

Prevalence Of Back Pain Among Food Delivery Riders In Kota Bharu, Kelantan: A Preliminary Study

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Abstract

The introduction of Industrial Revolution 4.0 and the current pandemic has increased the demand for food delivery services. However, riding motorcycles may pose the risk of experiencing musculoskeletal disorders. This study aimed to assess the prevalence of back pain among food delivery riders. A cross-sectional study was conducted among 39 riders in Kota Bharu. A modified and adapted questionnaire from Nordic Musculoskeletal Questionnaire was used to assess the musculoskeletal symptoms. The data were analyzed using descriptive statistics and Chi-Square Test. This study found that the highest one-year prevalence of whole body for the food delivery riders was lower back pain (59.0%), followed by neck pain (53.8%), shoulder pain (53.8%), and upper back pain (48.7%). Whereas for seven-days prevalence was led by both lower back pain and shoulder pain (59.0%, respectively). Classification of work and the delivery bag did show significant associations with lower back pain ($p < 0.05$). Meanwhile lifting load and body bending were associated significantly with experiencing upper back pain ($p < 0.05$). In conclusion, work-related characteristics had demonstrated significant associations with back pain. The riders should adopt a good posture while riding to prevent back pain. Measures should also be taken by both the management company and the rider, as to improve the working conditions of these delivery riders.

Keywords: food delivery; musculoskeletal disorders; back pain; riders; posture.

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1.0 INTRODUCTION

Delivery services have always become one of the most demanded services among Malaysians. The advancement of technologies of the Fourth Industrial Revolution (IR4.0) has led to changes in work trends, reduced the redundancy in job tasks, enhanced the skills of respected employees or machinery, and made the production cost considerably cheaper [1]. IR4.0 definitely makes many things become more manageable. For example, in the food and beverages sector, ordering food and meals from restaurants are readily available at your fingertips with the bits of help from the booking application and reduces the waiting time for people to commute to the physical restaurants and order the food. In fact, with the help of the latest technology, the customer can have all the menus served at their favorite restaurants sent to them by the food delivery rider. The COVID-19 outbreak significantly impacted the food and beverages industry during the first two years. There were several restrictions implemented, such as the number of customers to dine-in at the restaurant, only fully vaccinated customers were permitted to go to the shops, and even some restaurants did not allow kids to dine-in because, at that moment, the kids still did not get their vaccination jab. Hence, food delivery services have become an essential tool for the public during the COVID-19 pandemic. In Malaysia, a few food delivery companies recorded a 30 percent increase in orders during the Movement Control Order (MCO) period [2]. More restaurants have registered for the delivery concepts to cater to the situation, therefore, there was also increasing demand for the job as a rider as well. According to [3], when MCO was enforced in Malaysia, food delivery riders acted as front liners in ensuring that people who stayed at home had enough access to food. Delivery riders usually work from morning till midnight every day. They

need to deliver the orders while carrying a storage bag of the delivered items.

The riders would consider the motorcycle as their workstation as they are riding the motorcycle to deliver the order [4]. Most of the food delivery was performed by the motorcycle rider as compared to car rider; as it is more convenient, cost-effective in term of fuel consumption and less wear-and-tear issues, have fewer maintenance requirements, has ease of parking access and easily pass-through congested areas [5]. But, riding the motorcycle itself may expose them to hazards. Sitting posture while riding is one of the common hazards to riders. Awkward sitting posture may affect the riders to suffer from back pain [5]. Back pain has resulted from an awkward posture where the position of the body deviates significantly from a neutral position while accomplishing work activities [6]. A previous study showed that motorcyclist has the highest prevalence in the low back region, which costs them low back pain (LBP) [7]. LBP is a condition where the person feels immobilizing pain in the lower part of the back, which is at the lumbar spine. The back pain will be manifested in the upper and lower back region and is reported to have the highest prevalence of discomfort among motorcyclists [5,7].

