

Mobile Phone Use Behaviour of Taxi Riders: A Field Experiment

Fita Permata Sari, Gradiyan Budi Pratama and Ari Widyanti

Department of Industrial Engineering

Institut Teknologi Bandung

Indonesia

sarifita79@gmail.com, gradiyan@gmail.com, widyanti@ti.itb.ac.id

Abstract

The use of mobile phones while riding is one of the major causes of road accidents. Despite of its danger, the use of mobile phones while riding is still widely found in Indonesia, especially among taxi riders because it is perceived as an important and beneficial activity since they rely much on the mobile application to do their job. The purpose of this study is to assess the behaviour of taxi riders when using a mobile phone while riding. The research was conducted by observing 125 taxi riders in Bandung, one major city in Indonesia. The results show that the most activities carried out on mobile phone while riding were the use of GPS (44.8%), sending messages (1.6%), and making phone calls (1.6%). Importantly, taxi riders' response to a telephone call are: 69.6% chose to ignore the call, 24.8% chose to pick up the telephone while riding, and 5.6% chose to pull over before picking up the call.

Keywords

Mobile Phone Use While Riding, Riding Behaviour, Taxi Rider.

1. Introduction

Indonesia is one of developing countries which relies on motorcycle as a dominant mode of transportation. According to WHO data (2013), Indonesia is the 3rd country with the largest motorcycle population in Asia. The high number of motorcycles is reasonable as motorcycle offers flexibility and mobility with affordable price. Not to mention, technological innovation which led to the emergence of application-based motorcycle is very tempting for many motorcycle users in Indonesia. However, the high use of motorcycles in Indonesia is also followed by a high rate of accidents. According to the Republic of Indonesia State Police Traffic Corps (2018), the highest number of traffic accidents were experienced by motorcyclist, which in 2018 there were 37,059 cases with 28,000 fatalities. In other perspective, there are three people die every hour due to motorcycle accidents. Injuries, deaths, and losses from these accidents cost around 3% of Indonesia's Gross Domestic Product.

The high accident rate of motorcyclist is caused by several factors. According to the Ministry of Communication and Information, the biggest factors causing traffic accidents are the human factors (61%), while there are also other contributing factors such as infrastructure and environment (30%) and vehicle factors (9%). Within the human factors, one of dominant issues which should be anticipated is the use of mobile phone while riding. Research reviews (Pérez-Núñez, et al. 2013) on various modes of transportation show that using a mobile phone while driving a car increases the risk of being involved in road accidents by four times greater (McEvoy et al. 2005). As for pedestrians, crossing the road while using a mobile phone increases the chance of being hit or nearly hit by a vehicle (Stavrinos et al. 2011; Nasar and Troyer 2013). Meanwhile, research on cyclists reported about 9 to 10 percent of cyclist accidents can be attributed to the use of portable electronic devices, including mobile phone (Goldenbeld et al. 2012).

Despite of being categorized as dangerous act, the use of mobile phone while riding is still widely found among riders in Indonesia. The results of observations conducted in Bandung, one of major cities in Indonesia, shows that the prevalence of mobile phone use while riding reached 42%, whereas the use of mobile phone among taxi riders shows twice compared to general motorcyclist. The high use of mobile phone among taxi riders might due to the nature of work which often requires them to check mobile phones on the road. In this case, the activity of using mobile phones while riding is considered to be a normal activity and is often carried out among groups of taxi riders and is an important part of their daily work. The use of mobile phones is also considered a communication tool which offers an important advantage in the work routine of this group.

Given the urgency to overcome the mobile phone use problem among taxi riders, unfortunately research related

to this is still rarely done in Indonesia. The purpose of this study is to assess the behaviour of taxi riders when using a mobile phone while riding. This research is expected to be able to evaluate what kind of mobile phone activities are mostly done by taxi riders. The results of this study are also expected to be used as a basis for further research related to the effects of mobile phone use activities on rider performance.

2. Methods

This study used two methods of assessment: direct observation and field experiment. The purpose of the observation is to find out the mobile phone activities done by taxi riders on the road. The experiments were intended to investigate the response of taxi riders when they found a phone call.

2.1. Participant

Participants in this study were taxi riders in Bandung, one of major cities in Indonesia. The number of participants in this study were 125 male motorcyclists, the age ranging between 20-50 years old.

2.2. Observation

Observer acted as a taxi riders' passenger and directly observed the taxi riders' activities on motorcycle, from the point of departure to the point of determined destination. During the observation, all mobile phone use activities were recorded by the observer using an observation form to record the activities of the driver. The form contains information related to the gender of the driver, how to use mobile phone while on a motorcycle (hand-held/hands-free), and mobile phone use activities (Global Positioning System/GPS, texting, and calling).

2.3. Field Experiment

The observer made a phone call directly to the taxi riders during the travel. In order to avoid the taxi riders, find out the purpose of treatment, the telephone number used to call the taxi riders is different from telephone number which was used to order the rider.

