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The Impact Working Environment on Health Problem among E-Hailing Drivers in Johor Bahru, Malaysia from Ergonomic Perspective during Pandemic COVID-19

Rohaizahtulamni Radzlan[2], Muhammad Aqil Naim Othman[1], Irwan Syah Md Yusoff[1,3]

[1]Department of Resource Management & Consumer Studies, Faculty of Human Ecology Universiti Putra Malaysia, 43400 UPM Serdang, Malaysia, [2]Department of Social Science and Management, Faculty of Humanities, Management and Sciences, Universiti Putra Malaysia Bintulu Sarawak Campus, 97008 Bintulu, Sarawak. Malaysia, [3]MyAgeing, Universiti Putra Malaysia, 43400 Serdang, Malaysia.

Corresponding Author Email: irwansyah@upm.edu.my

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Abstract

Driving an e-hailing is a high-risk occupation that may result in death from accidents. This paper aimed the working environment and health problem during pandemic COVID-19 among e-hailing drivers in Johor, Malaysia. A cross-sectional study was conducted, and the sample size was 262 e-hailing drivers participate. Purposive sampling was used based on inclusive criteria, age more than 18 years old's, registered with the *Agensi Pengangkutan Awam Darat* vehicle not modified and experience more than 1 years. Data were collected through a self-administered questionnaire and driving observation by video recording. The Chi-square method was utilized to analyse the data used SPSS software version 20.0. There is a significant relationship ($p< 0.05$) between variables; frequency carry passengers per-day, take rest a week, carry load passenger, COVID-19 phenomena choose to be e-hailing drivers, COVID-19 income effect, work late night during COVID-19, past 12 month and last 7 days experience back pain. Investigate and change immediately (48.5%) at action value score 7 from RULA assessment. Therefore, e-hailing drivers are encouraged to practice working tasks by ergonomic approach to perform the healthy work. Further research should involve all e-hailing from Malaysia's region to more understand safety a healthy working environment for better quality of life.

Keywords: Working Environment, E-Hailing, Covid-19, Health, Ergonomic.

Introduction

COVID-19 pandemic has emerged as an unparalleled worldwide disaster, resulting in significant transformations in everyday routines and revealing the weaknesses and resilience of many professional cohorts. The community of e-hailing drivers in Malaysia, represents a notable group that has seen major impacts while persistently delivering crucial services (Antara et al., 2022; Razali & Daniel, 2022). During the global implementation of lockdowns, social distancing protocols, and health precautions, these drivers continued to fulfil their duties in the forefront, guaranteeing crucial mobility for individuals requiring assistance (Antara et al., 2022; Morshed et al., 2021; Razali & Daniel, 2022).

E-hailing drivers operating in Malaysia have significantly contributed to upholding the mobility of the city's inhabitants, guaranteeing their access to essential services, and bolstering the local economy (Antara et al., 2022; Morshed et al., 2021; Razali & Daniel, 2022). However, their endeavours have not been devoid of cost, as they have encountered distinctive obstacles in adjusting to the exigencies imposed by the pandemic. In addition to the evident health hazards linked to heightened contact with passengers, e-hailing drivers have a range of ergonomic difficulties stemming from alterations in their occupational setting (Jamaluddin et al., 2021; Mahudin & Sakiman, 2020).

The field of ergonomics, which involves the design of work environments to accommodate the talents and constraints of workers, is of paramount importance in promoting the well-being and preserving the physical and mental health of those involved in various occupations. The ergonomic considerations associated with the work environment of e-hailing drivers assume significant importance due to their longer hours spent driving (Jamaluddin et al., 2021; Mahudin & Sakiman, 2020). These characteristics can contribute to a variety of ergonomic concerns, such as musculoskeletal problems, stress, and fatigue (Richter et al., 2019). The extended exposure to many factors such as vehicle design and seating posture has the potential to result in a variety of health complications, encompassing musculoskeletal disorders, weariness, and psychological stress.

Purpose of this study is to shed light on an often-overlooked component of e-hailing driver health in Johor Bahru, Malaysia by investigating the impact of their working environment from an ergonomic standpoint. Through an in-depth exploration of the ergonomic obstacles and their resultant effects, our aim is to furnish significant perspectives on the welfare of this essential labour force and proffer suggestions for enhancing their working environment. By conducting a thorough analysis of the ergonomic variables present in the e-hailing sector of Johor Bahru, Malaysia our aim is to make a valuable contribution to the wider discussion around occupational health during Pandemic COVID-19.