Awkward posture can occur when the riders do not sit appropriately while riding the motorcycles. A study shows that back pain is more prevalent among occupational motorcyclists than non-occupational motorcyclists [8]. Food delivery riders are exposed to many hazards during the riding process. The motorcycles are relatively not an ergonomic design viewpoint. Plus, the riders may suffer from back pain because of the absence of a backrest, limited space, and available adjustment to balance their equilibrium while riding [5]. A study has shown that the longer the riding duration, the more it causes fatigue among motorcyclists [8]. MSDs cause the motorcyclist to suffer from fatigue and discomfort during work. This leads to poor work performance and low income because they will work below the expectation of hour work as the delivery rider [9, 10]. MSDs did not only cause problems among food delivery riders but other occupations and professionals' fields such as teaching professions, lorry or car drivers, students, and office workers [10,11,12,13]. MSDs have many side effects on workers, for example, increased financial loss due to work absences, medical treatment, early retirement, and poor work performances [10].

This study aimed to assess the risk factor of back pain among food delivery riders in Kelantan. This study will help the riders be more alert and conscious of their working conditions. Moreover, the riders can learn about risk factors that influence back pain. Thus, this study will help to increase the awareness of hazard exposure to riding a motorcycle. From this study, the riders will get the chance to improve their riding posture to the best working posture.

2.0 METHODOLOGY

This study adopted a cross-sectional study design. The study's respondents were the food delivery riders that deliver food using motorcycles throughout the Kota Bharu district in Kelantan. Out of eight available food delivery companies in Kelantan, this study approached only two of the established companies which cover broader delivery areas in Kota Bharu. The respondent's inclusion criteria for this research were a motorcycle rider aged 18 years old and above, stationed in Kota Bharu area and a registered delivery rider. Meanwhile, the exclusion criteria were a rider who worked less than six months as a food delivery rider and those with a history of undergoing an operation related to the back area of the body. This data collection was conducted from December 2020 till July 2021. The accepted margin error of this study was 5% and the confidence level that was used in this study was 95%. Hence, the estimated sample size after including the dropout of 20% was 132 respondents.

This study utilized a simple random sampling method. The food delivery riders were selected randomly using a random number generator from a name list obtained from both companies. After that, they were given a set of questionnaires to answer. A self-administered and modified questionnaire in the Malay language was administered using a Google form. The questionnaires were distributed via email or WhatsApp to the food delivery riders. The questionnaire consists of demographic background, work-related information, health information, and Nordic Musculoskeletal Questionnaire (NMQ). A pilot test was conducted before the actual data collection took place. In this pilot study, 30 food delivery riders from the same population were involved and were excluded from the data collection. Then, the questionnaires were analyzed for their reliability ($\alpha = 0.926$).

This study was granted the permission from both of the food delivery companies, and The Human Research Ethics Committee of the university (USM/ JEPeM /21010081). A list of food delivery riders who work in Kota Bharu was obtained from the delivery companies, in which the list separated those motorcycle riders and car riders. Once the approval had been granted, the researcher randomly contacted the respondents via email or WhatsApp. The delivery riders were given the research information and consent form. Once they agreed to participate, they were directed to the questionnaire. Data were analyzed using IBM Statistical Package for Social Sciences version 26.0. After all the filled questionnaires were returned to the researchers, data entry was done.

3.0 RESULTS AND DISCUSSION

3.1 Socio-demographic characteristics

This study only captured 39 respondents with a response rate of 29.55%. The limitation was expected due to the Movement Control Order (MCO) situation that was caused by the COVID-19 pandemic. The researcher could only communicate with the respondents through messaging or phone calls for inquiries and feedback. As a result, the low response rate for this study can be justified. Table 1 shows the distribution of socio-demographics. The respondents comprised of 97.4% male riders with one participation from a female rider. The age of respondents ranged from 21 to 51 years old; where the majority of them came from the age group of 21 to 30 years old (71.8%). More than half of the respondents were married (35.9%). Almost half of the respondents (41.0%) had a bachelor's degree as their highest level of education, unlike the previous study [9] which the majority of the respondents (86.9%) had a secondary education as their highest level of education. Around 66.7% of respondents had income between RM 1,001 to RM 4,000. There were 20.5% of the respondents were left-handed.

