ANALYZING THE RISKS P-HAILERS FACE ON THE ROAD

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ABSTRAK

P-hailing, secara amnya, merujuk kepada penghantaran bungkusan dan makanan menggunakan aplikasi pesanan dalam talian seperti foodpanda, grab, lalamove, shopee, DeliverEat dan banyak lagi. Di Malaysia, majoriti penghantaran dibuat pada motosikal dan kebanyakannya terdiri daripada pekerja bebas yang menunggang motosikal dan mempunyai jadual yang fleksibel. Industri ini lebih suka pekerja menggunakan motosikal untuk pengangkutan kerana mereka lebih mudah dan mereka boleh pergi ke suatu tempat dengan lebih pantas, meredah lalu lintas dan menggunakan lebih sedikit petrol dan penyelenggaraan. Telah dilaporkan secara meluas bahawa pekerja p-hailing telah cedera teruk, menjadi hilang upaya kekal, atau meninggal dunia akibat kemalangan jalan raya. Oleh kerana terdapat sedikit literatur tentang keselamatan jalan raya berkaitan p-hailers, rangka kerja telah digubal untuk mengenal pasti faktor risiko dalam sistem kompleks yang mempengaruhi keselamatan penunggang yang menerima tempahan dari kawasan Queensbay Mall, Pulau Pinang. Ini adalah perlu untuk mengurus dan mengurangkan kemalangan jalan raya yang berkaitan dengan kerja meragut nyawa, kesejahteraan dan ekonomi negara. Kajian itu telah mengenal pasti ciri-ciri risiko kritikal untuk p-hailers di kawasan kajian dan telah mengesyorkan langkah-langkah mitigasi untuk menguruskan risiko di jalan raya. Ia termasuk langkah-langkah yang perlu dipertingkatkan oleh p-hailers, tanggungjawab syarikat dan pemilik kenderaan, serta kemungkinan dasar dan peraturan untuk pihak berkuasa.

ABSTRACT

P-hailing, in general, refers to the delivery of packages and food using an online in-order app like foodpanda, grab, lalamove, shopee, DeliverEat, and many others. In Malaysia, the majority of deliveries are made on motorcycles and are mainly composed of freelancers that ride motorcycles and have flexible schedules. This industry prefers employees to use motorbikes for transportation since they are more convenient and they can get somewhere faster, weave through traffic, and use less petrol and maintenance. It has been widely reported that p-hailing workers have been hurt severely, become permanently disabled, or even passed away in road crashes. Because there is little literature on the work-related road safety of p-hailers, a framework was formulated to identify risk factors within the complex system that influences the safety of riders who receive orders from the Queensbay Mall, Penang area. This is necessary to manage and reduce work-related road accidents cost p-hailers' lives, well-being, and the nation's economy. The study has identified critical risk features for p-hailers in the study area and has recommended mitigation measures to manage the risks on the road. They include measures that the p-hailers have to improve themselves, the responsibility of the company and vehicle owner, as well as possible policies and regulation for the authority.

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CHAPTER 1

INTRODUCTION

1.1 Background Study

Road traffic accident is a major public health concern and is one of the leading causes of death and morbidity worldwide. According to the World Health Organization (2018), 1.35 million road fatalities occur each year, with pedestrians, cyclists, and motorcyclists accounting for more than half of all fatalities. These vulnerable groups are still far too often overlooked in the design of global road traffic systems. Since the beginning of the twentieth century, the number of work-related accidents has increased year after year, according to International Labor Organization data (2020). Although there is very little literature exposing the severity of work-related road accidents in these regions, trends may be worsening within low-and-medium income countries. In Malaysia, the term "work-related road accident" is sometimes used interchangeably with "commuting accident" reports, especially when it comes to worker's compensation by the Social Security Organization (SOCSO). According to SOCSO, over RM 1 billion in settlements for road traffic injuries and fatalities are paid out each year (Bernama 2021). In Malaysia, commuting accidents have surpassed industrial accidents in the last ten years, with more than 80% of fatalities occurring while travelling to and from work (Bernama 2020).

P-hailing, in general, is the delivery of parcels and food via an online in-order application such as foodpanda, grab, lalamove, shopee, DeliverEat, and many others.

