

AMID COVID-19: P-HAILING RIDERS' BEHAVIOURS AND CONSEQUENCES TO THEIR SAFETY AND HEALTH

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Abstract: To date (July 2021), Malaysia is still battling with the Covid-19 outbreak. The Malaysian government has implemented non-pharmaceutical interventions (NPIs) such as social distancing, school closing, movement control order, and lockdown restriction with the aims to control thus flatten the curve infection rate. To ensure the continuity of businesses operation especially in food industries, business owners have started to advertise their menus online. Therefore, the number of motorcyclists as food riders is also increasing. Motorcycle is the preferred mode of transport for food delivery services. The objectives of this research are to assess their riding behaviours, highlighting the challenges encountered, and determine the factors that cause p-hailing riders to commit a traffic violation or involve in traffic crashes. The findings of this research could contribute to the body of knowledge and provide insights to the p-hailing service providers in designing the p-hailing module to ensure the safety of their riders.

Keywords: p-hailing, food delivery, rider, Covid-19, traffic safety

1. INTRODUCTION

Globally, 1.25 million fatal crashes occurred each year and the majority of the crashes involve powered two wheels (PTWs) such as motorcycles and these crashes need to be avoidable and could be prevented. This alarming number of fatalities required the attention of all parties towards PTWs and improvement of road safety policy to protect the lives (WHO, 2017). Government bodies such as the Ministry of Transport, Public Works Department, Malaysian Highway Authorities, and relevant associations need to implement the mitigation plan and reduce the number of road traffic crashes particularly involving motorcyclists in Malaysia. The statistics reported that motorcycle is the most demanding transportation in 2018 as much of 48% of total registered vehicles in Malaysia and approximately 46% in 2019. The motorcycle is preferable in developing countries because of its fast speed, high maneuverability, and low cost (Sano et al., 2005; Yellappan, 2011). Consequently, Royal Malaysia Police (see Table 1) recorded the highest involvement of motorcyclists in road fatalities crash in the country (JKJR, 2020). Other than road traffic crashes, motorcyclists are also exposed to environmental pollution such as noise, air, and vibration. Apart from travel, as in this new norm of e-commerce booming, motorcycles nowadays can be part of the business strategy and working environment either as a rental bike, food delivery, posts delivery, or security patrols.

Table 1. Numbers of Fatalities Crashes in Malaysia (JKJR, 2020)

Category	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	Total
Car	1,405	1,421	1,389	1,435	1,399	1,258	1,358	1,489	1,269	1,167	1,253	14,843
Motorcycle	4,067	4,036	4,169	4,178	4,294	4,179	4,203	4,485	4,348	4,128	3,959	46,034
Pedestrian	589	626	530	530	455	515	482	511	441	407	394	5,480
Bicycle	224	192	172	156	159	124	107	123	162	122	107	1,648
Bus	31	77	29	32	60	29	20	29	23	39	27	396
Lorry	213	202	247	194	210	221	223	186	199	192	182	2,269
Van	91	97	93	86	80	73	71	65	62	47	55	820
4x4	78	154	151	159	158	129	130	142	113	88	82	1,384
Others	47	67	97	147	100	146	112	122	123	94	108	1,163
Total	6,745	6,872	6,877	6,917	6,915	6,674	6,706	7,152	6,740	6,284	6,167	74,049

Currently, in Malaysia, there is a new group of motorists that are working for online food delivery services (p-hailing). Among the p-hailing provider is Food Panda which is the first delivery company that started aggressively in Malaysia. Other p-hailing companies such as Grab Food, Deliver Eat, Bungkus it, Honest bee, Food Time, Lalamove, Dahmakan, and Shogun2U. Most of these p-hailing services are concentrated in urban cities such as Kuala Lumpur, Klang Valley, Penang, and Johor Baharu (Lau et al., 2019). Unfortunately, as this nature of work is quite new in Malaysia, the available knowledge-based data is quite limited. Therefore, it is very hard to find the appropriate information on the impact of safety and health on this profession. In addition, the motorcycle is the preferred mode of transport for delivery services as they can travel faster than other vehicles to beat traffic congestion and shorter time to deliver the goods (Kudasz, 2010). Presently, the best transportation use by a p-hailing service is a motorcycle due to the lightweight vehicle, short travel time, fuel-saving, ease to maneuver and squeeze in between vehicles, and ease to park. This mode of transportation has been used by the majority of the food industries that providing delivery services (i.e. vendors), such as restaurants, fast food restaurants, and local street food stalls to obtain more orders and sales. The food riders can easily come and collect the food from the respective vendor and deliver it to the customers' houses. The current situation with the Covid-19 pandemic is also made the food delivery service in higher demand.

