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# Risk Factors Overview of Low Back Pain in *Ojek* Drivers in South Jakarta in 2017

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## ABSTRACT

Jakarta citizens use the ojek as their daily transportation because it is cheap, easy, and fast and also because that happens every day. Ojek is transportation driven by a driver who has to sit for an extended amount of time. Low back pain is one of the risk factors that could make an ojek driver riskier to have a musculoskeletal disturbance. This research aims to determine the relationship between age, body mass index, working period, length of work, physical activity, work position, and smoking habit with low back pain complaints on ojek drivers in South Jakarta. This research is an analytical observational with cross-sectional study research, the sampling methods being used as a simple random sampling technique with 92 respondents. According to the result of the research, it could be summarized that there is a relationship between working period(p=0.004), smoking habits (=0.045), and work position(p=0.028), and there is no relation between age, length of working, physical activity, body mass index with low back pain incidence on ojek driver at South Jakarta.

**Keywords**: Age, Working Period, Smoking Habit, Exercise, Body Mass Index, work Position

## INTRODUCTION

Technology in transportation is now increasingly sophisticated in line with human needs, which is never enough. There are various considerations in choosing the type of transportation that can be used, such as practicality and speed to reach the destination. It is what makes many motorcycle users, especially in Indonesia. Motorcycles are vehicles that are cheap to obtain, cheap to maintain, practical and can also reach their destination faster considering the increasingly severe congestion conditions, especially in big cities [1]. It is why many people prefer motorbikes to cars.

However, there are also drawbacks to using this motorbike, especially in the health conditions of the rider, such as exposure to sunlight, wind, rain, and musculoskeletal disorders to accidents that cause other trauma. It can happen when the driving conditions are less ergonomic [2]. The number of people who need fast and practical transportation has caused creative businesses based on fast shuttles with motorbikes to appear. Initially, it started with simple technology, namely bicycles, in early 1969 in Indonesia, and as technology developed, motorcycles are now used as a means of transportation for motorcycle taxis. *Ojek* are bicycles or motorbikes mined by piggybacking passengers or their tenants [3].

Motorcycle riding as the primary profession puts *ojek* drivers at risk of health problems, one of the most common being muscle and ligament tension or musculoskeletal syndrome. It is due to work that is accustomed to sitting in a vehicle for a long time with uncomfortable posture [4]. Poor health conditions can reduce the

quality and quantity of work results, which will have an impact on the amount of income and welfare for workers. Decreased welfare will also impact health conditions both physically and mentally, and so on [5].

Therefore, workers' health must be considered to minimize losses that may arise. Motorcyclists who ride their motorbikes in poor health can be dangerous because of the risk of accidents up to the most severe ones leading to death. Road traffic accidents are the eighth leading cause of death worldwide. It is estimated that by 2030, traffic accidents will be the fifth leading cause of death in the world [6]. In Indonesia, it was revealed that 72% of traffic accidents that occur involve motorcycles [7]. In 2009, there were 164,431 accidents involving motorcycles. This figure increased when compared to 2008 as many as 95,209 accidents [8].

These numbers can be reduced if motorcyclists pay more attention to safety and health. Preventive measures can also be taken if the risk factors for health problems are known, which will be discussed, especially the musculoskeletal syndrome in the lower back area, which many motorcyclists feel, especially those who work as motorcycle taxis. Low back pain is pain felt in the lower back area, and it can be local pain or radicular pain or both. This pain is felt between the lower costal angles to the lumbar or lumbosacral area and is often accompanied by radiating pain to the legs and feet. Low back pain can be caused by musculoskeletal diseases, psychological disorders and incorrect mobilization [9]. Although not a life-threatening disease, low back pain is a significant health problem in the Western Industrial Society. It affects the number of sufferers each year and causes severe discomfort and financial loss.

Dini Diwayani from the Department of Neurology, Faculty of Medicine, UNPAD, stated that the average incidence of low back pain in productive age in Jatinangor, West Java was 38.4% studied from studied 1075 people of productive age. The prevalence of low back pain in productive men is 40.4%, while it is 37.3% [4]. Based on the explanation above, the problem is "Overview of risk factors for the incidence of low back pain in *ojek* driver in South Jakarta in 2017". This research aims to find out the factors related to the level of complaints of low back pain in *ojek* drivers in South Jakarta in 2017.