Motorcycles are used for the majority of deliveries in Malaysia. P-hailers, gig riders, delivery riders, and other terms are used to describe these food delivery riders. These p-hailers are typically made up of freelancers who own a motorcycle and work flexible hours. It is obvious that employers in this sector prefer motorcycles as a mode of transportation due to the convenience of reaching a destination faster, avoiding heavy traffic, and requiring less vehicle maintenance and fuel consumption.

According to the Ministry of Transport Malaysia (2021), over 60000 p-hailers are currently operating on Malaysian roads, with over 200 new riders registering daily. Their numbers continue to grow in tandem with the increasing demand for their services, particularly during the pandemic, when people's mobility is restricted under the Movement Control Order. Despite low traffic during that time, the Ministry of Transport Malaysia (2021) reported 17 deaths, 10 severe injuries, and 64 minor injuries among p-hailers in 2020.

Several approaches to work-related road safety for heavy vehicles (Newnam and Goode 2015) and light vehicle fleets (Stuckey et al. 2007) have been developed, but they are insufficient for motorcycles. It's not surprising, given that most existing research comes from high-income countries where motorcycles aren't the preferred mode of transportation for work. However, despite having a high number of motorcycle fatalities, Malaysia still lacks accurate data describing a motorcycle fatality caused by work, commuting, or leisure. Furthermore, Kamaluddin et al. (2019) confirmed that low-injury or minor accidents are consistently underreported, particularly in traffic police data.

Because there is little literature on the work-related road safety of p-hailers, this proposed framework is for identifying risk factors within the complex system that may influence the safety of riders who receive orders from the Queensbay Mall, Penang area. Queensbay Mall was chosen as the study area because majority of p-hailers in Penang receive orders at this surroundings. This number will be able to provide a sufficient amount of information required for this framework. This framework is desperately needed because work-related road accidents cost p-hailers' lives, well-being, and the nation's economy.

1.2 Problem Statement

News of p-hailing workers involved in crashes and suffering severe injury, permanent disability, or death has been widely publicized. It is reported that accidents involving p-hailing riders, 30% of them suffered head injuries, 25% leg injuries, 9% hand injuries, and 4% chest injuries (The Sun, October 28, 2020). The Star reported that based on a study conducted by the Malaysian Institute of Road Safety Research (Miros) in 2021, 70% of p-hailers violate traffic rules while on a delivery run. Stopping in the yellow box accounted for 57% of all violations, followed by running red lights (16%), talking on the phone while riding (15%), riding against traffic (7%), and making illegal U-turns (5%).

As a result of the COVID-19 pandemic, this sector has grown at an exponential rate. The increasing number of p-hailers on the road, combined with their observed recklessness in handling their vehicle, may have contributed to an increase in their involvement in road crashes. The goal of this research is to better understand

the situation and then make recommendations to improve it. The framework assists the authorities in highlighting critical work-related risk factors and assisting future interventions in reducing work-related road accidents, particularly among p-hailers in Malaysia.

1.3 Objectives

The objectives of this study are:

- To identify the total number of p-hailers that pick up deliveries at Queensbay Mall, Penang.
- To identify the risk factors from the routes selected that are frequently used by p-hailers after picking up the delivery from Queensbay Mall.
- To assess the risks posed by the selected routes.

1.4 Research questions

The research questions of this study are:

- How to acquire the total number of p-hailers within Queensbay Mall area?
- What are the risk factors faced by p-hailers on the road?
- How are the frequently used routes selected?
- What are the safety analysis made, safe route analysis and safe road user assessment?

1.5 Scope of study

The study will include a research on the the total population of p-hailers within Queensbay area, the work-related road risk factors and the safety of p-hailers. This study will limit its sample to only those receiving food delivery orders within Queensbay Mall, where it is the hot spot for motorcycle accidents and has the most prominent p-hailers apart from its heavy traffic flow. The statistical analysis of this study will be divided into qualitative and quantitative methods. This research will qualitatively examine the p-hailers' work-related risk factors using thematic analysis. Additionally, the quantitative process will involve the study of the questionnaire's content validity and reliability. The literature review will include 50 articles related to the title of this topic around the world. The timeline set for this articles are between 2000 to 2021.

1.6 Importance and benefits

There is many factors that affects the safety of the p-hailers on the selected routes. This study will be able to:

1. Identify and reduce the potential risks p-hailers face on the road.
2. Identify and reduce the possible reasons of accidents involving p-hailers.
3. Identify and reduce the traffic violations committed by p-hailers.
4. Identify and reduce the tendency of p-hailers dealing with risky behaviour.
5. Provide an awareness to p-hailers to be a safe and responsible road user.

