

Factors Related to Safety Riding Behavior in Online Motorcycle Taxi Drivers

¹⁾Muhammad Sopyan Atsaury, ²⁾Suherman Jaksa, ³⁾Irna Hasanah
Public Health Study Program, Faculty of Public Health, Universitas Muhammadiyah Jakarta
Jl. K.H. Ahmad Dahlan, Cirendeu, Ciputat, South Tangerang City, Banten, 15419
Email: spynatsry@gmail.com, suherman@umj.ac.id, irnahasanah@staff.umj.ac.id

ABSTRACT

Safety riding among online motorcycle taxi (ojek online) drivers is critically important as it involves the lives of the drivers themselves, their passengers, and other road users. In general, most online motorcycle taxi drivers have complied with safety riding regulations. This study employed a literature review method by examining research journals from several databases using specific keywords and criteria within the last five years (2020–2025). The search yielded 15 journals related to riding safety among online motorcycle taxi drivers. The journals reviewed were scientific health journals registered with ISSN, sourced from databases such as Google Scholar, DOAJ, and ResearchGate. The results of the literature review indicate that the factors contributing to accidents are influenced by a lack of concentration and the pressure to meet daily income targets. These conditions encourage online motorcycle taxi drivers to take greater risks while riding, thereby increasing the potential for accidents.

Keywords: *Safety Riding, Behavior, Online Motorcycle Taxi*

INTRODUCTION

The development of the transportation system in Indonesia in recent years has shown significant progress (Amak et al., 2020). also supported by technological advancements. This transportation development has caused a continuous annual increase in vehicle volume. Motorcycles are the type of vehicle experiencing the most growth. Based on data from the Central Statistics Agency (BPS), the number of motorized vehicles reached 115,023,039 in 2020, with the highest annual increase recorded at 120,042,298 in 2021. This growth in the number of motorcycles occurred across various regions in Indonesia, including South Sumatra. The increase in the number of vehicles has led to more traffic congestion and accidents (Berlicia & Camelia, 2023). According to Untoro & Lestari (2024), although drivers have a relatively high level of knowledge, it is still insufficient to create safe driving behavior without regular training and continuous counseling provided by companies or relevant agencies (Untoro & Lestari, 2024).

One such issue is the lack of driver concentration while riding (Nasution &

Irwansyah, 2023). Therefore, safety and security are important aspects that must be considered when riding on public roads, whether by drivers of four-wheeled vehicles or more, especially by two-wheeled vehicle users. Motorcycles have become the main mode of daily transportation for Indonesians, such as online motorcycle taxis (Septiari et al., 2022).

The high rate of traffic accidents is influenced by symptoms of fatigue, with drowsiness being the dominant issue experienced by online motorcycle taxi drivers (Rahmawati, Azwar, 2025). Additionally, the pressure to meet daily income targets and demands from passengers is a significant factor that affects the prioritization of work safety among online drivers. These conditions can lead drivers to take higher risks just to achieve the expected income, which ultimately affects their riding behavior (Djunaidi et al., 2024). Nasution & Irwansyah (2023). Stated that using GPS (Global Positioning System) while holding the handlebar or using a phone holder can distract the rider as they are occupied looking at the phone. This behavior not only endangers the driver but also threatens the safety of passengers and

other road users (Nasution & Irwansyah, 2023).

The lack of monitoring and training related to safety riding is another issue. Drivers who receive safety riding training and meet competency standards are more capable of managing traffic, improving riding safety, discipline, and compliance with traffic rules (Berlicia & Camelia, 2023).

According to Abdullah et al. (2022) technological innovations are needed to raise awareness and compliance regarding helmet use. In their study, Dahlan Abdullah and his team designed a helmet detection system based on Arduino Uno to ensure that riders wear helmets before the vehicle can be operated (Abdullah et al., 2023).