Literature Review

In the industry of e-hailing, drivers usually work lengthy shifts while engaging in extensive sedentary behaviour and little physical exercise (Elshatarat and Burgel, 2016). Long work hours may lead to exhaustion and sleep deprivation (Murray et al., 2017). Following the adoption of the Movement Control Order (MCO) to prevent the spread of the COVID-19 epidemic, the number of gig economy workers will grow in 2020, particularly in e-hailing and delivery services. As a result of the exceptional economic difficulties created by the epidemic and the adoption of the MCO, the demand for e-hailing employment skyrocketed. During the MCO between March and May, GRAB Malaysia and Food Panda acquired 30,000 additional

drivers and riders, paralysing a significant portion of the economy (Tran, 2020). Previous studies have received several cab driver complaints about musculoskeletal disorder (MSDs), particularly low back pain issues (Al-Dubai et al., 2012; Burgel et al., 2012; Machin & De Souza, 2004; Majid et al., 2018; Yang et al., 2014; Yusoff et al., 2020; Yusoff et al., 2021). Some MSDs, such as lower back pain Ebe & Griffin (2001), neck pain Schneider (1989), and shoulder difficulties, are significantly influenced by improper sitting posture (Pope et al., 1998). According to Yusoff et al (2020), senior cab drivers spend more than eight hours every day working. According to earlier research, fatigue issues have always been linked to extended driving times. Long-distance driving generates weariness and may impair driving performance; this condition is defined as physical and mental fatigue. In other words, the driving position is the primary source of physical weariness (Hirao et al., 2007). Driver weariness results from extended periods of driving. Based on prior research by Park et al. (1998), one of the variables leading to driver fatigue and low back pain issues is the design of car seats and the use of inaccurate assessments of human body size. According to Deros et al (2015), users (male or female) must have a seat design that corresponds to their body posture measurements to achieve driving comfort. When there is a mismatch between the product or instrument and the user, both parties experience pain. Seat backrest, degree of seat tilt, seat without back support, and flexed/twisted body position when driving has been linked to low back pain (Chen et al., 2005; Funakoshi et al., 2004; Majid et al., 2018; Yusoff et al., 2020; Yusoff et al., 2021).

These working circumstances may lead to tension and anxiety (Burgel et al., 2012; Davidson et al., 2017; Wang and Delp, 2014) and contribute to taxi driving being one of Canada's most hazardous vocations (Mirpuri et al., 2018). The stress and anxiety associated with taxi driving may be increased when extended work hours make it difficult for drivers to maintain relationships and seek social assistance (Facey, 2010). The great majority of taxi drivers in Canada are classified as independent contractors and are thus not protected by employment laws such as overtime or minimum pay. These health concerns have contributed to the physical and mental health situations of taxi drivers. In past research, taxi drivers have been linked to diabetes, high blood pressure, chronic pain, kidney stones, weakened immune systems, musculoskeletal problems, vision loss, high levels of psychological distress, cancer, and a higher risk of heart disease (Burgel et al., 2012; Davidson et al., 2017; Elshatarat & Burgel, 2016; Mirpuri et al., 2018; Murray et al., 2017; Wang & Delp, 2014). Prior study on e-hailing drivers found a significant number of MSD-related complaints. It's probable that you're sitting incorrectly, which endangers health and is one of the leading causes of sickness. MSDs are characterised by pain in the lower back, neck, and shoulders. It will lead to problems in the future.

Consequently, an ergonomic approach should be used to improve driver comfort and reduce the incidence of MSDs, particularly in the lower and upper extremities. Ergonomics is simply the use of science to improve the safety and comfort of human living. Kroemer (2017) define ergonomics as the application of scientific ideas, methodologies, and data from a variety of disciplines to the design of engineering systems based on the needs of the tasks performed. Information on user anthropometric measurement size (male/female) and posture position is the most essential aspect emphasized for ergonomic application throughout the vehicle design development process (Gyi & Porter, 1998). According to the research conducted by Na et al (2005), driver comfort is just as essential as the vehicle's function and aesthetic value, with taxi drivers placing more importance on safety and comfort elements. There is a severe