## LITERATURE REVIEW

Low back pain is a clinical syndrome with manifestations of pain and discomfort in the back body area with the border of the 12th rib to the gluteal folds with or without radiating to the legs [9]. Low back pain includes Lumbar Spinal Pain, Sacral Spinal Pain, and Lumbosacral Pain. Low back pain can be classified into three categories: Chronic Back Pain, Acute Back Pain, and Subacute Back Pain [10; 11].

Low Back Pain can occur due to various factors such as individual characteristics, working conditions such as lifting weights manually (manual handling & lifting), lifestyle and psychological factors. In some cases, low back pain is also caused by trauma to the back, osteoporosis, or long-term use of corticosteroids. Pain in low back pain can be centred on various tissues such as muscles, ligaments, joint cartilage, and blood vessels. These tissues can be pulled, tensed, stretched, or dislocated, which will have an inflammatory effect and produce cytokines and/or chemokines [12]. The chemical stimulates nerve tissue to produce the sensation of pain. The inflammatory process will continue, and swelling will occur. The affected area will experience a decrease in blood intake, resulting in oxygen and nutrients not being channelled optimally, and the uptake of inflammatory products will be disrupted, which causes inflammation and pain feedback.

Signs and symptoms of low back pain can be categorized as follows, namely, uncomplicated low back pain and low back pain with neural disorders. The risk factors for low back pain are age, years of service,

duration of work, smoking, body mass index, physical activity, work attitude, vibration (Whole Body Vibration), and a history of skeletal and trauma-related diseases [13; 14; 15].

The vertebral column consists of 33 vertebrae, and five bones make up the spine, namely the cervical, thoracic, lumbar, sacrum, and coccyx [16; 17]. These bones are connected by joints consisting of fibrocartilage cartilage. Of the 33 vertebrae, only 24 of them can be actively moved. The vertebral column supports the body so that it can be upright, bent, even twisted and, at the same time, protects the spinal cord from injury. Strong bones and muscles, flexible tendons and ligaments, and sensitive nerves contribute to a healthy spine. The vertebrae are divided into two parts. The anterior part consists of the vertebral bodies, intervertebral discs for articulation and the anterior and posterior longitudinal ligaments for support. Posteriorly, pedicles, laminae, vertebral canals, and the transverse and spinous processes provide support [18; 19].

The pathophysiology of Low Back Pain is that pain mediators in the form of nociceptors on peripheral sensory neurons, are helpful for warning of potential damage to the skin by transduction of the stimulus into an electrical signal sent directly to the brain [20; 21]. This stimulus will be responded to by releasing inflammatory mediators that will cause pain perception. Pain mechanisms are needed to minimize movement so that the healing process can be carried out quickly. Another protective mechanism is to cause ischemia which is initiated by muscle spasms. Inflammatory pain arises from the pressure that occurs on the nerve sheath that is rich in nociceptors. Pain is usually felt along the nerve fibres and increases with movement or stretching. There is also direct compression of the nerve fibres causing pain at the affected site [22].

**Management of Low Back Pain consists of:**

a. Analgesic: The primary management of low back pain is controlling pain, maintaining function, and preventing exacerbations. Analgesics commonly used to manage low back pain are paracetamol, NSAIDs, or weak opioids. However, difficulties were found in treating chronic low back pain because of the side effects of long-term treatment. For example, long-term administration of opioids can cause addiction to the drugs used, so the use of slow-release forms of opioids is an option in treating chronic low back pain to prevent dependence [23].
b. Surgery: Usually, after drug administration, one does not experience pain relief as a last resort. It is usually done if the pain is caused by a herniated nucleus pulposus (HNP).
c. Neuro-reflexotherapy Intervention: NRT is a temporary epidermal implant placed at the site of pain to reduce persistent pain, neurogenic inflammation, and muscle contractures [23].