METHOD

This study employs a literature review method, wherein the research involves a series of steps by collecting various information from journal articles to identify relevant theories and ideas, which are then used to formulate findings aligned with the research objectives. The databases used for the literature search include Google Scholar, DOAJ, and ResearchGate. The keywords used in this literature search were “Safety

Riding,” “Online Motorcycle Taxi,” and “Driving Behavior.” The literature reviewed spans the years 2020 to 2025. This research was conducted from April to May 2025. This study has gone through the FKM UMJ ethical review process with the ethical review number 10.050.C/KEPK-FKMUMJ/V/2025. The literature review in this study was carried out to draw conclusions related to concentration and driving compliance in relation to the risk of accidents among online motorcycle taxi drivers. Several reviewed articles were then reduced and are presented in a table below.

RESULTS AND DISCUSSION

The examination of 15 journals revealed that several criteria—such as attitude, compliance, knowledge, and the likelihood of accidents—are related to safety riding among online motorcycle taxi drivers. The uncertainty in riding behavior was explained in several studies. According to the univariate study by Nusa et al. in 2021, the highest percentage of respondents among the 75 participants, namely 53.3%, were found to engage in risky riding behavior. Furthermore, the majority of respondents were older adults (52%), had extensive knowledge (65.3%), demonstrated good

attitudes toward riding safety (53.3%), and equipment (PPE), which accounted for had not yet used all personal protective 66.7% of the sample (Nusa et al., 2021)

Table 1 List of Literature Used in Research

No	Writer	Research Title	Publications and Years	Conclusion
1	Renny Septiari, Nelly Buduharti, Mochammad Rofieq	The Influence of Safety Riding Knowledge on Online Motorcycle Taxi Drivers in Malang City	ITN Malang, National Seminar, July 2022	This study examines the level of knowledge about safety riding among online motorcycle taxi drivers in Malang City. A survey of 20 respondents revealed that 45% of drivers had good knowledge, 35% had sufficient knowledge, and 20% had poor knowledge. The study identifies several causes of low awareness regarding safe riding, including dangerous behaviors such as the absence of a driving license, using mobile phones while riding, and riding at excessive speeds without paying attention to traffic signs. Therefore, there is a need for increased education and supervision to enhance awareness and compliance with safe riding regulations.
2	Ridha Farida Tasya, Irma Akifah	Factors Associated with Safety Riding Awareness Behavior among Maxim Online Motorcycle Taxi Drivers in Kendari City, 2023	Public Health Journal (e-Journal), Volume 11, No. 2, March 2023	This study has respondents aged 17-25 years (51%), with all respondents being male (100%). The study suggests that safety riding behavior can be significantly improved through continuous socialization and training. Active participation in organizing safety riding training at least once a month for all drivers is essential.
3	Ida Berlicia , Anita Camelia	The Relationship between Knowledge Level and	Health Information: Research Journal, Volume 15, No. 3, September-December 2023	This study highlights the importance of the relationship between knowledge level and perception of safety riding among online motorcycle taxi drivers in Palembang City. It

		Perception and Safety Riding Behavior among Online Motorcycle Taxi Drivers in Palembang City		was found that the higher an individual's knowledge and perception of road risks, the better their safety riding behavior. The recommendations from this study include the need for online motorcycle taxi companies to provide more targeted and regular training, as well as to periodically socialize safety regulations. Furthermore, the use of personal protective equipment (PPE), such as helmets, safety jackets, and gloves, should be mandatory and strictly monitored. Education and control by the company are expected to foster a culture of safe riding, responsibility, and adherence to traffic regulations to reduce the risk of accidents.
4	Nethia Kenli Untoro, Dewi Indah Lestari	The Relationship between Knowledge Level and Safety Riding Behavior among Online Motorcycle Taxi Drivers in Jakarta City	Permas Scientific Journal: STIKES Kendal Scientific Journal, Volume 14, No. 1, January 2024	The findings of the study indicate a strong correlation between safe riding practices of online motorcycle taxi drivers and their level of knowledge about safety riding. Higher awareness of safety riding concepts, such as the importance of wearing helmets, obeying traffic signs, and maintaining a safe speed, tends to lead drivers to engage in safer behaviors. According to this study, increasing safety riding awareness and encouraging safe behavior among online motorcycle taxi drivers can reduce the likelihood of them being involved in traffic accidents.
5	Muhammad Alvin Septiandy,	Smartphone Distraction and Driving Behavior among Online	Guidance and Counseling Journal, Volume 9, No. 2, April 2025	This study shows that notifications, apps, and interactions with mobile phones often distract online

