of accidents and illnesses for drivers and raise stress levels. It can result in a higher risk of harm to drivers and passengers. It is essential to ensure that drivers are not overworked to prevent these risks. Working hours are one of the four organizational factors that have the potential to cause stress in employees. Therefore, it is recommended that online transportation drivers manage their working hours appropriately.

The study's findings indicate that work stress may mediate the impact of working hours on occupational health and safety. Injuries or illnesses sustained on the job can result from the stress placed on drivers due to long working hours. This study may assist Grab and other online drivers in managing their working hours to reduce work-related stress and, ideally, maintain safety at all times. This study acknowledges its limitations, such as scope and location, and suggests future research to expand the coverage area and increase the sample size. Furthermore, this study suggests that future researchers investigate additional variables that may impact online transport drivers' occupational health and safety. It is essential due to the high number of accidents and fatalities experienced by these drivers.

REFERENCES


Pradana, R. S. (2023, October 10). *Jam Kerja Ojek Online Bakal Dibatasi, Driver Protes ke Kemenaker*. EKONOMI.