Table 1: Socio-demographic characteristics

Socio-demographic characteristics	Mean (SD)	n (%)
Gender		
Male		38 (97.4)
Female		1 (2.6)
Age (years old)	28.03 (6.96)	
21-30		28 (71.8)
31-40		8 (20.5)
41-51		3 (7.7)
Marital status		
Single		25 (64.1)
Married		14 (35.9)
Body Mass Index (BMI) (kg/m²)	27.49 (8.39)	
Underweight (<18.5)		1 (2.6)
Normal (18.5-24.9)		18 (46.2)
Overweight (25-29.9)		7 (17.9)
Obese (>30)		13 (33.3)
Left-handed		
No		31 (79.5)
Yes		8 (20.5)

N=39

3.2 Work-related characteristics

Table 2 describes the respondents' work-related characteristics, such as job classification, duration of work and other variables. There were 56.4% full-time and 43.6% part-time respondents from this study. A full-time rider is described as the official main job, while a part-time rider is the one who does the delivery after the working hours of the official main job. Working experience ranged from six months to one year and one to two years, with a similar number of respondents (41.0%, respectively). Meanwhile, on average, 17.9% of the respondents had worked as food delivery riders for two to three years. More than half of the respondents (61.5%) worked less than nine hours per day, while 38.5% worked about nine to 15 hours per day. More than half of the respondents (59.0%) worked around 41 to 80 hours a week. The respondents agreed that the activities involved during the delivery of food were lifting load (61.5%), twisting body (61.5%), carrying load (59.0%), and body bending (56.4%). Around 71.8% of respondents carried the food delivery bag while riding, and half of them (51.3%) agreed that the bag provided back support to their bodies while riding. Around 61.5% of respondents agree that the bag leads to bad posture. The mean weight of the bag was 5.167kg (±3.173).

Table 2: Work-related characteristics

Work-related characteristics	Mean (SD)	n (%)
Job classification		
Full timer		22 (56.4)
Part-timer		17 (43.6)
Months of work (months)	17.69 (8.532)	
6 months – 12 months		16 (41.0)
13 months – 24 months		16 (41.0)
25 months – 36 months		7 (18.0)
Daily Working hours (hours)	8.28 (3.379)	
<9 hours		24 (61.5)
≥9 hours		15 (38.5)
Delivery bag act as a back support		
Yes		19 (48.7)
No		20 (51.3)

Delivery bag leads to bad posture	
Yes	24 (61.5)
No	15 (38.5)
N=39	

3.3 Health Characteristics

Table 3 shows the distributions of health characteristics of the respondents, such as existing disease, past accidents, and smoking. Around 7.7% of respondents did have diseases such as high blood pressure, eczema and diabetes, while 92.3% of respondents did not have any existing disease. Only 23.1% of the respondent had experienced a past accident that involved injury on the neck, shoulder, upper back and lower back. The accident had happened back in 2012 to 2020. Around 10.3% of the affected respondents did seek treatment from the health practitioner, 5.1% of respondents had undergone an operation and took medication, respectively and only one (2.6%) of them did not seek any medical treatment. 46.2% of the respondents were smokers, 35.9% never smoked and 17.9% of respondents had stopped smoking.

Table 3: Health Characteristics

Health characteristics	n (%)
Existing disease	
No	36 (92.3)
Yes	3 (7.7)
Past accident involving injury on neck, shoulder, upper back and lower back	
No	30 (76.9)
Yes	9 (23.1)
Smoking	
Smokers	18 (46.2)
Never smoke	14 (35.9)
Stopped smoking	7 (17.9)

3.4 Influencing activity of back pain

Table 4 shows the influencing activity that could lead to back pain that the respondents presumed. The presumed influencing activities were posture while riding, prolonged sitting, and discomfort while riding. The influencing activities were analyzed using the Likert scale and the result showed that the respondents agreed that prolonged sitting was ranked as the primary influencing activity (4.08 ±1.010), followed by discomfort while riding (3.95 ±1.099), and bad posture while riding (3.85 ±1.065).