	Jusuf Tjahjo Purnomo	Motorcycle Taxi Drivers		motorcycle taxi drivers from their driving tasks. These distractions lead to a lack of focus and increase the likelihood of collisions for both drivers and other road users. According to the correlational hypothesis, there is a positive correlation of 0.537 with a significance level of 0.000 ($p < 0.005$). This indicates that driving behavior and distractions caused by smartphones are interrelated.
6	Zulkifi Djuandi, Agra Mohamad Khawali, Azka Hafia, Nadya Putri	Daily Income Targets and Passenger Pressure on Safety Risky Riding Behavior Among Online Motorcycle Taxi Rider in Jakarta, Indonesia	National Public Health Journal, Volume 19, Issue 1, 2024	This study reveals that daily income targets and pressure from passengers significantly influence risky driving behavior among online motorcycle taxi drivers in Jakarta. The drive to achieve a certain income within a limited time often leads drivers to neglect safety aspects, such as ignoring traffic signs or speeding. Additionally, pressure from passengers who demand speed or punctuality exacerbates the driving risks. Therefore, a multidimensional approach is needed, including safety riding education, intervention from online motorcycle taxi companies, and government policies that support the well-being of drivers without compromising safety.
7	Nurhasanah Nasution, Irwansyah	Enforcement of Online Motorcycle Taxi Drivers' Compliance with Traffic Regulations: A Legal Analysis of Mobile Phone Use	EDUCATIO: Indonesian Journal of Education, Volume 9, No. 1, 2023	This study discusses the application of law based on Law Number 22 of 2009, specifically examining the enforcement of regulations against online motorcycle taxi drivers using mobile phones while operating motor vehicles in Medan City. The results

		While Driving under Law Number 22 of 2009		show that although the police have imposed fines on violators, many drivers are still unaware of the risks involved. The use of mobile phones while driving is highly risky for both the driver and other road users. To strengthen supervision of violations, this report recommends increasing patrols, educating drivers about regulations, and utilizing surveillance tools such as CCTV. To create a safe and orderly driving environment, strict and continuous law enforcement is required.
8	Dahlan Abdullah, Badriana, Misbahul Jannah, Dewi Rahayu, Bambang Setiaji, Cut Ita Erlina	Helmet Detection Device for Motorcycle for Safet Riding Porpeus	Majlesi Journal of Electrical Engineering, Volume 17, No. 3, September 2023	This study shows that helmet detection devices for motorcycles can be an effective solution in improving road safety. The use of technologies such as sensors or cameras to detect whether the driver and passenger are wearing helmets can reduce the risk of accidents and violations of traffic safety regulations. The analysis results indicate that the implementation of this device not only has the potential to reduce accident rates but can also support stricter safety policies in transportation, especially in countries with low compliance rates for helmet use. In the future, this device can be upgraded with more advanced technology to improve detection accuracy and user acceptance.
9	Salsabils Nur Aulia, Bina Kurniawan, Ida Wahyuni	Factors Associated with Safety Riding Behavior among Online	Public Health Journal (e-Journal), Vol. 8, No. 5, September 2020	This study found that the majority of online motorcycle taxi drivers in Semarang have safe riding behavior. The most influential factors include