Table 2 shows the statistic on the numbers of fatalities by age group and the youngsters aged 16 to 25 are the highest casualties recorded in Malaysia. According to Byun et.al (2017), most of the p-hailing services are youth workers. The lower requirement to become p-hailing riders makes these young motorcyclists choose this profession, some of them may start the delivery work without much experience (Shin et al., 2018; Novis et al., 2007). Most of the time spent on p-hailing riders is on the road, even not in a good weather condition or any type of road, they are still required to deliver the food to customers (Khamis et al., 2016, Kudasz, 2010). There are many road hazards that riders will face during their deliveries such as potholes, undulating, damaged road, utility opening, unwanted material on the road, faded road markings, and garbage. Thus, this type of occupation needs to have a guideline to prevent any more road traffic crashes involving p-hailing riders (Byun et al., 2017).

Table 2. Numbers of fatalities by age group (JKJR, 2020)

Age	2011	2012	2013	2014	2015	2016	2017	2018
0-5	0	0	0	0	0	0	0	0
6-10	0	1	4	3	13	14	13	12
11-15	183	272	227	225	249	266	260	245
16-20	900	808	829	777	790	846	830	781
21-25	479	844	780	611	594	634	621	584
26-30	353	503	475	330	330	352	345	325
31-35	256	289	244	279	307	328	321	302
36-40	184	191	216	315	251	268	262	247
41-45	191	121	188	189	195	208	204	192
46-50	199	143	184	204	194	207	203	191
51-55	189	126	207	186	199	213	208	196
56-60	171	117	150	167	123	131	128	120
61-65	264	104	162	174	172	184	180	169
66-70	126	99	82	134	196	209	205	193
71-75	109	84	76	106	111	119	116	109
>75	109	49	51	80	92	98	95	89
Total	3,717	3,751	3,875	3,780	3,816	4,077	3,991	3,755

The stress and intensity of p-hailing riders will be higher during breakfast time, lunch hour, dinner, and weekend. During this time, the riders are chasing commissions by delivering more foods to customers. Thus, most of them intend to exceed the speed limit, overtake at the double line, not following traffic signals, red runner, and improperly weaving through traffic (Chung et al., 2013, Byun et al., 2017, Novis et al., 2007). They have to deliver the food to the customer while the food is still hot (Kudasz, 2010). The more delivery they made, the higher the commission or income they can get. The volume of delivery to achieve certain commission can make the riders prolonged their working hours and exposed to safety and health hazards such as human errors (e.g. traffic violation, fatigue, slips), vehicle malfunction (e.g. brake, chain dislodge), and environmental hazards (e.g. air pollution, road defects, etc).

Previous studies show that majority of p-hailing riders will feel discomfort on the lower back and fatigue after long hours of riding (Khamis et al., 2016). They tend to move more frequently when they feel discomfort while riding. They also will counter white finger conditions after a long hour of handling the motorcycle (Khamis et al., 2016). When the p-hailing riders feel discomfort, they intend to lose focus on their delivery works. This also can cause major health and psychological effects among motorcyclists in the long term (Yellappan, 2011). Prolonged riding could cause discomfort to their arm as most of the motorcycles in the market are not equipped with arm posture support. Riding motorcycles without armrests can cause adverse health and psychological effects among motorcyclists in a long term (Nabilah, 2015). In addition, they are relatively more exposed to sitting posture hazards compared to the other vehicle occupants. Drivers for other vehicles such as van, lorry, and car, they can lean their body to the back-support seat and rest their arm during driving (Nabilah, 2015). The right riding posture and resting time are very important to the rider's health. When the rider feels discomfort, they will lose their focus during riding. The rider will feel sleepiness, exhaustion, and boredom, these types of fatigue can lead to road traffic crashes.