The respondents perceived the top activities contributing to back pain were prolonged sitting, discomfort while riding, and bad posture. Most respondents agreed that discomfort while riding would result in back pain. Nevertheless, none of them had a significant association with back pain among food delivery riders. From the influencing factor, prolonged sitting on the motorcycle was presumed to be the most reasonable activity that could lead to back pain, but no association was found. However, the previous study found that among the dull time, commercial motorcyclists who always practised prolonged sitting and were frequently exposed to vibration while riding had developed back pain [10].

Table 4: Influencing activity of back pain that the respondents presumed

Activity	Mean (±SD)
Prolong sitting	4.08 (1.010)
Discomfort while riding	3.95 (1.099)
Bad posture while riding	3.85 (1.065)

3.5 Prevalence of back pain

This study defined back pain as an ache, pain, discomfort, or numbness in the neck, shoulder, upper back and lower back. The highest prevalence for 12 months and seven days was lower back pain (59%) (Table 5). It was noticeable that more than half of the food delivery riders experienced lower back pain as the most prominent body section for back pain. A similar finding was also found by other studies conducted among occupational motorcyclists [7,9]. The previous study found the prevalence of lower back pain in more than 50% of the population studied. Another local study had a similar prevalence rate where LBP was recorded as the highest prevalence among occupational and non-occupational motorcyclists [5]. Another study conducted among traffic police officers documented that more than half of the population studied experienced a 12-month prevalence of work musculoskeletal disorder symptoms (WMSDs) [9]. Meanwhile, for seven days' prevalence, shoulder and lower back parts were the highest prevalence reported (59%). A study conducted among male traffic police officers riding high-powered motorcycles reported the highest prevalence of neck and shoulder pain (35.8%) [9]. The food delivery rider often used their shoulder to carry the delivery bag. The majority (71.8%) need to carry the bag while riding. Moreover, the result showed that 73.9% of respondents who carried

the delivery bag suffered from shoulder pain for the past seven days. Plus, around 34.8% of the riders who suffered from shoulder pain took a medical leave from work. However, this study reported that the prevalence of shoulder pain was higher for seven days prevalence when compared to 12 months’ prevalence. A previous study found that acute or chronic shoulder pain may develop later and cause relapses in the individual [11]. The individual who suffered shoulder pain at the other time might be symptom-free when joining this study because the pain may subside over time [11].

Neck pain showed a consistent prevalence between seven days and 12 months’ prevalence (53.8%). The traffic police officers were also found to experience the highest prevalence of neck and shoulder pain (35.8%) [9]. A high prevalence of neck pain was also found in a study conducted among dentists, with 83.8% of the respondents experiencing neck pain for a 12-month prevalence [12]. More than half of secondary school teachers (59.7%) suffered from neck pain 46 after having a career as a teacher [13]. Lastly, upper back pain with 48.7% and 43.6% of prevalence for seven days and 12-month prevalence, respectively.

Table 5: Prevalence of back pain among the respondents

Body parts	Prevalence (%)	
	12 Month	7 days
Lower back	23 (59.0)	23 (59.0)
Shoulder	21 (53.8)	23 (59.0)
Neck	21 (53.8)	21 (53.8)
Upper back	19 (48.7)	17 (43.6)

3.7 Association between selected factors with back pain

The result of the association between selected factors with upper and lower back pain among food delivery riders were depicted in Table 6 and Table 7, respectively. The result showed significant associations between lifting load activity and body bending with upper back pain ($p < 0.05$) (Table 6). Other selected factors showed a non-significant association ($p > 0.05$) with upper back pain. Table 7 shows the association between selected factors with lower back pain. The result showed significant associations between the type of work and delivery bag leading to bad posture with lower back pain ($p < 0.05$). Other selected factors showed a non-significant association ($p > 0.05$) with lower back pain.