		Motorcycle Taxi Drivers in Semarang City		good knowledge of safety riding, a roadworthy motorcycle condition, and adherence to the use of personal protective equipment such as helmets and protective jackets. However, factors such as driving experience, participation in training, and personal motivation were found to have less impact on riding safety. This indicates that regular monitoring of both vehicles and drivers by the motorcycle taxi company is crucial. Furthermore, education should focus on practical and tangible aspects that directly affect riding safety.
10	Rahawati, Ade Geovania Azwar	Subjective and Objective Fatigue Analysis among Online Motorcycle Taxi Drivers in Bandung City	ReTIMs Journal, Volume 6, No. 2, 2025	Based on the research findings and analysis conducted, the researcher can draw conclusions about the impact of work fatigue and drowsiness on online motorcycle taxi drivers in Bandung City. The IFRC method shows that online motorcycle taxi drivers experience subjective work fatigue of 60% before working and 67% after working. Based on the CVL technique, the percentage of respondents who did not experience work fatigue is less than 30%. Using the KSS approach, the degree of drowsiness after working was 57% high and 77% low before working.
11	Martika Dini Syaputri, Dian Ety Mayasari	Improving Riding Safety Awareness among Online Motorcycle Taxi Drivers in Surabaya	J-ADIMAS (Journal of Community Service), Volume 9, No. 2, December 2021: 96-105	The high number of traffic accidents and violations committed by online motorcycle taxi drivers in Surabaya indicates a lack of awareness and discipline in traffic regulations. Although

				there are regulations such as the 5K principle (Safety, Security, Comfort, Affordability, and Orderliness), many online motorcycle taxi partners have not implemented them effectively, even risking losing their partnership due to violations. Therefore, efforts in providing counseling and socialization about safety riding and the applicable legal regulations are crucial to raise legal awareness and encourage partners to become pioneers of traffic safety, in order to reduce violations and accidents on the road.
12	Shanon Trivena Nusa, Deasy Febrianty, Mitra Dwi Rahmah Rusdy	Factors Associated with Safety Riding Behavior in the Online Motorcycle Taxi Community in Bekasi City	Health Publica Journal, Volume 2, No. 2, November 2021	The aim of this study is to examine variables related to safe riding practices in the online motorcycle taxi community in Bekasi City. Purposive sampling was used to select a sample of 75 respondents for this cross-sectional study. The chi-square test was used for univariate and bivariate data analysis. The majority of respondents (53.3%) were involved in risky behaviors. The oldest age group had the largest percentage (52%), followed by the highest skill level (65.3%) and disposition (53.3%). Additionally, there was a statistically significant correlation between attitudes and safe riding behavior ($p = 0.002$) for partial PPE use (66.7%), with negative drivers being 2.12 times more likely than positive drivers to not engage in safe riding.

13	Bryanza Amak, Nancy SH Malonda, Paul AT Kawatu	The Relationship between Safety Riding Behavior of Online Motorcycle Taxi Riders and Traffic Accident Incidents in Manado City	Indonesia Journal of Public Health and Community Medicine, Volume 1, No. 1, January 2020	This study examines the relationship between safety riding behavior and traffic accidents among online motorcycle taxi drivers in Manado City. Based on the data collected, no significant relationship was found between the two. However, these results do not imply that safe riding behavior is not important. On the contrary, this study highlights that traffic accidents are complex events influenced by many factors, such as road conditions, weather, other drivers' errors, and technical neglect of vehicles. Therefore, although no strong statistical relationship was found, this study still recommends that safety riding behavior be consistently instilled in every driver. It is essential to expand the traffic safety approach holistically, including infrastructure monitoring, road quality improvements, strict law enforcement, and enhancing drivers' capacity through routine training and safety mindset development. This will contribute to reducing accident rates, even though many interrelated factors are at play.
14	Anisaa Mawardani	Factors Affecting Safety Riding Behavior among Online Motorcycle Taxi Drivers in the Baung Sepat 77 Community	Health Research Journal Suara Forikes, Volume 14, No. 1, January 2023	This study found that knowledge, attitudes, perceptions, and the role of coworkers all influence the safe riding behavior of online motorcycle taxi drivers in the Baung Sepat 77 community. However, work duration and age did not have an impact. Therefore, their riding