1.7 Dissertation Outline

This thesis consists of five chapters namely Introduction, Literature Review, Methodology, Results and Discussions and Conclusion and Recommendations.

Chapter 1: This chapter includes a brief introduction to the study, the problem statement, the objective of the study, the expected outcome and importance of the study. This chapter will be helpful to give brief information and overview about the content of the dissertation.

Chapter 2: This chapter includes past journals/research paper that related to the project title and objectives of the project.

Chapter 3: This chapter covers the methodology used to conduct this study. This chapter explains briefly about the questionnaire survey that was used to conduct this research and the content of the questionnaire.

Chapter 4: This chapter covers the outcome of the results and discussion part of this research. The experiment results obtained are elaborated further and analyzed.

Chapter 5: This chapter covers the conclusion achieved from the observation and recommendations for the improvisation of this study in the future.

CHAPTER 2

LITERATURE REVIEW

2.1 Overview

Commuting accidents are not considered occupational accidents by the International Labor Organization (2020) because they occur on the way to and from work rather than within the workplace. Employees in Europe who are injured in commuting accidents are entitled to compensation, except in the United States and Canada, where it is not considered a "work accident" (Charbotel et al. 2010). The emphasis on commuting safety was solely on the precautions that employees must take when travelling to and from work or between those locations. It does not, however, cover those who use "work vehicles" as a means of transportation for work, such as parcel delivery drivers, taxi drivers, e-hailing drivers, bus drivers or conductors, and others (Stuckey and Prat 2013). The phrase "work-related road safety" is frequently used in high-income countries such as the United Kingdom, the United States, and Australia (Stuckey et al. 2013). In Malaysia, work-related road safety has long been misunderstood as commuting safety. As a result, Malaysian accident data includes in the "commuting accident" category all types of collisions involving commuting workers, regardless of whether they were work-related or not.

Previous work-related road safety research focused on heavy vehicle fleet drivers (Chen et al. 2021; Newnam and Goode 2015) and light vehicle fleet drivers (Chen et al. 2021). (Newnam and Watson 2011, Stuckey and Lamontagne 2005, Stuckey et al. 2007). Most occupational road safety studies concentrate on driver behaviour (Broughton et al. 2009), working conditions (Fort et al. 2016), and

management involvement in mitigating occupational road risks (Rudyk et al. 2019). Road safety among motorcycle riders has been studied frequently in the context of the general transportation system, but rarely in the context of work-related road safety. Because there are few resources available to review the risk factors of p-hailers, understanding the variables within the transportation system may be advantageous, as p-hailers are also motorcyclists with similar characteristics. Damani and Vedagiri (2021), for example, conducted a thorough review of motorcycle safety in mixed traffic conditions and created a diagram depicting existing risk factors (see Figure 2.1). Similarly, in Malaysia, p-hailers spend the majority of their time in mixed traffic flow. They may be exposed to similar risk factors, except that the diagram lacks the context of gig work, which could result in injury or death.