The classification of work was found to have a significant association with LBP. The classification of work was divided into two, full-time and part-time riders. There were 73.9% of full-time food delivery riders who suffered from LBP and 26.1% of part-time food delivery riders. More than half of the full-time riders (59.1%) worked exceeded 9 hours per day and 77.3% worked more than 40 hours per week. It contradicted with part-timer riders as the majority of them (88.2%) worked equal or less than nine hours per day. The riders who work more than 40 hours per week showed that they worked hard to earn their living for the job. It also showed that they spent a long time on the motorcycles in a week. There could be a higher possibility of developing WMSDs when riders spend more time riding a motorcycle than other people using different types of transportation [9].

Socio-demographic factors such as age, gender, marital status, and education did not significantly affect back pain. The result contradicted a previous study’s finding that respondents’ age had significant statistical associations with LBP [10,14]. A previous study also found that educational level did influence the occurrence of LBP where people with low educational qualifications tend to have a higher report on LBP compared to people with higher education and economic status [15]. BMI showed a non-significant association with back pain. BMI was listed as a risk factor of back pain under the socio-demographic category. The mean BMI among respondents in this study was 27.49 (± 8.39) kg/m², which reflected the ‘Overweight’ category. The result was contradicted with a study among motorcyclists in Malaysia that showed BMI was significantly correlated with discomforts among the respondents [3].

Table 6: Association between selected factors with upper back pain

Selected factors	Upper back pain, n(%)		X ²	p value
	Yes	No		
Age			0.065	0.798
≤30	14 (50.0)	14 (50.0)		
≥31	5 (45.5)	6 (54.5)		
Marital status			0.300	0.584
Single	13 (52.0)	12 (48.0)		
Married	6 (42.9)	8 (57.1)		
Body Mass Index (BMI) (kg/m²)			0.648	0.421
<25 (Underweight & Normal)	8 (42.1)	11 (57.9)		
≥25 (Overweight & Obese)	11 (55.0)	9 (45.0)		

Income (RM)				0.328	0.849
Less than RM 1,000	4 (50.0)	4 (50.0)			
RM 1,001 to RM 4,000	12 (46.2)	14 (53.8)			
RM 4,001 to RM 10,000	3 (60.0)	2 (40.0)			
Classification of work				2.174	0.140
Full time	13 (59.1)	9 (40.9)			
Part time	6 (35.3)	11 (64.7)			
Weekly riding time (hour)				0.620	0.431
1-40 hours	8 (57.1)	6 (42.9)			
>40 hours	11 (44.0)	14 (56.0)			
Months of work				2.262	0.323
6-12 months	6 (37.5)	10 (62.5)			
13-24 months	8 (50.0)	8 (50.0)			
25-36 months	5 (71.4)	2 (28.6)			
Activity (lifting load)				4.744	0.029*
Yes	15 (62.5)	9 (37.5)			
No	4 (26.7)	11 (73.3)			
Activity (bending body)				4.496	0.034*
Yes					
No	14 (63.6)	8 (36.4)			
	5 (29.4)	12 (70.6)			
Activity (twisting body)				0.742	0.389
Yes	13 (54.2)	11 (45.8)			
No	6 (40.0)	9 (60.0)			
Activity (carrying load)				3.313	0.069
Yes	14 (60.9)	9 (39.1)			
No	5 (31.3)	11 (68.8)			
Carry delivery bag during riding				2.82	0.093
Yes	16 (57.1)	12 (42.9)			
No	3 (27.3)	8 (72.7)			
Bag as back support				0.227	0.634
Yes	10 (52.6)	9 (47.4)			
No	9 (45.0)	11 (55.0)			
Delivery bag lead to bad posture				2.309	0.129
Yes	14 (58.3)	10 (41.7)			
No	5 (33.3)	10 (66.7)			
Existing disease				3.421	0.064
Yes	3 (100.0)	0			
No	16 (44.4)	20 (55.6)			
Past accident					0.065#
Yes	7 (77.8)	2 (22.2)			
No	12 (40.0)	18 (60.0)			
Gender					1.000#
Male	19 (50.0)	19 (50.0)			
Female	0	1 (100)			

