

**FACTORS AFFECTING SAFETY DRIVING AMONG ONLINE
MOTORCYCLE TAXI DRIVERS****Fuji Anugrah^{1*}, Roza Asnel¹**¹Bachelor of Public Health Program, Faculty of Health & Informatics, Payung Negeri Health
Institute Pekanbaru.***Email:** anugrahfuji8@gmail.com**Abstract**

Safety driving among online motorcycle taxi drivers is an important concern due to the high risk of accidents caused by work stress, work fatigue, and low self-control. This study aims to systematically review the factors that influence safety driving behaviour, focusing on these three variables. The method used was a Systematic Literature Review (SLR) with a Narrative Synthesis approach based on the PRISMA guidelines, through searching articles on Google Scholar, PubMed, ScienceDirect, and Springer Nature using the keywords “safety driving,” “work stress,” “fatigue,” and “self-control.” Of the 26,619 articles found, 20 relevant articles were analyzed further. The synthesis results show that work stress and fatigue have a negative effect on safe driving behavior, while self-control acts as a protective factor that helps drivers stay focused and comply with rules even under work pressure. In conclusion, efforts to improve the safety of online motorcycle taxi drivers need to focus on stress management, fatigue prevention, and strengthening self-control through psychological training and work policies that support road safety.

Keywords: Safety driving, work stress, fatigue, self-control.**INTRODUCTION**

The development of the gig economy in Indonesia has given rise to the profession of online motorcycle taxi drivers as an important part of the modern transportation system. Although it provides convenience for the community and new economic opportunities, this profession also poses a major challenge to driving safety. According to [1], the annual increase in the number of vehicles in Indonesia correlates with a rise in the potential for traffic accidents, especially among online transportation drivers.

Safety driving is defined as behavior that complies with traffic rules, prioritizes the safety of one self and other road users, and is able to anticipate potential hazards on the road [2]. For online motorcycle taxi drivers, this safe behavior is not only influenced by technical factors such as vehicle equipment or personal protective equipment (PPE), but also by psychological factors such as work stress, work fatigue, and self-control.

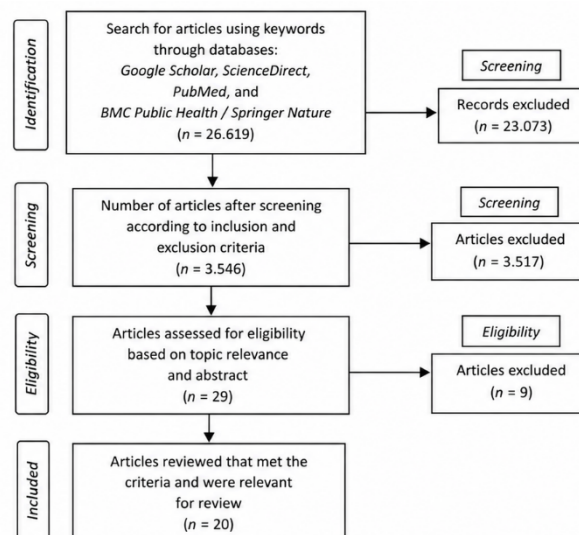
Working as an online motorcycle taxi driver requires long working hours, high order targets, and algorithmic pressure from the application, which often triggers stress and physical and mental fatigue [3]. In the long term, these conditions can reduce concentration levels and increase the risk of risky decisions such as violating road markings, speeding, or using a cell phone while driving. Meanwhile, self-control is a protective factor that plays an important role in helping drivers manage their emotions, resist impulsive urges, and continue to obey traffic rules even under high pressure [4].

However, to date, studies integrating these three factors (stress, fatigue, and self-control) with safe driving behavior among online motorcycle taxi drivers remain limited. Therefore, this study was conducted with the aim of compiling a systematic review of the literature discussing the relationship between these psychological factors and safe driving behavior, as well as to

provide evidence-based recommendations in efforts to improve work safety for online transportation drivers in Indonesia.