## RESEARCH METHOD

This study used an analytic observational research design with a cross-sectional approach. The researcher only observed and measured the variables: age, body mass index, years of service, working duration, smoking habits, physical activity, and work attitude with low back pain. Everything is done simultaneously. The research was conducted at *ojek* bases in Duren Tiga, Tebet, and Kuningan, South Jakarta, from October-December 2017. The population of the study was *ojek* drivers. The research sample is a subject from a population that meets the sample criteria. The sampling technique in this study was simple random sampling. The number of samples sought is based on the prevalence of events in areas with similar characteristics and can represent the population.

$$n = \frac{Z\alpha^2 PQ}{d^2}$$

Description:
Q = 1-P
P = Prevalence
Zα = 1.96
d = desired relative determination (10%)

$$n = \frac{1.96^2 \times 0.404 \times (1-0.404)}{0.1^2} = \mathbf{92.4}$$

The number of samples obtained is calculated at 92.4 and is rounded up to 92 samples. Data was collected using primary data; namely, respondents were interviewed directly on the spot using a questionnaire about low back pain. The research instrument is a questionnaire containing questions answered directly by the respondents (attachment 1). It is done by visiting the respondent at the location and asking the respondent's willingness to answer questions according to their experience. The questions in this questionnaire are closed (close-ended); namely, the respondent only chooses the answer choices that have been provided in the questionnaire. The questionnaire test was conducted to measure the reliability of the instrument. Researchers conducted a test questionnaire on 20 respondents who had criteria that matched the inclusion criteria. Validity is an index that shows the measuring instrument measures what is being measured. Questions in the questionnaire are valid if they are easily understood by respondents and can measure the concept that the researcher will measure. Reliability is an index that shows how a measuring instrument or instrument can be trusted or relied on. Cronbach's alpha was used to test the reliability of the research instrument. A questionnaire is said to be reliable if it is obtained from the instrument test results that the value of Cronbach's alpha > criteria (0.60). In the questionnaire test, this study obtained the results of Cronbach's alpha of 0.779 (> 0.60), so this research questionnaire was declared valid. All data collected will be recorded, grouped, and then processed using the SPSS (Statical Product and Service Solution) program. The crosstab test was used to see the incidence of low back pain in *the ojek* drivers, and the chi-square test was used to see the correlation of risk factors for low back pain in *the ojek* drivers. Data processing is carried out through editing, coding, data entry and cleaning processes. The data analysis technique was carried out through univariate and bivariate analysis techniques.

## RESULT AND DISCUSSION

This research was conducted in three locations in South Jakarta, namely, Duren Tiga, Tebet, and Kuningan. More than a few *ojek* drivers have become part of the online motorcycle taxi company, so many respondents are not from the area. *ojek* drivers live in the Jabodetabek area and receive pending orders. Based on a survey, most *ojek* drivers use automatic type motorbikes for reasons that are more practical, economical, and lighter to use when stuck in traffic. However, some use a motorcycle for motorsport.

**Table 1. Distribution of Frequency and Characteristics of Low Back Pain on *ojek* Drivers in South Jakarta**

| Variable | Number | % |
|---|---|---|
| **Sex** | | |
| Male | 92 | 100 |
| **Age** | | |
| <35 years old | 42 | 45.7 |
| >35 years old | 50 | 54.3 |
| **BMI** | | |
| <25 Kg/m$^2$ | 56 | 60.9 |
| >25 Kg/m$^2$ | 36 | 39.1 |

