Determinants of Minors Motorcycle Riders

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Abstract: Underage riders have a higher risk of injury compared to older riders. In January 2024, there were 11,565 road accidents nationwide, with 4,464 accidents (32.4%) involving teenage riders. In Semarang City, there were 1,339 road accidents in 2023. The decision of underage children to ride a motorcycle was influenced by various factors. The aim of this study was to determine the variables associated with underage motorcycle use. This study was an analytical observational study with a cross-sectional approach. The sample of this study consisted of 447 respondents. The data were collected using an online questionnaire, which was then analyzed using the Chi-square test. The results showed that the variables of gender (p=0.001), parental permission (p=0.000), parental monitoring (0.000), peers influence (0.000) and motorcycle facilities (p=0.000) had a statistical relationship with underage motorcycle use. On the other hand, the variable parental education (p=0.396) has no significant relationship with underage motorcycle use. Peers are the factor that most influences the underage to use motorcycles.

Keywords: unsafe driving, underage riders

INTRODUCTION

Road traffic injuries are the eighth leading cause of death in all age groups. Traffic crashes are currently the leading cause of death for children and young adults aged 5-29 years (World Health Organization, 2018). According to Global Burden of Disease data estimates, 34,000 children aged 5-14 years died as a result of traffic crashes in 2017 with 25,000 (74%) of those deaths being child pedestrians (Institute for Health Metrics and Evaluation, 2019). In many low- and middle-income countries in Asia, the number of deaths and injuries increases annually (Wismans et al., 2016).

The number of traffic accidents in Indonesia in 2022 was 139,258 with victims including 28,131 deaths, 13,364 serious injuries, and 160,449 minor injuries (BPS Indonesia, 2024). Motorcycles have become the main mode of transportation in South Asian countries such as Indonesia, Singapore, Thailand, and Malaysia (Susilo et al., 2015). Based on the data recapitulation of the Integrated Road Safety Management System (IRSMS) of the Korlantas Polri, there were 11,565 cases of national crashes throughout January 2024, it was also recorded that 4,464 cases of crashes, aka 32.4 percent, were contributed by teenage drivers (Kompas, 2024).

Based on Badan Pusat Statistik (BPS) Provinsi Jawa Tengah data, the number of traffic accidents in 2023 was 31,425 with 4,300 fatalities, 60 serious injuries, and 36,915 minor injuries (BPS Jateng, 2024). The phenomenon of traffic violations by minors often occurs in Central Java. Based on the data, in 2023 there were 15,321 children under the age of 15 who were recorded as traffic offenders (Tribratanewssura, 2024). The number of traffic accidents in Semarang City in 2023 was 1,339 with 200 fatalities, 4 serious injuries, and 1,437 minor injuries (BPS Jateng, 2024). A 15-year-old student reportedly crashed to death while driving on Jalan Mayjend Sutoyo, Semarang, on March 8, 2023 (Tempo.co, 2023).

The incidence of traffic accidents is associated with risky behavior when riding a motorcycle, such as not having a driver's license (AkliluToma et al., 2021). Every person who drives a motor vehicle on the road is required to have a driver's license in accordance with the type of motor vehicle being driven. The age requirement for owning a driver's license for a motorcycle is at least 17 years old (Pemerintah RI, 2009). Factors such as parental permissiveness and peer influence make underage driving more prevalent in Indonesia (Nurlia et al., 2017). Several prevention programs must be implemented to prevent minors from riding motorcycles. Thus, it is necessary to study the factors that influence minors to ride motorcycles. The purpose of this study was to determine the variables associated with motorcycle use in minors.

METHOD

This study was an analytic observational study with a quantitative approach using a cross-sectional design. The research was conducted in July 2024 in Semarang City. The research sample in this study amounted to 447 respondents. Respondents in the study were students from SMP N 5 Kota Semarang (148 respondents), SMP N 38 Kota Semarang (109 respondents), SMP N 8 Kota Semarang (101 respondents), SMP N 31 Kota Semarang (47 respondents), and SMP N 2 Kota Semarang (42 respondents).