Despite being the most involved in road traffic crash fatalities, the motorcycle is still the main and preferred mode of transport used by p-hailing services. The main issues need to be tackled and analyze. Therefore, this research was conducted mainly focused on the assessment of the safety and health of p-hailing riders (particularly food delivery) with regards to their delivery activities, behaviours, traffic violations, and crash involvement. The need for this research is obvious as most of the p-hailing riders are youngsters, and the highest fatalities

crashes involve motorcyclists. Therefore, this research is conducted to provide a profile of delivery riders, to assess their riding behaviours, highlighting the challenges encountered by the p-hailing rider concerning their nature of work and health effect, and determine the factors that cause p-hailing riders to commit a traffic violation or involve in road traffic crashes

2. LITERATURE REVIEW

2.1 Motorcycles as a Preferred Transportation

P-hailing riders refer to a person who collects, transport, and deliver the food to the customer. Other than delivery workers, the rider can be called a messenger, courier, power two-wheel rider (Kudasz, 2010). With regards to food delivery services, a motorcycle is the best vehicle to be used in completing the task as it is fulfilled the need of the vendors which to deliver the food to their customers while the food is still hot. Food delivery means the activities by delivering foods from any food restaurants and/or stalls as per customers' orders.

The motorcycle is the preferred mode of transport to perform the food delivery service because the rider can easily maneuver their vehicle during congested traffic, they also can travel at high speed, and it is very easy to park especially in the city centre. This is because quick-service delivery requires high speeds on congested roads and easy accessibility on narrow ones (Chung et al, 2013). More riders choose to work with food delivery services rather than delivering mail. This is because they will get a commission for every completed delivery. A study by Khamis et al. (2016) showed that in 8 hours of normal working duration, the rider can achieve a mileage of 21 kilometres per day. Food delivery services have attracted many youths to become a delivery men. They can choose either they want to work as a part-timer or a full-timer food delivery rider. Novis et al. (2007) found that the majority of the riders were age ranged 21 to 30-year and this motorcycle service profession does not require much riding experience. Therefore, to protect a younger generation who choose this profession, the government needs to produce a crash prevention policy to improve the safety of motorcyclists, particularly p-hailing riders.

2.2 Traffic Violation by p-hailing riders

Committed to traffic violations could risk the riders and is one of the predictors of a road traffic crash. Malaysian Road Safety Research institute reported 70% of p-hailing riders were riding dangerously, particularly during peak hours (New Strait Time, 2021). Fast delivery is the most priority mission in food delivery services. The more delivery they made, the more income they will get. Kudasz (2010) reported that the rush hour of p-hailing riders starts from 12:00 pm to 2:00 pm and 5:00 pm to 9:00 pm. These are the time where customers want to take their lunch and dinner. As the most important element in this profession is the payment or commission that the rider will get after each delivery, they will try to complete the delivery as much as they can to maximize their commission. To deliver the food as quickly as possible, the rider will more focus on delivering the food and compromised their safety. Since such quick delivery is important, most motorcyclists will commit traffic violations while delivering. There are several road traffic crashes involving motorcyclists, from a minor injury such as falling off the motorcycle, to catastrophic injury including fatalities. Figure 1 shows the traffic violation made by a food rider that was taken recently in Bandar Nilai Negeri Sembilan, Malaysia. Other

than a red runner, crossing the centerline, speeding, driving in the opposite direction, improper weaving through traffic, and driving dangerously are among the traffic violations made by the riders (Chung et al, 2013). Not following the designated speed limits will contribute to road traffic crashes and increase injury severity (Chung et al, 2013). Most motorcycle food delivery services are among young adults. With inexperienced driving, they often intend to speed, drive recklessly, run a red light, and tailgate (Chung et al, 2013; Shin, 2018).



Figure 1: Traffic violation by the p-hailing rider during MCO (red runner)

2.3 Motorcyclists Injuries

According to the Royal Malaysia Police (JKJR, 2020) number of fatalities involving motorcyclists from 2009 until 2019 is 46,034. This is a huge loss to a nation, especially to their family. This alarming number highlights the need for increased attention to motorcycle riders and an improved road safety policy. There are two critical factors for motorcycle crash injury severity which are control factors and uncontrol factors. The control factors are those factors that can be controlled through safe driving, education, modification of traffic facilities, risk-taking behaviour such as speeding, running a red light, driving recklessly, speed limitation, and characteristics of road geometry. Uncontrol factors were defined as those factors that are directly related to the motorcyclist's characteristics such as age, gender, and judgment (Chung et al, 2013). With the improvement of these factors, a significant reduction in the number of crashes for motorcycles can be observed. A thorough study needs to be done to understand the root cause of road traffic crashes. The enhancement of existing road facilities will improve the awareness of motorcyclists hence can save lives.