lack of current information and statistics pertaining to comfort and discomfort, despite the fact that everyday usage of comfort and safety-related items need a thorough understanding of these concepts (Vink & Hallbeck, 2012). Seating comfort based on ergonomic principles has been investigated from a variety of angles (Majid et al., 2018; Yamazaki, 1992; Yusoff et al., 2020; Yusoff et al et., 2021; Zhang et al., 1996). According to Deroes et al. (2015), the degree of comfort and safety of the driver's seat is determined by identifying and defining the characteristics that affect the driver's level of comfort and safety. Using ergonomic principles may help cab drivers maintain a safe and comfortable posture, improve their lifestyle, and enhance their safety and health.

Methodology

This study involved among e-hailing drivers in Johor Bahru areas: Johor Bahru City; Iskandar Puteri; Skudai; Puteri Harbour; Tebrau Village; Bukit Indah, Ulu Tiram; Stulang; Taman Perling; Pasir Gudang; and Permas Jaya. According to the Land Public Service Commission, there are 6,985 registered e-hailing cars in Johor (Suruhajaya Pengangkutan Awam Darat-SPAD, 2016). The research was conducted in locations frequented by the public, such as shopping malls, supermarkets, and high-traffic zones.

The mixed method approach was used into study, quantitative design for questionnaire and qualitative approach used to observed driving posture during performed the task by video recording. The study will employ purposive sampling techniques, such as the kind of e-hailing service, and the number of samples will be decided by the average monthly salary of drivers who meet the study's requirements. Based on the distribution data of e-hailing service firms registered in Malaysia, 262 respondents from the vicinity of Johor Bahru, Johor were participated in the study. Types of e-hailing services utilising the metered taxis and Grab car under economy category (driver's seat without modification), more than a year of experience as an e-hailing driver, 18 years of age and above, and income less than RM4,000 per month.

The physical interview approach was applied to e-hailing drivers. Before the interview session begin, the respondent was given a consent form and as an agreement to participate in the study. To minimise interfering with the respondents' work schedules, interview sessions are done during breaks or while waiting to receive passengers. Each individual interview session lasted around 20 minutes and was conducted face-to-face. Before conducting the interviews, respondents were briefed about the objective of the research and the sorts of activities that were done. The respondent's personal information is private and will not be released to the public. The survey form has four breakdown sections A: demographic information, B: working environment and health history, C: lifestyle, and D: Driver's discomfort level. However, qualitative design was used Rapid Upper Limb Assessment (RULA) to analyze each of body posture e-hailing drivers through video recording (Figure 1). Recording is only done on each e-hailing driver while in the sitting position after making changes to the seat according to the driver's suitability before driving. The video recording time allotted for each respondent was 15 minutes. The purpose of the recording was to analyse the driver's body posture in the most extreme sitting position while driving using the RULA method (Figure 2).

Figure 1: Video recording body posture
(Source: Researcher)