Chi Square Test

*significant at $p < 0.05$

#Fisher's Exact Test

Table 7: Association between selected factors with lower back pain

Selected factors	Lower back pain, n(%)		X ²	p value
	Yes	No		
Age				0.307#
≤30	18 (64.3)	10 (35.7)		
≥31	5 (45.5)	6 (54.5)		
Marital status			0.030	0.862
Single	8 (57.1)	6 (42.9)		
Married	15 (60.0)	10 (40.0)		
Body Mass Index (BMI) (kg/m²)			0.616	0.433
<25 (Underweight & Normal)	10 (52.6)	9 (47.4)		
≥25 (Overweight & Obese)	13 (65.0)	7 (35.0)		
Income (RM)			1.969	0.374
Less than RM 1,000	3 (37.5)	5 (62.5)		
RM 1,001 to RM 4,000	17 (65.4)	9 (34.6)		
RM 4,001 to RM 10,000	3 (60.0)	2 (40.0)		
Classification of work			6.985	0.008*
Full time	17 (77.3)	5 (22.7)		
Part time	6 (35.3)	11 (64.7)		
Weekly riding time (hour)			1.400	0.237
1-40 hours	10 (71.4)	4 (28.6)		
>40 hours	13 (52.0)	12 (48.0)		
Months of work			2.613	0.271
6-12 months	7 (43.8)	9 (56.2)		

	13-24 months	11 (68.8)	5 (31.2)		
	25-36 months	5 (71.4)	2 (28.6)		
Activity (lifting load)				1.526	0.217
	Yes	16 (66.7)	8 (33.3)		
	No	7 (46.7)	8 (53.3)		
Activity (bending body)				1.768	0.184
	Yes	15 (68.2)	7 (31.8)		
	No	8 (47.1)	9 (52.9)		
Activity (twisting body)				0.011	0.918
	Yes	14 (58.3)	10 (41.7)		
	No	9 (60.0)	6 (40.0)		
Activity (carrying load)				0.903	0.342
	Yes	15 (65.2)	8 (34.8)		
	No	8 (50.0)	8 (50.0)		
Carry delivery bag during riding				3.237	0.072
	Yes	19 (67.9)	9 (32.1)		
	No	4 (36.4)	7 (63.6)		
Bag as back support				0.616	0.433
	Yes	10 (52.6)	9 (47.4)		
	No	13 (65.0)	7 (35.0)		
Delivery bag lead to bad posture				10.516	0.001*
	Yes	19 (79.2)	5 (20.8)		
	No	4 (26.7)	11 (73.3)		
Existing disease				2.261	0.133
	Yes	3 (100.0)	0		
	No	20 (55.6)	16 (44.4)		
Past accident					0.056#
	Yes	8 (88.9)	1 (11.1)		
	No	15 (50)	15 (50.0)		
Gender					1.000#
	Male	22 (57.9)	16 (42.1)		
	Female	1 (100.0)	0		

Chi Square Test

*significant at $p < 0.05$

#Fisher's Exact Test

Another study showed a significant association with BMI and physical exercise with chronic pain in the low back, neck or shoulder of the respondents [16]. Other related factors that could influence the presence of back pain were long working duration, type of work, bending activity while riding, and factor of the delivery bag, which will lead to bad posture. In this study, working experience as a food delivery rider showed a non-significant association with back pain, unlike a study among police traffic riders which showed a significant association between working experience and back pain [9]. In addition, activities while riding such as lifting load, bending body, twisting body, and carrying load may influence back pain. This showed that the lifting load activity had a significant association with upper back pain, while bending the body trunk had a substantial association with upper back pain. The reported risk factor for WMSDs was lifting activity, as it was the only consistent potential physical risk factor for LBP [17]. Based on the previous study conducted among the traffic police officers, repeated lifting of motorcycle stand on and off parking had resulted in neck and shoulder pain [8,9] but not for the upper back pain. Heavy lifting activities might lead to the development of musculoskeletal disorders [18].