| Variable | Number | % |
|---|---|---|
| **Years of service** | | |
| <5 years | 82 | 89.1 |
| **Variable** | **Number** | **%** |
| >5 years | 10 | 10.9 |
| **Working Duration** | | |
| <8 hours | 30 | 32.6 |
| >8 hours | 62 | 67.4 |
| **Distance** | | |
| <80 km | 28 | 30.4 |
| >80 km | 64 | 69.6 |
| **Body Position** | | |
| hunchback (<90°) | 45 | 48.9 |
| upright (90°) | 47 | 51.1 |
| **Main job** | | |
| *Ojek* as the primary job | 10 | 10.9 |
| *Ojek* is not the main job | 82 | 89.1 |
| **The Family's Main Breadwinner** | | |
| The primary breadwinner of the family | 88 | 95.7 |
| Not the primary breadwinner of the family | 4 | 4.3 |
| **Frequency of LBP Symptoms** | | |
| Often | 82 | 89.1 |
| rarely | 10 | 10.9 |
| **LBP Disrupts Work** | | |
| Yes | 74 | 80.4 |
| No | 18 | 19.6 |
| **Difficulty Body Bending** | | |
| Yes | 40 | 43.5 |
| No | 52 | 56.5 |
| **Difficulty Body Straightening** | | |
| Yes | 40 | 43.5 |
| No | 52 | 56.5 |
| **Changing Sitting Position** | | |
| Often | 72 | 78.3 |
| rarely | 20 | 21.7 |
| **Pain After Rest** | | |
| yes | 58 | 63 |
| No | 34 | 37 |
| **Pain When Sneezing/Coughing** | | |
| No | 50 | 54.3 |
| Yes | 42 | 45.7 |
| **Pain that radiates to the lower extremities** | | |
| No | 67 | 72.8 |
| Yes | 25 | 27.2 |
| **Pain radiates to the abdomen** | | |
| No | 91 | 98.9 |
| Yes | 1 | 1.1 |
| **Burning Pain** | | |
| No | 37 | 40.2 |
| Yes | 55 | 59.8 |
| **There's a Vacation day** | | |
| Yes | 83 | 90.2 |
| No | 9 | 9.8 |
| **Stress in the Last 6 Months** | | |
| Yes | 74 | 80.4 |
| No | 18 | 19.6 |
| **Comfortable with the Motorcycle Used** | | |
| Yes | 59 | 64.1 |
| No | 33 | 35.9 |
| **Driving When Traffic is Congested** | | |
| Yes | 79 | 85.9 |
| No | 13 | 14.1 |
| **Accident History** | | |
| Never | 67 | 72.8 |
| Mild | 15 | 16.3 |
| Severe | 10 | 10.9 |

| Variable | Number | % |
|---|---|---|
| Heavy | 0 | 0 |
| **Decreased Appetite** | | |
| **Variable** | **Number** | **%** |
| No | 42 | 45.7 |
| Yes | 50 | 54.3 |
| **Drinking-Water Consumption** | | |
| >2 litre | 65 | 70.7 |
| <2 litre | 27 | 29.3 |
| **Sports Routine** | | |
| Yes | 20 | 21.7 |
| No | 72 | 78.3 |
| **Smoking Cigarette** | | |
| Yes | 68 | 73.9 |
| No | 24 | 26.1 |
| **Alcohol** | | |
| Yes | 27 | 29.3 |
| No | 65 | 70.7 |
| **Adequate sleep (8 hours/day)** | | |
| Yes | 35 | 38 |
| No | 57 | 62 |
| **Pain increases when you wake up** | | |
| Yes | 41 | 44.6 |
| No | 51 | 55.4 |
| **Comfortable Sleep** | | |
| Yes | 48 | 52.2 |
| No | 44 | 47.8 |

Table 1. shows the distribution and frequency of the research sample. The number of respondents is 92 online and conventional *ojek* drivers active in the South Jakarta area. All respondents studied were male. Most of the respondents studied were over 35 years old; namely, 54.3% (50 people) and the rest (42 people), as many as 45%, were less than 35 years old.

The respondents' body mass index mainly was less than 25 Kg/m^2, as many as 60.9% (56 people) and those more than 25 Kg/m^2 were 39.1% (36 people). 89.1% (82 people) of respondents have worked as an *ojek* for less than five years, and 10.9% have worked as an *ojek* for more than five years. *ojek* drivers with a work duration of more than eight hours were 67.4% (62 people) and 32.6% (30 people) for less than eight hours. This number shows that more *ojek* drivers exceed the practical time limit at work.