3. Results and Discussions

The results of observation on taxi riders show that 6.4% of riders use hands-held mobile phone, 59.2% use hands-free mobile phone, and 34.4% of riders do not use mobile phone while riding. The use of a hand-held mobile phone means the driver holds the mobile phone directly while driving, whereas the use of a hands-free mobile phone is the use of a mobile phone with assistive devices such as a holder. The practice of hands-free mode is more common because this method is perceived to be safer than the hand-held mode practice.

Table 1. Mobile phone use activity while riding.

Activity	Frequency	Percentage (%)
GPS	56	44.8
Send message	2	1.6
Make phone call	2	1.6
Does not use mobile phone	65	52

Table 1 shows the activities of the mobile phones use done by taxi riders during the travel. Data shows that 56% of riders use GPS while riding, 2% use mobile phones to send messages, 2% make phone calls and 65% of riders do not use mobile phone for any activities while riding. The possible reason to explain the fact is that taxi riders need GPS more often than other activities to support their work. They have to take the customer to the location they do not familiar with, so they need GPS to show the route. Another reason why they use GPS often is because they think that it is a common and safe action to do because they only look at the mobile phone occasionally in a short duration of time.

Regarding the telephone call, taxi riders show different responses. Table 2 shows the responses of taxi riders when found out a phone call. Data shows that 5.6% decided to pull over to take calls, 24.8% received calls while riding, and 69.6% chose to totally ignore phone calls. Based on direct observation and interaction with the taxi riders, the possible reason to explain why they tended to ignore the phone call was most likely because they were riding with the customers. Receiving the phone call while riding can be considered dangerous or made the customers felt uncomfortable which can influence the customer's assessment of the taxi rider's performance. If the customer gave a low rating of their performance, it will affect their bonus income. In addition, when there

was an incoming phone call, the taxi riders often asked the customers if they are the one who made the phone calls. If the customer disclaimed, then they did not pick up the phone call because they just wanted to ensure that they had been with the right customer. The taxi riders who chose to pull over to take the call might think that it was the safest method. Meanwhile, the taxi riders who choose to receive the call while riding might perceive that it is not a dangerous thing to do because they can maintain their riding performance or ride slower while picking up the phone call.

Table 2. Taxi riders’ response to telephone call.

Response to phone call	Frequency	Percentage (%)
Pulled over to take the call	7	5.6
Received call while riding	31	24.8
Ignored the call	87	69.6

The frequency of mobile phone use as a function of hands-held/hands-free and response to a call can be seen in Table 3. Further analysis using the chi-square test shows a significant relation between how to use a mobile phone when riding to the response to a phone call ($\chi^2(4) = 20.651, p = .000, p < .05$). The taxi riders who use mobile phones by hands are more likely to pick up phone calls, while riders who use the hands-free tools are more likely to ignore phone calls. The possible reason to explain the fact is that when using the mobile phone by hand, the position of the mobile phone is more convenient to receive incoming telephone calls. Whereas in the hands-free situation, the position of the mobile phone will be in the holder so that it will be more difficult for riders to pick up incoming phone calls. The interesting finding is that there were some riders who did not use mobile phones while riding (kept a mobile phone in a bag or pocket) but chose to receive calls while riding. However, the numbers of this group are relatively small.

Table 3. Frequency of mobile phone use as a function of hand-held/hands-free and response to a call.

		Response to the phone call		
		Pulled over to take the call	Received the call while riding	Ignored the call
How to use the phone	Hand-held	0	7	1
	Hands-free	3	18	53
	Does not use phone	4	6	33

4. Conclusion

The most widely used mobile phone usage activity among taxi riders is the use of GPS. When getting a phone call, even though most riders ignore the call, there is a tendency that the rider will still pick up the call while riding. This present study is the first study in Indonesia which observes the behaviour of taxi riders in relation to mobile phone use. Further research needs to be done to investigate the effect of mobile phone use activities to the riding performance and or accident.

References

- Goldenbeld, C., Houtenbos, M., Ehlers, E., and De Waard, D., The Use and Risk of Portable Electronic Devices while Cycling among Different Age Groups, *J. Saf. Res.*, February 2012, vol. 43, no. 1, pp. 1–8, 2012.
- McEvoy, S. P., Stevenson, M. R., McCart, A.T., Woodward, M., Haworth C., and Palamara, P., Role of Mobile Phones in Motor Vehicle Crashes Resulting in Hospital Attendance: A Case-Crossover Study, *B. M. J.*, July 2005, vol. 331, no. 7514, pp. 428, 2005.
- Nasar, J. L., and Troyer, D., Pedestrian Injuries due to Mobile Phone Use in Public Places, *Accid. Anal. Prev.*, August 2013, vol. 57, pp. 91–95, 2013.
- Pérez-Núñez, R., Hidalgo-Solórzano, E., Vera-López, J. D., Lunnen, J. C., Chandran, A., and Híjar, M., The Prevalence of Mobile Phone Use Among Motorcyclists in Three Mexican Cities, *Traffic Inj. Prev.*, December 2013, vol. 15, no. 2, pp. 148–150, 2013.
- Stavrinos, D., Byington, K. W., and Schwebel, D.C., Distracted walking: Cell Phones Increase Injury Risk for College Pedestrians, *J. Saf. Res.*, April 2011, vol. 42, no. 2, pp. 101–107, 2011.