2.4 Analysis method of previous studies

The research concerning p-hailing services is still green in the field. Ibrahim et al. (2018) assessed riding hazards and crash risks facing by Malaysian courier riders via on-body camera.

Their manual analysis and logistic regression analysis were performed and found a courier rider could face 30 hazardous riding events and 5 near misses incidents in hour delivery trips. Shin et al. (2018) used the chi-square test and descriptive analysis to investigate the characteristics of crashes and traffic signal violations caused by motorcycle couriers. While in Byun et. Al (2017), the distribution and mean were used for the analysis regarding the sick leave and food rider's injury.

3. METHODOLOGY

The qualitative method was used in this research to obtain a different perspective of the p-hailing riders' input and an in-depth understanding of their nature of work. The data is focusing on motorcycle riders who are working in p-hailing services by using a random sampling technique through an open-ended questionnaire. Data were collected from the interviews with structured open-ended questions to motorcyclists who are working with p-hailing service providers such as Food Panda, Grab Food, other delivery companies within Nilai town, Negeri Sembilan, Malaysia. Twenty p-hailing riders were interviewed. Relevant responses related to research interest were screened and analysed. The confidentiality of the respondents is maintained strictly. The conversation has been recorded to ensure originality for research reference. The p-hailing riders' details were recorded such as interview number, company, rider's age, years of experience in p-hailing services, mode of work (e.g. full time or part-time), working hours per day, average distance per day, and their salary per month. The record of safety & health impact to the riders such as experience any pain after long hours of riding, challenges during food delivery, traffic violation during delivery, involvement in any traffic crashes, type of traffic crashes, and types of injury and issues that they encountered in their daily routines were also recorded. Descriptive analysis was used in interpreting the results.

4. RESULTS AND DISCUSSION

The Malaysian government has implemented non-pharmaceutical interventions (NPIs) such as social distancing, school closing, movement control order (MCO), and lockdown restriction with the aims to control thus flatten the curve infection rate of Covid-19. In this challenging situation, the roles of food delivery services are more important than ever. With the social distancing that has been implemented by the Ministry of Health Malaysia to prevent Covid-19 from infecting more citizens, the food stores are now facing a difficult period with low numbers of dining customers. With the food mobile application such as Food Panda and Grab Food, the customers can order the food online and the food will be delivered to their house.

Consequently, this research was initiated to give early notion and insight on the p-hailing riders' riding behaviour and assessing health effects due to the nature of their profession. A qualitative approach was chosen with the idea to have an in-person touch to obtain detailed information on each event therefore in-depth interview could be performed when necessary. This allows us to be far more speculative and had a fruitful discussion with the interviewees. Face-to-face interviewed were beneficial to further understand and dig more information regarding their nature of work. With a proper question, the riders willing to share their experiences and challenges as p-hailing riders truthfully. In addition, unique information obtained via interview sessions could provide individualised and group-based value propositions.

Twenty p-hailing riders were randomly approached and agreed to participate in this research. As shown in Figure 2, most of the interviewees worked with the top two p-hailing service companies in Malaysia, 55% for Grab Food and 35% for Food Panda, and the rest for other p-hailing companies. Based on the transcribed interviews, the Grab Food and Food Panda are the preferred choice of motorcyclists for food delivery services companies. The riders only need to have a valid driving license and own the motorcycle to become one of the food delivery riders. The majority 95% of the interviewees are adults between 20 to 35 years old. The youngest participant is 19 years old, the oldest rider is 46 years old and the rest of them are between 20 to 35 years old (see Figure 2). As the work as a p-hailing rider is more dominant among male riders, therefore all interviewed p-hailing riders are male.