RESEARCH METHODS

This study used the Systematic Literature Review (SLR) method with PRISMA guidelines to identify the relationship between work stress, work fatigue, and self-control on safe driving behavior among online motorcycle taxi drivers. The literature search was conducted through Google Scholar, PubMed, ScienceDirect, serta Springer Nature using the keywords “safety driving,” “work stress,” “fatigue,” and “self-control” in publications from 2016 to 2025. From the search results of 26,619 articles, 3,546 were selected based on the title and abstract, then 29 articles were reviewed in full, and 20 articles met the inclusion criteria for analysis. The inclusion criteria included articles that discussed work stress, fatigue, or self-control in the context of the driving safety of online motorcycle taxi drivers, while articles that were irrelevant or not fully accessible were excluded. The analysis was conducted using a descriptive qualitative approach with a narrative synthesis to review similarities, differences, and patterns of relationships between variables, with all data sourced from published scientific literature and cited according to academic standards.



Picture 1. PRISMA Literatur Review

RESEARCH RESULTS

From the results of articles searched through the Google Scholar, PubMed, ScienceDirect, serta Springer Nature databases using the keywords “safety driving,” “work stress,” “fatigue,” and “self-control.” The publication period used was from 2016 to 2025, focusing on studies discussing psychological and behavioral factors that affect driving safety among online motorcycle taxi drivers. The initial search yielded 26,619 articles relevant to the research topic.

The selection process was carried out in accordance with the PRISMA guidelines through several stages, namely identification, screening, eligibility, and inclusion. After screening based on titles and abstracts, the number of articles was reduced to 3,546, then 29 articles were reviewed in full to assess the suitability of the topic and methodology. Based on the eligibility assessment, 20 articles were found to meet the inclusion criteria, namely studies

that directly examined the relationship between work stress, work fatigue, or self-control and safe driving behavior among online transportation drivers.

The selected articles included national and international studies with quantitative, qualitative, and systematic review designs that were relevant to the topic. The synthesis results show that work stress and work fatigue are major risk factors that decrease concentration and increase risky driving behavior, while self-control acts as a protective factor that helps drivers manage their emotions, maintain focus, and maintain safe behavior even under high work pressure. The following is a summary of the research results included in this review:

Tabel 1. Literatur Review

No.	Title	Author/year	Article Types	Method	Main Result
1.	The Relationship between Unsafe Actions and Unsafe Conditions and Work Accidents among Online and Traditional Motorcycle Taxi Drivers in Manado	(Kairupan et al., 2019)	Empirical	Kuantitatif cross sectional	There is a significant relationship between unsafe actions and unsafe conditions and work accidents involving online motorcycle taxi drivers.
2.	The Relationship between Work Stress and Safety Climate with Work Accidents among Online Motorcycle Taxi Drivers in Tembalang, Semarang	(Napitu et al., 2020)	Empirical	Kuantitatif cross sectional	Work stress and safety climate significantly affect the risk of work accidents among online motorcycle taxi drivers
3.	Factors Related to the Safety Riding Behavior of Online Motorcycle Taxi Drivers (GoJek) in Medan City, North Sumatra	(Manurung et al., 2019)	Empirical	Kuantitatif, cross sectional	Age, length of service, vehicle condition, and driving equipment are related to the safe driving behavior of online motorcycle taxi drivers.
4.	Factors Affecting Safe Riding Behavior Among Online Motorcycle Taxi Drivers in Manado City	(Ilumante, Ilangtang, Demsi, Telew, Agustave, 2024)	Empirical	Kuantitatif, cross sectional	The role of coworkers, length of service, vehicle condition, and availability of personal protective equipment (PPE) influence safe driving behavior.
5.	Driving Awareness and Work Place Accident Among Motorcycle Taxi Drivers	(Muin & Rohmah, 2021)	Empirical	Kuantitatif, Korelasi Somers'd	There is a correlation between the level of driving alertness and the incidence of work accidents among online motorcycle taxi drivers.
6.	The Correlation of Subjective Fatigue, Negligence, Knowledge of Safety Riding and Length of Work on Traffic Accidents of Online Motorcycle Taxis in Sidoarjo	(Nala Astari Pramesti & Noeroel Widajati, 2021)	Empirical	Analitik Observasional, Cross Sectional	Subjective fatigue, negligence, and working hours were associated with accidents, while knowledge of safety riding was not significantly associated.