The bending body activity might have been performed several times during the working hours. The body's bend would involve the whole back area and spine to move; hence, the rider has to bend to lift or put down the food. For example, when the rider wants to take out the food from the delivery bag, write the order number on the food cover, and bend their back or lean on their back while riding. It was done repeatedly as they delivered the order. Moreover, the rider who wore a helmet while riding a motorcycle needs good support from the rider's neck [19]. Hence, this can lead to a muscle problem in the neck area and spinal cord directed to the muscular trapezius on the shoulder [9]. A study among the construction workers found three risk factors: bending, twisting or cramped posture activity that might relate to the rise of intradiscal pressure and preceded to LBP [17].

The delivery bag could cause poor posture since it made the rider uncomfortable while riding. Due to the presence of the delivery bag, they have a restricted amount of room to modify their position on the motorcycle seats. A delivery bag could provide as back support, as agreed with by 48.7% of the respondents. Lower back pain was significantly associated to the delivery bag that caused poor posture ($p < 0.05$). According to a prior study, utilizing a two-strapped bag increased erector spinae activity [20]. The bearer had to balance the load to ensure that the weight on the spine was spread equally when carrying a bag [21]. Having uncomfortable and bad posture when riding or driving might cause back pain [7,9,22]. Additionally, because they had to ride for extended periods of time while carrying big loads, on roads with bad conditions, and in the face of dangers like accidents, injuries, and exhaustion [23], food delivery riders may be confronting health-related issues. The typical riding posture of the rider is sitting down when operating a motorcycle. As a result, their body's

center of gravity was concentrated in the hip and waist region. As a result of the hip and waist region bearing the majority of the body weight, fatigue and strained muscles may develop there [9].

4.0 CONCLUSION

This study was conducted with the intention to assess the prevalence of back pain among food delivery riders. The highest 12 months' prevalence was low back pain (59.0%), while for seven days' prevalence was led by lower back pain and shoulder pain (59.0%, respectively). This was followed by shoulder and neck pain with 53.8%, respectively and upper back pain with 48.7%. The primary influencing factors of back pain that the respondents presumed were prolonged sitting (4.08 ± 1.010), followed by discomfort while riding (3.95 ± 1.099), and bad posture while riding (3.85 ± 1.065). The selected factors that had a significant association with back pain were working experience, classification of work, the activity of lifting load and bending body, and delivery bag lead to bad posture ($p < 0.05$).

4.1 Recommendation

The food delivery riders are encouraged to do a stretching exercise for every hour of riding. This practice may help to relax the muscles and return the blood flow to all over the body. The riders are also suggested take a break after riding a long distance and move around in a safe manner. This study also showed the importance of having lumbar support to reduce the back pain suffered by the riders. Then, a further study of back pain among food delivery riders should be conducted with a broader range of target populations. Further study may focus more on MSDs, discomfort rating and vibration experienced during riding.

4.2 Limitation of study

This study was conducted during the Movement Control Orders in Kelantan; hence, limited number of respondents were gathered. Some of them had agreed earlier to participate, but the response was halfway due to their self-limitation. The researcher was also having trouble gathering and meeting the study population and only could communicate through messaging or phone calls for feedback. There might be a recalled bias as this study relied on a questionnaire where the respondents may or may not be able to remember the details of themselves. Generalization to the population cannot be made since the response rate for this study was low.

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