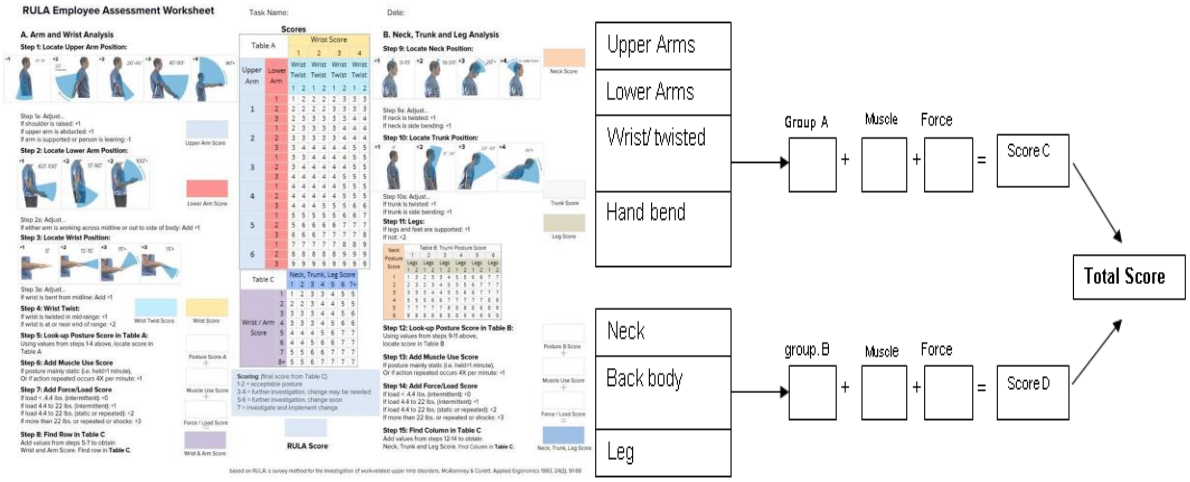

Figure 2: Rapid Upper Limb Assessment worksheet and calculation scoring

Table 1
Classification of RULA score

Score	Description
1-2	Indicates that the posture is acceptable if it is not maintained or repeated for long periods of time
3-4	Indicates that further investigation is needed, and changes may be required
5-6	Indicates that investigation and changes are required soon
7	Indicates that investigation and changes are required immediately

The RULA score represents the level of upper-limb musculoskeletal disorders (MSD) risk for the job task being evaluated. Morgan Maxwell's RULA worksheet is separated into two main body segments: Part 1 (Arms and Wrists Analysis) and Part 2 (Neck, Trunk, and Leg Analysis)

with Part 3 displaying the Final RULA score (Figure 2). The score is determined by the amount of wrist flexion or extension, plus a +1 adjustment if wrist deviation is required (Figure 2). The minimum RULA score = 1, and the maximum RULA Score = 7. The design goal for the RULA assessment is a score of 3 (Table 1). All the data and information acquired from the survey and the findings were analysed using IBM Statistics Package for the Social Sciences (IBM SPSS) version 20 certified statistical software. Descriptive statistics were obtained for all the variables and the Chi-Square technique was utilized to obtain the association between working environment and health problem.

Result

Background of E-Hailing drivers

According to Table 2, majority of respondents are male (98.1%), while just 1.9% are female. Grab Car was utilised by most e-hailing drivers (80.2%), while metered taxis were used by just 19.8%. more than half e-hailing drivers (67.2%) use a car with a 1500cc engine, and the majority (81.7%) drive a vehicle with a local brand. The respondents' average age was 27.8 ± 12.5 and more than majority (72.1%) of the drivers were between the ages of 31>60 years old. The study showed 46.2% are normal for body mass index. Approximately 49.6% was Malay for ethnicity, followed by Chinese (38.0%), and 77.1% of the e-hailing is married. More than half (74.8%) e-hailing drivers received education level until secondary school. The result showed, 80.9% of respondents are full-time e-hailing drivers, while 50.9% are self-employed. Only 5.5% of the e-hailing drivers has a monthly income of more than RM3000, while 48.5% have a monthly income of between RM1000>RM2000. For health status, 49.6% were deemed to be in excellent condition. Most of 57.3% e-hailing drivers never experience smoked, and approximately 12.6% of e-hailing drivers have been hospitalised and faced major surgery in the last year, while 87.4% of respondents have not been hospitalized.

Table 2
Background of e-hailing drivers

	N (%)	Mean± (S.D)	Min.	Max.
Gender				
Male	257 (98.1)			
Female	5 (1.9)			
Type of car				
Grab Car	210 (80.2)			
Metered Taxi	52 (19.8)			
Car engine size				
1000cc	82 (31.1)			
1500cc	176 (67.2)			
2000cc	4 (1.5)			
Car model				
Local	214 (81.7)			
Imported	48 (18.3)			
Age		27.8 ± 12.5	21	74
18-30	30 (11.5)			

Type of work			
Employer	33(50.8)		
Self-employed	129(49.2)		
Monthly income		300	5000
< 1000	58(22.1)		
1000 – 2000	127(48.5)		
2001 – 3000	64(24.4)		
3000 ≥	13(5)		
Health status			
Very good	130(49.6)		
Good	86(32.8)		
Normal	44(16.8)		
Not good	1(0.4)		
Very bad	1(0.4)		
Do you smoke			
Yes	112(42.7)		
No	150(57.3)		
In the past year, have you been hospitalized and undergone major surgery?			
Yes	33(12.6)		
No	229(87.4)		
31-60	189 (72.1)		
61 ≥	43 (16.4)		