The research data is primary data obtained with a research instrument in the form of an online questionnaire in the form of a google form. The independent variables in this study are gender, parental permission, assistance from parents, riding peers and motorcycle facilities. Then the dependent variable in this study is the use of motorbikes in minors. The analysis was carried out in the form of univariate, bivariate and multivariate analysis. The statistical test used in the study was chi-square with a 95% confidence level with a significance value of 0.05. Fisher exact test was used as an alternative test. The statistical tool used was IBM SPSS Statistic 23.

RESULTS

The characteristics of respondents in this study have an age range ranging from 12 years to 16 years. The majority of respondents were 14 years old at 58% with a total of 261 respondents. Based on the results of the univariate analysis presented in Table 1, the highest number of respondents were female at 57% and male respondents at 43%.

Tabel 1. Univariate Analysis Result

Variable	Categories	Frequency	Percentages (%)
Age	12 years old	3	1%
	13 years old	102	23%
	14 years old	261	58%
	15 years old	77	17%
	16 years old	4	1%
Gender	Male	191	43%
	Female	256	57%
Parental permission	Permitted	233	52%
	Not permitted	214	48%
Parental education	Yes	433	97%
	No	14	3%
Parental monitoring	Yes	361	81%
	No	86	19%
Pees influence	Yes	199	45%
	No	248	55%
Motorcycle facilities	Facilitated	187	42%
	Unfacilitated	260	58%
Motorcycle Use	Ride	158	35%
	Not ride	289	65%

The results showed that there were 158 (35%) respondents, namely minors who had ridden a motorcycle. Thus, 35% of respondents in this study rode motorcycles even though they did not have a driver's license due to driving when they were under the minimum age.

Tabel 2. Bivariate Analysis Result

Variable	Motorcycle Use				Total		p-value	PR (95%CI)
	Ride		Not Ride					
	F	%	F	%	F	%		
Gender								
Male	84	44.0	107	56.0	191	100.0	0.001	1.521 (1.185-1.954)
Female	74	28.9	182	71.1	256	100.0		
Parental permission								
Permitted	51	21.9	182	78.1	233	100.0	0.000	0.438 (0.332-0.578)
Not permitted	107	50.0	107	50.0	214	100.0		
Parental education								
Yes	3	21.4	11	78.6	14	100.0	0.396*	0.599 (0.218-1.645)
No	155	35.8	278	64.2	433	100.0		
Parental monitoring								
Yes	15	17.4	71	82.6	86	100.0	0.000	0.440 (0.273-0.710)
No	143	39.6	218	60.4	361	100.0		
Peer influence								
Yes	142	71.4	57	28.6	199	100.0	0.000	11.060 (6.830-17.911)
No	16	6.5	232	93.5	248	100.0		
Motorcycle facilities								
Facilitated	95	50.8	92	49.2	187	100.0	0.000	2.097 (1.621-2.711)
Unfacilitated	63	24.2	197	75.8	260	100.0		

*using fisher exact test

Gender is associated with motorcycle use among minors. The results in Table 2 show that the majority of minors who ride motorcycles are male with 84 respondents. The results of the bivariate analysis obtained a p-value=0.001 which means less than 0.05. Thus it can be concluded that gender has a significant relationship with motorcycle use in minors. The results show that respondents with male gender are 1.521 times more at risk of riding a motorcycle underage than female students.

Parental permission has a relationship with motorcycle use in minors. Based on Table 1, the majority of parents give permission for their children to use motorcycles. A total of 233 (52%) respondents obtained permission from their parents. Table 2 shows that the pvalue <0.05 so it is concluded that there is a significant relationship between parental permission and motorcycle use in minors. Respondents whose parents allowed them to ride a motorcycle were 0.438 times more likely to ride a motorcycle underage than students whose parents did not allow them.

Parental education is not associated with motorcycle use among minors. The majority of respondents, 433 (97%), stated that they received education from their parents regarding traffic safety. The statistical test results show that education from parents does not have a significant relationship with motorcycle use. This is concluded based on Table 2 which shows p-value=0.397 which is more than 0.05. It was found that 155 respondents received education from their parents but still rode motorcycles underage.

Parental monitoring is related to motorcycle use in minors. Based on Table 2, the majority of respondents who did not ride motorcycles underage were respondents who received supervision from their parents, namely 218 respondents. Statistical tests between parental supervision variables and underage motorcycle use obtained a p-value of 0.000. P-valeue is less than 0.05, which means there is a significant relationship between parental supervision and motorcycle use in minors. The results stated that respondents who did not get their parents' assistance were 0.440 times more likely to ride a motorcycle underage than students whose parents did not allow them.