A total of 30.4% (28 people) of *ojek* drivers cover a distance of less than 80 km in a day, and 69.6% (64 people) of *ojek* drivers cover a distance of more than 80 km in a day. *ojek* drivers who drive in an upright position are 51.1% (47 people) and 48.9% (45 people) who drive in a stooped position. It shows that more *ojek* drivers ride with their thighs and back seated at 90 degrees than those who do not. 89.1% (82 people) chose *ojek* as their primary job, while 10.9% (10 people) had other jobs besides being an *ojek*. As many as 95.7% (88 people) are the primary breadwinner in the family, and 4.3% (4 people) are not the primary breadwinner in the family. There is 89.1% (82 people) history of *ojek* driver who often experiences low back pain, and 10.9% (10 people) rarely feel low back pain while working as a motorcycle taxi. 80.4% (74 people) felt disturbed by low back pain that interfered with their work, while 19.6% (18 people) did not feel disturbed.

As many as 43.5% (40 people) of *ojek* drivers find it difficult to bend down due to low back pain, and 56.5% (52 people) and 56.5% (52 people) find it difficult to straighten their body, and 43.5% (40 people) did not find it difficult.

78.3% (72 people) and 21.7% (20 people) did not do so. As many as 63% (58 people) of *ojek* drivers still feel low back pain even after resting, and as many as 37% (34 people) no longer feel low back pain after resting. A total of 54.3% (50 people) of *ojek* drivers felt pain when sneezing or

coughing, and as many as 45.7% (42 people) did not feel pain when sneezing or sneezing or coughing. As many as 15.2% (14 people) did not feel that low back pain interfered with their daily activities, while 84.8% (78 people) felt that their daily activities were disturbed due to low back pain. A total of 27.2% (25 people) of *ojek* drivers felt pain radiating from the lower back to the legs, while 72.8% (67 people) did not feel pain radiating.

The burning pain was felt by 59.8% (55 people) of *ojek* drivers who experienced low back pain. A total of 40.2% (37 people) did not feel pain like burning. A total of 90.2% (83 people) of *ojek* drivers have a day off in a week, and 9.8% (9 people) do not have a day off. 80.4% (74 people) experienced stress in the last six months, and 19.6% (18 people) did not experience stress in the last six months. This number shows that more *ojek* drivers with low back pain experienced stress in the last six months. 64.1% (59 people) and 35.9% (33 people) did not feel comfortable with their motorbikes. As many as 85.9% (79 people) of *ojek* drivers drive when the traffic is heavy/congested, and 14.1% (13 people) choose to avoid driving when the traffic is heavy/congested. Traffic jams in South Jakarta increased from 7.00-10.00 and 16.00-20.00. Traffic jams also occur outside these hours caused by many traffic factors. There are 72.8% (67 people) of *ojek* drivers who have never experienced a traffic accident and experienced trauma. 16.3% (15 people) of *ojek* drivers experienced minor accidents, namely accidents that did not cause injury and could still carry out their activities. 10.9% (10 people) had a moderate accident that caused an injury that interfered with their activities but did not need to be hospitalized. No *ojek* driver has had serious accidents and had to be hospitalized and stop their activities. A total of 54.3% (50 people) of *ojek* drivers experienced decreased appetite due to perceived low back pain, and 45.7% (42 people) did not experience a decrease in appetite. *ojek* drivers who consume more than two litres of drinking water a day are 70.7% (65 people), and *ojek* drivers who consume less drinking water are 29.3% (27 people). It is recommended that 2 litres of drinking water be consumed in a day to meet the fluid needs of the human body.

*ojek* drivers who regularly exercise in a week are 21.7% (20 people) and 78.3% (72 people) who do not exercise. 73.9% (68 people) of *ojek* drivers smoked, and 26.1% (24 people) did not smoke. This number shows that more *ojek* drivers are active smokers. 29.3% (27 people) consumed alcohol, and 70.7% (65 people) did not consume alcohol. This number shows that more *ojek* drivers do not consume alcohol. 38% (35 people) of *ojek* drivers sleep enough, and 62% (57 people) don't. Adequate sleep is meant to sleep for at least 8 hours a day. An increase in lower back pain when waking up was felt in 44.6% (41 people), and 55.4% (51 people) did not feel an increase in pain. 52.2% (48 people) of *ojek* drivers feel comfortable sleeping, and 47.8% (44 people) do not feel comfortable sleeping.