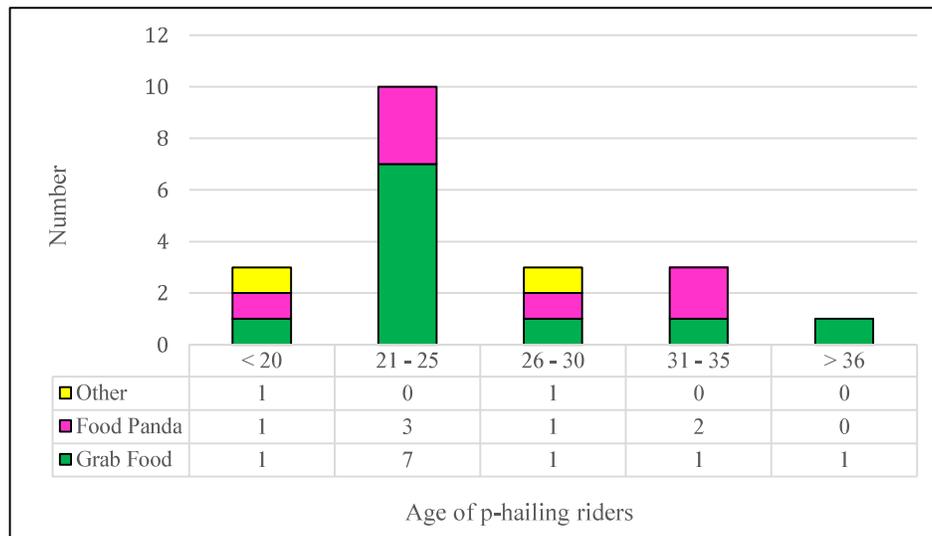


Figure 2: Age distribution of p-hailing riders according to their service providers

Table 3 shows the details of the interviewees working details. The majority of the interviewed p-hailing riders work less than 12 hours per day and traveled more than 100km to 250km.

Table 3: Participants working details

	Mode of work		Total
	Full-time	Part-time	
Working experience (months)			
< 6 months	2	8	10
7 - 11 months	1	0	1
> 12 months	6	3	9
Daily working hours			
< 8	0	6	6
8 - 12	7	5	12
> 12	2	0	2
Average monthly income (Ringgit Malaysia)			
< 1000	0	0	0
1001 - 1500	0	1	1
1501 - 2000	2	5	7
2001 - 2500	1	0	1
2501 - 3000	2	1	3
> 3000	2	3	5
N/A	2	1	3
Daily average distance (km)			
≤ 50	0	2	2
51 - 100	2	3	5
101 - 200	4	1	5
> 201	1	4	5
N/A	0	1	1

Forty-five percent of the participants were registered as full-time p-hailing riders. The same percentage have working experience of more than 12 months. While 55% of them are working less than 12 months and choose this profession as a part-time job. Details of the working background of the interviewees are tabulated in Table 3.

Khamis et al., (2016) reported that due to long hours of riding with constrained space and riding posture, low back discomfort is one of the common problems by most of the riders, therefore, disrupt their focus and may lead to fatigue thus lead to crash involvement. Based on the in-depth interviews, the majority (90%) of the p-hailing riders suffered from back pain and fatigue after long hours of riding (see Figure 3). This might be due to their body posture and sitting position on a motorcycle while riding. Fatigue could cause a probability of road traffic crashes which resulting in minor injury to fatal (Abdulrahman et al., 2020). Other than these two main sicknesses, the other 10% of the interviewees experienced muscle pain (e.g. shoulder, leg, abdomen), fever, numb hands, eye strain, insomnia, and stress. This health issue should not be taken lightly. To overcome the fatigue problem, the food rider services company could implement a compulsory rest period for all riders by switching their id numbers to the off mode for every 20 deliveries. By doing this, the food riders may gain their focus and freshen up their body and continue their works.