7.	Factors Related to Safety Riding Behavior in Online Motorcycle Taxi Drivers	(Atsaury et al., 2025)	Literature Review	Systematic Review	The main factors affecting safe riding behavior are lack of concentration, pressure to meet income targets, fatigue, and cell phone use. Training and monitoring of PPE is required.
8.	Relationship Between Work Duration, Length of Work, and Sleep Duration with Work Fatigue among Online Taxi Bike Drivers in Greater Jakarta	(Surury et al., 2024)	Empirical	Cross-sectional study (52 responden)	Working hours exceeding 8 hours were significantly associated with fatigue ($p=0.002$). Fatigue leads to decreased concentration and increased risk of accidents.
9.	Motorcycle safety among motorcycle taxi drivers and nonoccupational motorcyclists in developing countries: A case study of Maoming, South China	(Wu & Loo, 2016)	Empirical	Observasional	Safe driving behavior and compliance with traffic rules have a significant impact on the risk of accidents involving professional motorcyclists.
10.	Analysis of the Influence of Knowledge and Awareness of Drivers on Compliance with Safe Riding Behavior Among Online Motorcycle Taxi Drivers	(Keysha Adelya et al., 2025)	Literature Review (SLR)	Systematic Literature Review (2020–2025), qualitative content analysis of 17→10 selected articles	Driver knowledge and awareness have a positive effect on safety riding compliance. Contributing factors: fatigue, mobile phone distraction, perception of danger. Recommendations: ongoing education, technology-based training programs, attention to the physical and psychological aspects of drivers.
11.	Factors Related to Work Stress Among Online Motorcycle Taxi Drivers in Depok City in 2024	(Ifadah Novianus, 2024)	& Empirical	Kuantitatif, Cross-sectional; kuesioner (PSS-10); accidental sampling	The majority of drivers experience work stress (69.5%). Variables associated with stress include age, length of service, workload, and work fatigue. Length of service is not significantly related.

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					Recommendations: adequate rest, health checks, and adjusting order acceptance according to capacity.
12	Work Stress and Health Problems of Professional Drivers: A Hazardous Formula for Their Safety Outcomes	(Useche, Cendales, et al., 2018)	Empiris (Jurnal Internasional – PeerJ)	Quantitative, multistage sampling, regression	Job strain is significantly associated with mental health disorders and an increase in accidents and traffic violations among professional drivers. Job strain impairs the ability to drive safely.
13	Working Conditions, Job Strain, and Traffic Safety among Three Groups of Public Transport Drivers	(Useche, Gómez, et al., 2018)	Empiris (Jurnal Internasional – Safety and Health at Work)	Kuantitatif, cross-sectional, regresi linier	Job strain and poor working conditions have a significant impact on traffic accidents and violations. Social support and job control play a protective role in driving safety.
14	Investigating the Effects of Job Stress on the Distraction and Risky Driving Behaviors of Food Delivery Motorcycle Riders	(Chen, 2023)	Empiris (Jurnal Internasional – Safety and Health at Work)	Kuantitatif, cross-sectional, hierarchical regression	Work-related stress increases risky driving behavior and distractions among food delivery motorcyclists. Time pressure and heavy workloads are the main causes of stress.
15	Investigating the Relationship Between Mood and Driver Behaviors	(Anger, 2024)	Empiris	Kuantitatif (cross-sectional)	Negative moods and stress are associated with an increase in risky driving behavior and a decrease in self-control while driving.
16	Beside and Behind the Wheel : Factors that Influence Driving Stress and Driving Behavior	(Magaña et al., 2021)	Empiris	Kuantitatif	Work-related stress and fatigue are significantly associated with risky driving behavior and reduced driving safety.
17	Anxiety and Depression in Relation to Anxious Driving and Driver Behaviors: The Moderating Role of Traffic Climate	Taş et al., 2025	Empiris	Kuantitatif (Cross-sectional survey)	Anxiety and depression are significantly associated with anxious and unsafe driving behavior. Negative