**Table 2. Frequency Distribution of Low Back Pain Classification on *ojek* Drivers in South Jakarta**

| LBP Classification | Number | % |
|---|---|---|
| Acute | 43 | 46.7 |
| Sub Acute | 35 | 38.0 |
| Chronicle | 14 | 15.2 |
| **Total** | **92** | **100** |

Table 2 shows the frequency distribution of low back pain in *ojek* drivers classified into three acute, sub-acute, and chronic. A total of 46.7% (43 people) of *ojek* drivers experienced acute low back pain for less than five weeks, 38% (35 people) experienced subacute low back pain for 5-12 weeks, and 15.2% (14 people) experienced chronic low back pain for more than 12 weeks.

**Table 3. Distribution of the Effect of Risk Factors with Low Back Pain Incidence on *ojek*Drivers in South Jakarta**

| | | *Low Back Pain Classification* | | | Asymp. Sig (2-sides) |
|---|---|---|---|---|---|
| | | Acute | Sub Acute | Chronicle | |
| **Usia** | | | | | |
| | < 35 years old | 22 | 12 | 8 | 0.213 |
| | > 35 years old | 21 | 23 | 6 | |
| **Total** | | **43** | **35** | **14** | |
| **BMI** | | | | | |
| < 25 Kg/$m^2$ | | 27 | 19 | 10 | 0.507 |
| > 25 Kg/$m^2$ | | 16 | 16 | 4 | |
| **Total** | | **43** | **35** | **14** | |
| **Years of service** | | | | | |
| | < 5 Tahun | 41 | 32 | 9 | 0.004 |
| | > 5 Tahun | 2 | 3 | 5 | |
| **Total** | | **43** | **35** | **14** | |
| **Working duration** | | | | | |
| | < 8 jam | 19 | 9 | 2 | 0.063 |
| | > 8 jam | 24 | 26 | 12 | |
| **Total** | | **43** | **35** | **14** | |
| **Smoking cigarette** | | | | | |
| | Yes | 28 | 31 | 9 | 0.043 |
| | No | 15 | 4 | 5 | |
| **Total** | | **43** | **35** | **14** | |
| **Physical Activity** | | | | | |
| | Routine | 12 | 6 | 2 | 0.396 |
| Not a routine | | 31 | 29 | 12 | |
| **Total** | | **43** | **35** | **14** | |
| **Body Position** | | | | | |
| | Upright | 28 | 15 | 4 | 0.028 |
| | hunchback | 15 | 20 | 10 | |
| **Total** | | **43** | **35** | **14** | |

Table 3. shows the results of statistical tests using Chi-Square on the age factor does not affect the incidence of low back pain seen from the Asymp. Sig results of 0.213. In the body mass index (BMI) factor, the Asymp. Sig value of 0.507 indicates that BMI does not affect the incidence of low back pain. The work period factor was obtained from Asymp. Sig of 0.004 indicates that the length of service affects low back pain in *ojek* drivers. On the work duration factor, the Asymp. Sig result of 0.063 shows no relationship between the length of work duration and the incidence of low back pain.

Likewise, the physical activity factor obtained an Asymp. Sig of 0.396 indicates no influence between physical activity and the incidence of low back pain in *ojek* drivers. However, the work attitude factor and smoking habit obtained Asymp. Sig values of 0.000 and 0.045, respectively. It shows an influence of work attitude with smoking habits on *ojek* drivers.

## 1. Age

**Ho:** There is no relationship between age and the incidence of low back pain in
*ojek* drivers in South Jakarta.

**Ha:** There is a relationship between age and the incidence of low back pain in *ojek*
drivers in South Jakarta.

In this study, the chi-square test results for the age factor were p=0.213 (>0.05), proving Ho, namely, there was no relationship between the respondent's age and the incidence of low back pain in *ojek* drivers in South Jakarta.

Respondents aged less than 35 years, 22 of whom experienced acute low back pain, 12 people experienced subacute low back pain, and eight people experienced chronic low back pain. Respondents aged over 35 years, 21 experienced acute low back pain, 23 experienced subacute low back pain, and six experienced chronic low back pain. It is supported by the research of Riningrum H and Widowati E, who

examined the relationship between years of service and the incidence of low back pain in garment sewing workers in Semarang with p=0.554 (<0.05).