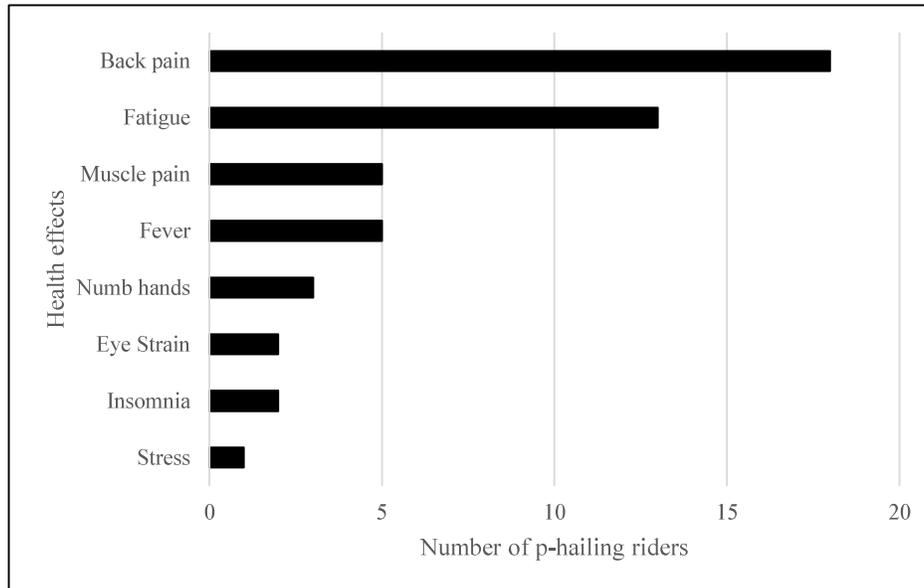


Figure 3: Health effect suffered by p-hailing riders

Figure 4 shows the hierarchy of challenges or difficulties faced by p-hailing riders in Malaysia. Although the number of samples in this research is quite small, it is believed that these are among the crucial issue that needs to be taken into account to ensure a pleasant working environment for p-hailing riders. It was found that waiting time for food preparation by vendors is among the top complaints among p-hailing riders as it could affect their total number of trips per day and significantly affect their commission. The weather gives a big challenge to p-hailing riders as they still need to deliver the food either on a very sunny day or heavy rain which could put them at high risk. Riders easily feel fatigued during sunny days and this fact is supported by the finding obtained in Figure 3. As working and dealing with different backgrounds of customers, they have to encounter numerous issues or conflicts with their customers and this could make them feel stress while working. Ibrahim et al. (2018) reported that each hour of delivery trips, p-haling riders could face at least 30 hazardous riding events and 5 near misses incidents.