N= 262

Working environment e-hailing drivers

According to the Table 3, 46.6% carry passengers more than 11 times per-day, while only 17.2% less than 6 times per-day. The majority (77.9%) and (77.5%) of e-hailing drivers rest once a week, with total hours driven per day exceeding 8 hours and more then 56 hours per week. Over 87.0% of e-hailing drivers do not prefer napping during waiting for passengers, and 75.2% spend less than one hour every day obtaining passengers. The majority e-hailing drivers weekly driving distance was 151-250km, more than half (51.9%) preferring to drive in the morning and just 42.0% working till late at night. Therefore, 46.9% choose to be e-hailing drivers because they want to sustain their life during COVID-19. However, only 6.5% of them report a loss of jobs. The majority (93.9%) of e-hailing drivers were satisfied with their income, and 93.5% claimed minimal pressure from the company. The majority (79.0%) always carry passengers' luggage into the car, and 47.7% of the weight carried ranged from 1 to 5 kg. The result also indicates that 45.5% driving experience in e-hailing are more than 16 years old. Following that, 34.7% of respondents driving less than 2000km in the past year and 26.7% of respondents claimed to have driving within 2000–4000km. Most drivers (80.5%) have 3-5 years of experience as e-hailing drivers. The 40.8% of e-hailing drivers work under private companies, but with only 38.2% being self-employed. More than half (65.6%) started e-hailing drivers before COVID-19, and the majority (95.8%) agree that when COVID-19 occurred, they

lost quite a lot of passengers. When COVID-19 occurred, approximately 64.5 % of drivers' income was affected, and 79.8 % worked till late at night because of COVID-19.

Table 3
Characteristics working environment e-hailing drivers

Items	n	Percentage (%)
How many times the budget carries passengers in a day.		
1-5	45	17.2
6 - 10	95	36.3
11 ≥	122	46.6
Take a week off		
Yes	204	77.9
No	58	22.1
Duration drive per-day?		
1-7 hours	59	22.5
8 >hours	203	77.5
Estimated hours' drive a week.		
48 – 56 hours	65	24.8
56 hours >	197	75.2
Estimated waiting time to pick up passengers.		
≤1 hours	197	75.2
2-3 hours	42	16
4 hours ≥	23	8.8
Nap while.		
Yes	34	13
No	228	87
Driving distance, a week		
< 50 km	11	4.2
51-150 km	45	17.2
151-250 km	195	74.4
251 km ≥	11	4.2
Driving time.		
Morning	136	51.9
Noon	27	10.3
Evening/night	63	24
Uncertain time	36	13.7
Work until late at night		
Always	110	42
Sometimes	101	38.5
Never	51	19.5
The main factor being an e-hailing driver.		
The urge to live	122	46.6
Decent fee	123	46.9
Lost another job	17	6.5
Satisfied with the payment from the e-hailing company		

Yes	246	93.9
No	16	6.1
Receive any pressure from the company		
Yes	17	6.5
No	245	93.5
Help passengers carry luggage		
Yes	207	79
No	55	21
Estimated weight of the load lifted.		
1-5 kg	125	47.7
6-10kg	63	24
11 kg ≥	21	8
Total years of driving experience.		
< 1 years	6	2.3
1-5 years	52	19.8
6-15 years	85	32.4
16 years ≥	119	45.4
The longest driving distance a year.		
< 2000 km	91	34.7
2000 – 4000 km	70	26.7
4001 – 6000 km	26	9.9
6000 – 8000 km	75	28.6
Compared to 5 years ago.		
Drive more	101	38.5
Drive the same amount	121	46.2
Drive less	40	15.3
Begin an e-hailing driver.		
< 1 years	10	3.8
1 – 2 years	41	15.6
3 – 5 years	211	80.5
Previous job before an e-hailing driver		
Government	8	3.1
Private	107	40.8
Self-employed	100	38.2
Not working	33	12.6
Students	14	5.3
COVID-19 reason become e-hailing driver.		
Yes	90	34.4
No	172	65.6
COVID-19 occurred was it easier to obtain passengers.		
No	3	1.1
The same amount	1	0.4
More than before	3	1.1
Slightly reduced	4	1.5
Reduced a lot	251	95.8
COVID-19 occurred income increasing		

Yes	5	1.9
No	88	33.6
Very affected	169	64.5
Worked until late at night since COVID-19		
Yes	209	79.8
No	39	14.9
Same as before	14	5.3