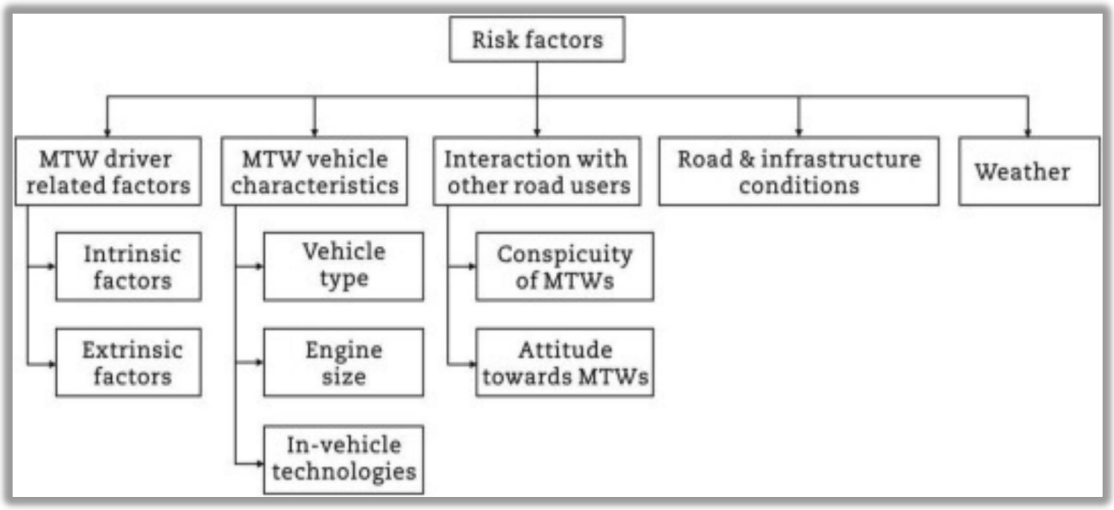

Figure 2.1 Classification of risk factors considered in the existing studies (Damani and Vedagiri 2021)

In 2019, Christie and Ward only mentioned the safety and health risks of gig workers (including p-hailers). The primary influence on on-road collisions among gig workers, according to their findings, is the work context. However, only 27

motorcycle riders participated in their study, where the vast majority being car or van drivers (138 out of 231 people surveyed). Rather than ride-hailing services, the report may represent work-related road risks among drivers. According to da Silva (2020), the need for speed and the work environment of "moto boys" increased their risk of fatal motor vehicle accidents in Sao Paolo. This study does not look into any other risk factors associated with the riders' complex work-related road safety. Young food delivery riders, according to a recent study by Papakostopoulos and Nathanael (2021), are more likely to engage in risky riding behaviour. Critical traffic offenses such as "red-light running" and "helmet non-use" appear to be linked to a variety of riders' stresses or motivations. Their study was similar to previous work-related road safety studies in which rider behaviour was central to the occurrence of accidents.

Motorcyclists who work in the gig economy are called p-hailers. They participate in on-demand food, parcel, and other item delivery by accepting jobs through apps. Gig work is a "non-standard" app-based occupation, according to Howard (2017), and platform providers view gig workers as independent contractors rather than "employees." According to Kaine and Josserand (2019), gig workers are unaware of their "self-employed" status, which allows platform providers to avoid regulatory responsibility as employers. Workers were exposed to gig job operation risk (Bajwa et al. 2018), platform provider app disengagement (Stewart and Stanford 2017), unstable income (Doucette and Brandford 2019), and uneven tasks obtained with ambiguous working hours as a result of this situation (Gandhi et al. 2018). Despite the fact that p-hailers, like other gig workers, work in an informal economy, they may be denied paid or sick leave, social protection, or income protection (ILO 2020). To alleviate the burden of gig workers in the informal economy, the ILO (2019)

proposed a Universal Labour Guarantee for workers to receive minimum protection standards, including safe and healthy workplaces.

Malaysia has also launched the Penjana-Gig Scheme in 2020 in order to protect all gig workers (SOCSO 2020). However, because the scheme is voluntary, only about 7% of the 400,000 gig workers were registered members as of June 2020. 2020 (Bernama). Despite the fact that their job was precarious, unregistered p-hailers were unprotected in this situation.

2.2 Gig economy

The gig economy is a free market, with corporations using temporary positions and independent workers working for short periods of time (Roy and Shrivastawa, 2020). Customers now have access to better and more efficient services, such as Grab and Maxim Car, Grab Food, and Food Panda, thanks to this new type of economy. The nature of gig economy jobs is a type of temporary employment with flexible hours. In most cases, companies or service providers will hire independent contractors and freelancers to do the work. They are not, however, considered employees, whether full-time or part-time.

The gig economy has had a significant impact on the lives of employees. Individual jobs have been secured by on-demand independent contractors, who have challenged the traditional full-time model. The gig economy effectively employs an economic model in which temporary and flexible employment is the norm for

businesses looking to hire on-demand contractors. However, workers in the gig economy are not afforded the same safeguards and benefits as traditional employees (Stewart and Stanford, 2017). Gig workers typically do not receive the same benefits as regular employees. In terms of wages, these workers will be compensated based on the services or "gigs" they have completed in accordance with their agreement with the service providers (Bajwa Uttam, Denise Gastaldo, Erica Di Ruggiero, and Lilian Knorr, 2018). This payment method differs from that of traditional employees, in which a contract of service connects an employee with his or her employer. As a result, the rights and obligations that arise for such an employee are based on this service contract.