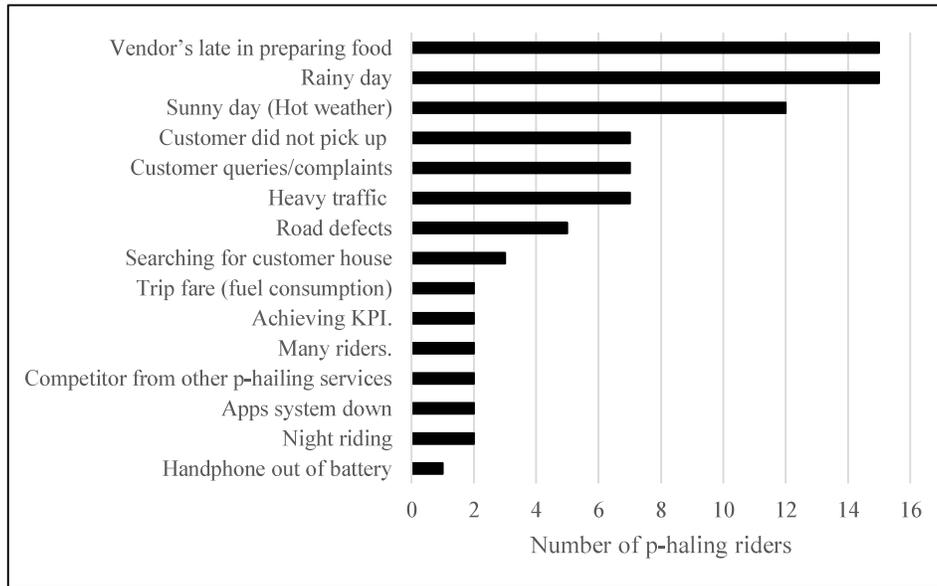


Figure 4: Challenges and difficulties encounter by p-hailing riders

Surprisingly, only 2 p-hailing riders did not violate any traffic regulation while working (see Figure 5). Eighty-five percent of them admitted had violated traffic signals by not following the stop indicator (i.e. red). According to Kulanthayan et al., (2007), the large number of motorcycle fatalities and injuries is due to traffic signal violations. From a p-hailing perspective, this is due to their main target to achieve more trips for the higher commissions. Food riders also mentioned that there is a difference between peak hours and normal hours commission rate set by the company which encourages them to chase the maximum number of orders during peak hours. Peak hours are during breakfast, lunch, and dinner time. In this period, the riders will go as fast as possible to deliver the food. They may ride more than the allowable speed limit, overtake other vehicles at the double line, using handphones while riding to look for a direction to the customer's house, and even not wearing the helmets if the shop is nearby to customer house. With this info, the authority needs to take prompt action to prevent any more fatalities especially food riders at a signalized intersection. The authority can install a surveillance camera at all signalized intersections and impose a higher penalty for red runner offences. The company of food services also needs to take the blame if one of their riders is found violated a red traffic signal. To prevent this traffic violation, the company may allow more time for the deliveries and give a road safety reminder to all riders.

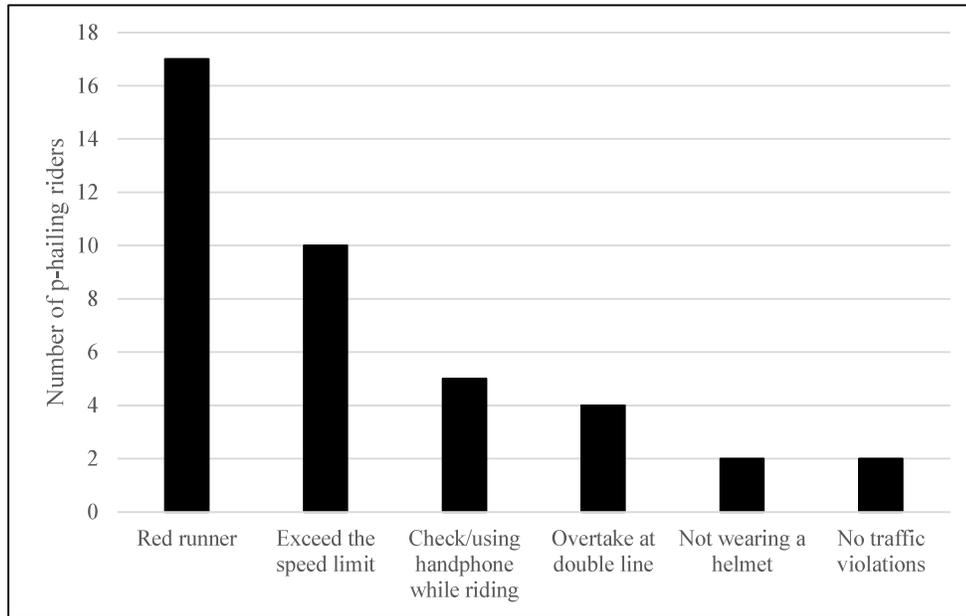


Figure 5: Traffic violations made by p-hailing riders

Forty percent of the interviewees had been involved in traffic crashes or even fell on their own due to road conditions/pavement damage. Half of them are working as full-time p-hailing riders and have delivery experience for more than 8 months with the working time is more than 8 hours per day and the average distance covered per day is around 200km to 250km. While half of them working as part-time food riders and have delivery experience of around 6 months with an average working time is around 6 hours per day and the average distance covered per day reach up to 250km. Five out of crash involved p-hailing riders fell from their motorcycle during delivery due to road defects. Road defect is one of the contributing factors to road traffic crashes such as potholes, uneven roads, and water ponding. All of these road defects need to be monitored and rectified for the safety of road users. According to the rider, one of the most mentioned factors that causing them to get involved in a road traffic crash is the counterpart did not activate their turning indicator before taking the slip road or making a U-turn. All of the crashes caused a minor injury to the p-hailing riders and one of them reported motorcycle damage. It is known that traffic violation could predict the crash involvement of road users, it is found that all crash involved riders had a history of traffic violation particularly disregard of a traffic signal, using handphone while riding, exceeding the speed limit, overtake at the double line, and disobey of helmet usage. While the near-miss incidents could be higher as the incidents normally will go unreported.