Note: N= 262, n=frequency, %= percentage

Risk factors working environment on low back pain among e-hailing drivers

Table 4 result showed association between working environment on lower back pain e-hailing drivers has significant relationship with working environment like how many passengers are carry per-day - 1-10 times (x^2:15.25, *p*: 0.00). Drivers work until late at night – rarely (x^2: 10.21, *p*: 0.01), helping passengers carry into a hood – yes (x^2: 20.86, *p*: 0.00), years of driving experience – 6 years ≥ (x^2:13.77, *p*: 0.00), COVID-19 reason to becoming an e-hailing drivers – no (x^2: 4.75, *p*: 0.00), effect of income when COVID-19 happen – very affected (x^2: 36.07, *p*: 0.00) and work until late night during covid-19 – yes (x^2: 22.55, *p*: 0.00). The result also revealed, past 12 month experienced back pain – yes (x^2: 34.62, *p*: 0.00) dan past 7 days feeling back pain – yes (x^2:13.63, *p*: 0.00).

Tables 4

Risk factors on health problem among e-hailing drivers in Johor Bahru, Malaysia

Variables	***Working environment on health problem***		***Chi Square value (X^2)***	***P value***
	Yes (%)	No (%)		
BMI			0.00	0.98
Normal	63	70		
Overweight	61	68		
Education Level			0.24	0.62
Primary & none	6	5		
Secondary& highest	118	133		
Smoking status			0.56	0.45
Yes	56	56		
No	68	82		
Frequency carries passengers per- day			15.25	**0.00****
1 – 10 times	82	58		
11 times ≥	42	80		
Total hours of driving per-day			1.35	0.24
1>7 hours	24	35		
>8 hours	100	103		
Work until late at night			10.21	**0.05***
Always	46	64		
Rarely	60	41		
Never	18	33		
Carrying luggage into the hood			20.85	**0.00****
Yes	113	94		

No	11	44		
Driving experience			13.77	**0.00****
0-5years	15	43		
6 years≥	109	95		
COVID-19 reason to choose a job as an e-hailing driver.			26.07	**0.00****
Yes	23	67		
No	101	71		
COVID-19 occur your income increasing?			36.06	**0.00****
Yes	2	3		
No	19	69		
Very affected	103	66		
Worked until late during COVID-19			22.55	**0.00****
Yes	113	96		
No	5	34		
Same as before	6	8		
Analysis posture action score (RULA)			0.343	0.558
Acceptable & investigate further	6	9		
Investigate further & change immediately	118	129		
Over the past 12 months, have you experienced back pain?			34.62	**0.00****
Yes	120	95		
No	4	43		
Did you experience back pain in the last 7 days?			13.63	**0.00****
Yes	101	83		
No	23	54		

Note: N= 262, n=frequency, %= percentage, p: <0.05 significant

E- hailing driving posture analysis using Rapid Upper Limb Assessment

The results of the RULA analysis in part A of 28.0% (Arm/Wrist), which greatly affects the health of e-hailing drivers, while located wrist position and wrist twist are in the second place, which is 25.0%, and the last is located arm position, even though he is in the last place (22%). Part B is divided into three parts that have the most impact while driving. The first is truck position by 39.0%, the second is neck part by 35.0%, and the last is legs by 26.0%. Table 5 showed that 48.5% of e-hailing drivers at a score 7 and the action level was 4 which is indicating investigation and change are required immediately. For the total score of 5 or 6 RULA, 45.8% were classified under action 3, which described the need to investigate further and change soon. However, only 5.7% of e-hailing drivers in the posture in which the score was 3 or 4 at level of action 2, which described the need for further investigation that may be required. None of the e-hailing drivers indicated a satisfactory or acceptable posture. The result showed similar result using the Rapid Entire Body Assessment (REBA) technique and RULA of 46.0% of high-risk bus drivers at action level 3 who experience MSDs, which are caused by inappropriate driving posture (Andreoni et al., 2002). According to Lee (1990), seat features such as surface, shape, type of backrest angel, spine support, steering control (steering and pedal), eye view, and availability of headroom can affect driving posture and lead to develop low back pain.