					psychological states increase the likelihood of making mistakes, committing traffic violations, and exhibiting excessive emotional responses while driving. Traffic conditions act as a moderator of safe driving behavior.
18	Risky and Anxious-Aggressive Drivers: A Key Barrier to Traffic Safety Legislation in Germany	Haustein et al., 2022	Empiris	Kuantitatif	Drivers with aggressive and anxious traits exhibit higher levels of risky driving behavior, including traffic violations and poor self-control. Personality and emotional factors play a significant role in shaping attitudes toward driving safety and compliance with traffic regulations.
19	Studying Driving Behavior and Risk Perception: A Road Safety Perspective in Egypt	Sayed et al., 2022	Empiris	Kuantitatif	Risk perception and driving behavior are significantly influenced by psychological stress and mental workload while driving. Increased stress and cognitive demands contribute to driver errors and a decline in driving safety.
20	Aggressive Driving, Rule-Breaking, and Driver Stress in Spanish-Speaking Countries	Dorantes-Argandar et al., 2023	Empiris	Kuantitatif	Driver stress is significantly associated with increased aggressive behavior and traffic violations. High stress levels reduce self-control and increase the likelihood of unsafe driving behavior across various cultural contexts.

DISCUSSION

The results of the review of eleven articles analyzed show that safety driving behavior among online motorcycle taxi drivers is influenced by a combination of psychological factors, individual behavior, and working conditions. The three main variables that play the most significant role are work stress, work fatigue, and self-control, which interact with each other in determining the extent to which drivers can maintain safe behavior on the road. Work stress emerges as the dominant psychological factor that reduces driving safety. Income targets, long working hours, customer demands, and heavy traffic conditions create high psychological stress, causing drivers to act impulsively, such as violating traffic signs or driving at high speeds to fulfill orders. Chronic stress can lead to decreased concentration, impaired decision-making, and uncontrolled emotional reactions, thereby increasing the risk of work-related accidents.

In addition to stress, work fatigue is also an important factor contributing to a decline in safe driving behavior. Physical and mental fatigue due to long working hours, lack of rest time, and excessive work pressure can reduce alertness and slow down drivers' reactions on the road. Several studies show that working more than eight hours a day significantly increases fatigue levels and the risk of accidents. Fatigued drivers tend to lose focus and make small mistakes that can have fatal consequences. Therefore, the implementation of policies regulating working hours and adequate rest periods needs to be a priority in efforts to reduce accident rates among online motorcycle taxi drivers.

On the other hand, self-control plays a protective role in helping drivers maintain safe behavior amid work pressures. Drivers with high self-control are able to control their emotions, resist the urge to break the rules, and remain focused in stressful situations. Good self-control allows drivers to balance delivery time demands and driving safety. The results of various studies show that individuals with high self-control tend to be more disciplined, comply with traffic rules, and have a lower risk of accidents. Therefore, improving driving safety requires not only technical training but also psychological interventions through stress management training, healthy work schedules, and strengthening self-control skills. A multidimensional and collaborative approach between companies, the government, and the driver community is needed to create a safer, more productive, and sustainable work system for online motorcycle taxi drivers.

CONCLUSION

The relationship between work stress, work fatigue, and self-control with safe driving behavior among online motorcycle taxi drivers shows a strong correlation between psychological conditions and safe driving behavior. High work pressure, long operating hours, income targets, and heavy traffic conditions cause increased stress and fatigue, which directly impact concentration, alertness, and safe decision-making on the road. These conditions increase the risk of risky driving behavior and work accidents. On the other hand, self-control plays an important role in reducing the negative effects of stress and fatigue by helping drivers regulate their emotions, resist impulsive urges, and maintain compliance with traffic rules.

Therefore, effective stress and fatigue management is needed through balanced working hours, adequate rest periods, and psychological training to improve self-control. In addition, support from app companies, the government, and the driver community is also very important in building a safe and sustainable work system. These collaborative efforts are expected to reduce the risk of accidents, improve driver welfare, and create a stronger culture of driving safety in the online transportation sector.

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