2.3 Gig economy workers

Gig economy workers also known as p-hailers are delivery service providers who mostly ride their motorcycles to complete the tasks assigned to them. There is no definitive meaning or definition of the term "gig economy." Nonetheless, many literatures define the term as a method of generating revenue in which organisations contract with independent workers for short-term engagements (The World Bank, 2019).

Most of the literatures agree that the gig economy is rapidly developing as a result of an increasing number of businesses adopting the platform business model to remain competitive (Chan et al, 2018; Morgan, 2017; Lobel, 2016; Stewart & Stanford (2017)). The gig economy, which is mostly online, differs from the

traditional economy in that it involves full-time employees who focus on career development and ensuring the survival of their positions in their chosen jobs.

According to De Stefano (2016), the gig economy is primarily divided into two types. They are referred to as 'crowdwork' and 'work-on-demand via app.' 'Crowdwork' refers to employment activities that necessitate the completion of a series of tasks via an online platform. Typically, the digital platform lists an infinite number of organisations and individuals who may potentially connect as clients and employees or service providers on a global scale. On the other hand, 'work-on-demand via app' refers to tasks that are performed in a traditional manner, such as transportation and cleaning services.

Other examples of work that employs the 'work-on-demand via app' method include daily chores such as laundry collection from a laundry shop, grocery shopping, and clerical tasks that were offered and performed through a mobile application (De Stefano, 2016). Delivery services provided by motorcycle riders are included in this category, even though some of them may offer their services directly without the use of a middle platform. They typically communicate with their clients or users directly via mobile phone. As a result, this paper continues the discussion by focusing on parcel hailing motorcyclists who fall under the category of 'work-on-demand via app,' as the 'crowdwork' category may involve different issues.

2.4 Potential of gig economy workers

The 'work-on-demand via app' model allows for the broad personal outsourcing of activities to individuals rather than complex businesses. This potentially provides more leverage for standardizing contracting out and assigning work while maintaining significant control over business processes and outputs (De Stefano, 2016). Aside from providing access to a calculable workforce, an economy that fully embraces digital technology provides businesses with a high level of flexibility (Morgan, 2017). Workers are only available when needed, and they are compensated based on the tasks completed. It means they are only paid when they are actually working for a client. As a result, businesses can fully maximise their resources at a relatively low cost.

From the perspective of the workers, even though they have the maximum amount of flexibility, it more than compensates for the lack of many employment benefits (Buang, 2019). It is true that gig economy workers are not bound by any set working hours and can offer their services via application at any time. This undeniably allows workers to balance their commitments with other jobs, study, family, and hobbies.

Meanwhile, it is argued that such flexibility can eventually jeopardize work-life balance, disrupt sleep routines, and disrupt other daily life activities. Working gigs requires workers to be available whenever tasks arise, regardless of their other obligations, and to always be prepared to look for the next task (Buang, 2019). In

general, greater freedom is enjoyed in a gig economy, but at the expense of not securing a stable job with regular pay and comparable benefits. Furthermore, few parties in the gig economy, namely workers, employers, clients, and vendors, are capable of cultivating long-term and enduring relationships.

2.5 Factors contributing to the road accidents among p-hailers

2.5.1 Human factors

According to a study conducted by Zahid Sultan et al. 2016, the most important motorcycle accident component is human behaviour. Previous research focused on traffic infractions and motorcycle characteristics, whereas this study focused on motorcyclists' prospects and personal preferences for dangerous riding behaviour. All human-related danger factors are experience, lack of training, high speed, and failure to follow traffic rules (Mullin et al, 2000; Chen et al, 2009; Peek-Asa et al, 2010; Wong et al, 2010; Rhodes and Pivik, 2011).

Additional research on motorcycle accidents in Malaysia should be prioritized and it must be underlined that speeding behaviour tops it off at number one. As a result, it has been proposed that reducing travel speed may reduce accident injury. According to studies, travelling at speeds greater than 60 km/h can seriously injure motorcyclists travelling at slower speeds (Sukor and Funji, 2011). Furthermore, the driver's interaction with other road users, including assault and the extent to which the driver reacts or offsets the driver's fault, is most likely to impact the rider's safety (Huth, Füssl, and Risser, 2014). Motorcyclists are particularly vulnerable to harm due