Table 5
RULA body posture and level action analysis e- hailing drivers in Johor Bahru

RULA Body Segment	N	Percentage (%)
Parts A		
Arm / Wrist	73	28%
Lower Arm Position	57	22%
Wrist Position	66	25%
Wrist Twist	66	25%
Parts B		
Neck	92	35%
Truck Position	102	39%
Legs	68	26%
Parts A + Parts B = Action Score Level		
Interpretation Action Score	**Action Score**	**N (%)**
1/2: Acceptable	1	0
3/4: Investigate further	2	15 (5.7)
5/6: Investigate further and change soon	3	120 (45.8)
7: Investigate and change immediately	4	127 (48.5)

Note: N= 262, n=frequency, %= percentage

Discussion

According to the results, the majority of e-hailing drivers in Johor Bahru are between 31 to 60 years old (80.9%), and 98.1% of men are full-time e-hailing drivers. This result was similar to the findings of Wang et al (2017); Jamaluddin et al (2021), in which 97.0% of taxi driver (e-hailing) respondents were male, with an average age of 37 years and more than 55 to 68 years. This research shows that drivers continue to work in e-hailing after they retire. The reason that older drivers continue to work at this age is not simply for financial reasons, but also to keep themselves socially active (Jamaluddin et al., 2021).

49.6% of respondents did not have any chronic health problems and were in excellent health. Furthermore, the descriptive study found that 77.5% of people in Johor Bahru, would work and drive e-hailing for more than eight hours in a car. According to Mahudin (2020), individuals who work less than 12 hours per week and between 13 and 36 hours per week have a more favourable impression of the safety atmosphere than those who work 61 hours or more.

Research involving professional drivers found a significant correlation between lower back pain and the duration of time as bus drivers (Tamrin et al., 2007). According to Bovenzi and Zadini (1992); Chen et al., (2005); Funakosh et al (2004), they found that long work hours, a small space to drive in, shocks from the road surface, the total miles driven by an experienced taxi driver, job dissatisfaction, and work stress are all significant predictors between health problem on low-back pain and working environment in taxi drivers.

RULA analysis is a procedure designed to record the body posture of an e-hailing driver while they are seated and performing a task (driving). According to the study's findings, the e-hailing drivers need to take action on driving posture, with 48.5% claimed they need to investigate

and change immediately and 45.8% mentioning they need to investigate further and change soon. The body's posture in a prolonged sitting position while driving has been linked to fatigue in the body's back muscles, which results in muscle tension in the spine and low back pain problems, according to previous studies (Coenen et al., 2014; Vandergrift et al., 2012; Wanamo et al., 2017).

The height, weight, and age of the taxi driver himself are additional elements that have an impact on the driving posture that contribute significantly to the issue of MSDs (Coenen et al., 2014). Even though the body's biomechanical function gets worse with age and muscles are more likely to get hurt and take longer to heal, this problem gets worse when driving posture is awkward and stays the same position for a long time.

Conclusion and Recommendation

The study provides a preliminary perspective among the community of e-hailing drivers and a baseline overview of the association between the working environment during COVID-19 and health issues among e-hailing drivers in Johor Bahru, Johor from a Malaysian overview by an ergonomic perspective. Furthermore, e-hailing drivers are urged to assess their risk in the workplace to prevent any possible health issues. The concern for a decrease in work styles that might induce MSDs should educate e-hailing to prevent health issues and enhance well-being. The practise of obtaining sufficient and precise data regarding musculoskeletal disorders should begin with the early involvement of e-hailing drivers in order to reduce the possibility of the problem through an ergonomic approach.

The research also provides significant information on the factors that influenced e-hailing drivers to develop MSDs when COVID-19 emerged. This research has the potential to be utilised by the government and the Malaysian Ministry of Transport as data to act and address existing concerns among e-hailing drivers over the risk of COVID-19 affecting the working environment and causing health problems. Therefore, medical institutions should pay close attention to this community in terms of health issues and long-term effects, particularly on the well-being of family institutions and the extremely high cost of treatment among the low-income community.

More intriguingly, those who had worked less hours compared to those who had worked more hours also had a greater sense of the safety atmosphere. The explanation for these findings is as of yet unknown, necessitating further research because the cross-sectional nature of the data from a small sample of drivers constrained the scope of this study. Furthermore, the ergonomic element of car seats for drivers is an intriguing subject to investigate, since this could encourage drivers to participate in the e-hailing system.

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