The final question during the interview was asking about the suggestions to improve the safety and health of the p-hailing riders. The majority of the riders (75%) mentioned that their food delivery companies should provide medical insurance to protect their life, particularly if they get involved in a road traffic crash while working. Most of the time, the riders will be on the road to deliver the food and the chances to get involved in traffic crashes are very high. With insurance protection, the riders will feel more protected during their daily routine. More hours and more kilometre traveled will expose the riders to traffic crashes. The riders who are working in a full-time mode normally traveled approximately the same daily kilometre coverage and feel the same sickness every day. The riders tend to complete more deliveries as fast as possible to get more commission within their working time. Even working as a part-time job, the riders

will start to feel back pain and fatigue after long hours of ridings. With this working condition and riders' behaviours, minor disturbances or objects on the road such as road defects or slippery roads (raining and sand) can become a hazard to riders. Other than that, the riders mentioned the traffic violation can be reduced by providing CCTV or police traffic at signalised intersections and prone crashes areas. Safety briefing or reminders to riders on traffic regulations will improve traffic awareness as well. In addition, the p-hailing riders also requested that the authority especially the police could give a special clearance during a roadblock due to time constraints during this MCO. The police roadblock will check the goods inside the delivery box and their driving license. This will consume their delivery time. The same request applies to the security guard at gated residential and condominium areas. The riders need to register their details at the security guard post, parking their motorcycle, take the elevator and deliver the food to their customer's house.

To ensure the safety of the p-hailing riders, the p-hailing service providers could assign a simple test exam on traffic safety regulations to a new applicant who wants to become a food delivery rider. Other than that, the companies can provide proper Personal Protection Equipment (PPE) such as a new helmet, bright shirt or vest, and proper shoes to the rider. The company also can provide a panel workshop for a motorcycle to do regular maintenance, this will encourage the riders to maintain their motorcycle in a good condition.

5. CONCLUSIONS AND RECOMMENDATIONS

The qualitative approach could give essential responses on the safety and health issues of p-hailing riders. The face-to-face interview sessions gave different perspectives of riders' opinions and input regarding their experience on the delivery services and their companies. The Grab Food and Food Panda were the most preferable food services companies that were chosen by the interviewees. Due to the limited number of p-hailing riders who were interviewed, the findings of this study should be used with caution particularly in the generalization of the outcomes.

It can be concluded that young male riders dominated this profession. It is found that most of the p-hailing riders suffered severe health consequences due to the nature of work; long hours riding, body posture, and sitting position. Regardless of health issues, it can be observed that they still committed to their task to survive during this difficult pandemic Covid-19 outbreak. They left with no option! Being a part-timer p-haling rider is one of the opportunities to earn more income.

In the new norm of e-commerce, the food delivery demand is obvious. Significantly, the application to become a food rider also increases. Thus, the safety and health of young adults who are working in this industry are very crucial. The majority (90%) of food riders started to feel back pain and fatigue after long hours of riding and this health problem should give serious attention as this could lead to low quality of life.

It was found that a large percentage of the p-hailing riders have violated traffic signals (red runner) by disregard traffic signal indicators and exceeding the speed limit. This is due to their main target to achieve more trips for the higher commissions, especially during peak hours. With the negligence riding, the food rider has a high chance to involve in traffic crashes. The most challenging situation for the majority of the p-haling riders when dealing with late food

preparation by vendors and completing the delivery task during bad weather.

It is suggested that improvement of the safety and health of food riders should be taken into consideration particularly on the insurance coverage protection. With this protection, the riders will feel more secure during their daily deliveries. Other than this, additional supervision by a police officer at the signalised intersection and the prone crash area will increase awareness for the food riders to adhere to traffic guidelines.

The findings from this research can be used for future reference as it was obtained from the food riders themselves. More research on p-hailing riders is encouraging especially related to their health and their company point of view. With all the information that was gathered in this research, the relevant parties such as the Police Department, Youth Ministry Department, Road Transport Department, and Ministry of Works can introduce the guidelines for the p-hailing companies and their riders to ensure their safety as well as other road users. Currently, p-hailing riders in Malaysia are subjected to the law and regulation for motorcyclists. The findings of this research could contribute to the body of knowledge and provide insights to the p-hailing service providers in designing the p-hailing module to ensure the safety of their riders.

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