Peer influence has a relationship with motorcycle use in minors. The results found that the majority of respondents (142) who ride underage have peers who also ride. Statistical test results show that peer influence has a significant relationship with underage motorcycle use (p-value=0.000). Respondents who have peers who also ride are 11.060 times more likely to ride a motorcycle underage than students who do not have peers who ride.

Motorcycle facilities are associated with motorcycle use in minors. The results showed that there were 95 respondents who were facilitated with motorcycles who then rode them. In addition, 197 respondents who were not facilitated with motorbikes did not ride motorbikes. The results of the bivariate analysis obtained a p-value=0.000 which means less than 0.05. So it can be concluded that motorcycle facilities are significantly related to motorcycle use in minors. The results show that respondents who are facilitated motorcycles by their parents are more at risk 2.097 times to ride a motorcycle underage than students who are not facilitated motorcycles.

DISCUSSION

Male children tend to have more potential to ride motorcycles underage compared to female children. The results of the study are in line with research by Chumpawadee (2015) yang which states that men are more likely to engage in risky behavior of motorcycle accidents compared to women. In addition, the results of research (Ahmad et al., 2022) state that men have a higher

accident involvement in both traffic accidents and near-miss accidents than female respondents. Gender has a significant influence on reporting deviant driving behavior (Chouhan et al., 2021).

Children who are allowed by their parents will potentially become underage motorcyclists. Research by (Kusumastutie et al., 2021) found that the proportion of parents who allowed their children who could drive to drive was 64.3%. The licensing factor from the family or parents affects minors already using motorbikes (Marwantika & Marwantika, 2020). Parents allow their children to ride even though they do not have a license because it is socially acceptable and preferred by adolescents (Nguyen et al., 2023). This study has not further examined the factors that influence respondents' parents to give permission. Given the young age and risk of danger, parents should not give their children permission to ride a motorcycle.

The findings of this study, education from parents is not related to underage motorcycle use. Although children receive education about traffic safety, they still ride underage. Researchers assume that children continue to ride motorbikes even though they know about the risks. The role of parents in improving adolescents' traffic discipline includes the role of an educator, namely providing teaching about traffic ethics, traffic procedures and driver obligations when driving, and instilling aspects of traffic discipline (Firdah Rusdiana & Setyowati, 2016). Thus, it is necessary to evaluate the education provided.

Children under the supervision of their parents are less likely to ride a motorcycle underage. The most dominant role of parents in fostering orderly traffic behavior is the role of supervision (Ningrum et al., 2024). This is because minors continue to drive two-wheeled vehicles on the highway due to weak parental supervision (Agustina & Fauzi, 2022). Lack of parental supervision makes adolescents more likely to engage in risky behavior (Soh et al., 2018). In addition, the lack of parental supervision of children is one of the obstacles in overcoming violations of school children driving without a license (Adhitama Nasution & Hatta, 2023).

Peer influence increases the chances of minors riding motorcycles. Research by Salsabila & Yusra (2023) obtained similar results, namely that there is a very significant positive relationship between peer conformity and risky driving behavior in adolescent motorcyclists. Peer influence is a dominant factor in predicting the risky behavior of motorcyclists (Borhan et al., 2018). Some studies also link adolescent risky behavior with independence or peer influence (Van Hoorn et al., 2017). Peer influence makes children to ride also to fit the social norms in their friendship.

Children who are facilitated with motorcycles are more likely to ride underage. However, there are still parents who knowingly give their children motorcycles. Parents view motorcycles as

useful and easy to use (Nguyen et al., 2023). Based on the results of research (Anggraeni & Pinasti, 2019), parents actually facilitate children with private vehicles on the grounds that parents are busy working and do not have time to take their children to school. Apart from the reason to make it easier for children to travel, parents should not facilitate children with motorbikes because they are not old enough.

CONCLUSION

Minor motorcycle use is influenced by gender, parental permission, parental supervision, peer influence, and motorcycle facilities. No relationship was found between education from parents and underage motorcycle use. Peers are the most influential factor for minors to ride motorcycles. It is necessary to approach parents and peers to reduce the number of minor riders.

Conflict of Interest

The authors declare that they have no conflict of interest.

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