				behavior would be safer if they better understood, cared about, and received assistance from their peers.
15	Reza Yudhistira Pratama, Herry Koesyanto	Traffic Accidents Involving Online Motorcycle Taxi Drivers	Higeia Journal of Public Health Research and Development, Volume 4, Special Issue 1, 2020	This study reveals that many online motorcycle taxi drivers have been involved in accidents due to fatigue, working too long, using their phones while driving, and not adhering to regulations. They also often neglect to use safety gear. As a result, their safety riding behavior is still not adequately prioritized.

The findings strengthen the idea that education alone is not enough. A more comprehensive approach is needed, including regular training and the implementation of safety-based technologies. One such innovation is the Arduino Uno-based helmet introduced by Abdullah et al. (2022) his innovation aims to ensure that online motorcycle taxi drivers wear helmets before operating the vehicle, thus reducing the risk of accidents (Abdullah et al., 2023). In addition, using smartphones while riding directly disrupts the driver's concentration, increasing the risk of fatal accidents (Septiandy et al., 2025).

The study by Aulia et al. (2020) found that several variables—including time spent riding, level of riding training, rider knowledge, vehicle condition, and the use of

personal protective equipment (PPE)—influence safe riding behavior. Although most respondents had undergone training and had long riding experience, these factors were not directly associated with safe riding behavior. This aligns with the finding that education or experience alone is insufficient without supporting facilities and internal driver awareness (Aulia et al., 2020).

The essential equipment for riding includes the use of Personal Protective Equipment (PPE), which serves to protect riders from the risk of injury or exposure to hazards while on the road. The availability of PPE is a crucial factor that supports safe riding behavior. In other words, although predisposing factors such as knowledge and attitude play an important role, the presence of adequate facilities is also necessary to

encourage such behavior. Indonesian National Standard (SNI) helmets, protective clothing, gloves, goggles, and shoes that cover the feet up to the heels are the types of PPE used by drivers in this study. This equipment is intended to protect drivers from potential dangers that could threaten their safety on the road (Tasya et al., 2023).

Accidents do not occur without reason; they are caused by several specific factors. Therefore, it is important to analyze and identify the causes of accidents in order to implement appropriate preventive measures. Contributing factors include human error and mechanical failure (Pratama & Koesyanto, 2020). Hence, the role of coworkers in reminding each other about vehicle conditions, personal protective equipment, and other safety-related matters—both before and during riding—is crucial (Mawardani, 2023). In addition, online transportation service providers have essentially provided education to online motorcycle taxi drivers regarding traffic rules as well as the attitudes and behaviors they should and should not exhibit. Drivers can access this information through the academy feature provided by the service platform, which aims to improve

service quality for customers (Syaputri & Mayasari, 2021).

CONCLUSIONS AND SUGGESTIONS

Based on a literature review of 15 analyzed journals, it can be concluded that safety riding among online motorcycle taxi drivers is influenced by various factors, including attitude, compliance with traffic regulations, level of knowledge about road safety, and the complete use of personal protective equipment (PPE). In addition to these individual factors, risk factors such as work fatigue, pressure to meet daily income targets, smartphone use while riding, and demands from passengers also contribute to the increased risk of accidents. Although most online motorcycle taxi drivers possess adequate knowledge and a positive attitude toward safety, unsafe behaviors are still frequently observed in practice. This indicates that knowledge alone is not sufficient to foster safe riding behavior. Continuous safety riding training, regular outreach, strict monitoring of PPE usage, and technology-based approaches are necessary to enhance drivers' awareness and compliance.

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