However, this result contradicts the theory by Tarwaka that complaints of low back pain begin to be felt at the age of more than 35 years [24]. Muscle strength begins to decline when a person reaches the age of 25 years, but the number of muscle fibres also influences this. If the muscles are large, the energy generated from the metabolic process is also high so that the strength is relatively constant. Good muscle strength at over 35 can be influenced by a healthy lifestyle and endurance [24].

**2. BMI**

**Ho:** There is no relationship between body mass index and the incidence of low
back pain in *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between body mass index and the incidence of low
back pain in *ojek* drivers in South Jakarta.

The results of the chi-square test on the body mass index factor obtained p=0.505 (>0.05), clarifying that there is no relationship between body mass index (BMI) and the incidence of low back pain in *ojek* drivers in South Jakarta. So Ho is declared proven. The results are different from the research by Wijaya MP in Kendari, which obtained a value of p = 0.011 (<0.05), indicating that there is a relationship between body mass index and the incidence of low back pain in furniture workers. Overweight workers are 51.2%, while those who are non-overweight are 48.8%. More workers are overweight [26]. More riders can cause this difference in results with low back pain who have a low BMI (<25 Kg/m^2) found in the field, which is as much as 60.9%. The difference in results may also be influenced by the method of obtaining data by simply asking the respondent their weight and height (questionnaire) so that many of the respondents' weight and height do not match their original weight and height.

**3. Years of service**

**Bivariate analysis was carried out to prove the hypothesis:**

**Ho:** There is no relationship between years of service and the incidence of low
back pain among *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between years of service and the incidence of low
back pain among *ojek* drivers in South Jakarta.

The chi-square test results showed p = 0.004 (<0.05), indicating a relationship between years of service and the incidence of low back pain in *ojek* drivers in South Jakarta. So, the null hypothesis is rejected. The same result in the study conducted by Fashihullisan regarding the relationship between years of service and low back pain on weavers, obtained p = 0.000. These results indicate a relationship between tenure and the incidence of low back pain [27].

Then, when it is related to the theory, it said that the longer the working period, the longer the exposure at work to the disease caused is higher the risk [24].

**4. Working Duration**

**Bivariate analysis was carried out to prove the hypothesis:**

**Ho:** There is no relationship between work duration and the incidence of low
back pain among *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between work duration and the incidence of low back pain among *ojek* drivers in South Jakarta.

The chi-square test results obtained p = 0.063 indicate that there is no relationship between work duration and the incidence of low back pain in *ojek* drivers in South Jakarta, so Ho can be said to be proven. In contrast to the previous study by Anggraini M T regarding work duration increasing the incidence of low back pain in cigarette factory workers, the result was p = 0.042, indicating a relationship between

work duration and the incidence of low back pain [28]. Respondents' inaccuracy in answering questions and differences in the duration of work each day allow differences in research results with existing theories.

**5. Smoking Cigarette**

**Bivariate analysis was carried out to prove the hypothesis:**

Ho: There is no relationship between smoking habit and the incidence of low back
pain in *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between smoking habits and the incidence of low back
pain in *ojek* drivers in South Jakarta.

The chi-square test results obtained a value of p = 0.045 (<0.05), indicating a relationship between smoking habits and the incidence of low back pain in *ojek* drivers in South Jakarta, so Ha is proven. A study conducted by Septadina IS regarding low back pain and the risk factors that influence it obtained a p-value = 0.04 (<0.05) on the smoking variable on low back pain. It shows similar results where there is a relationship between smoking habits and the incidence of low back pain [29].

**6. Physical Activity**

**Bivariate analysis was carried out to prove the hypothesis:**

**Ho:** There is no relationship between physical activity and the incidence of low
back pain among *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between physical activity and the incidence of low
back pain in *ojek* drivers in South Jakarta.

The chi-square test resulted in a p-value = 0.396 (> 0.05), indicating that there was no relationship between physical activity and the incidence of low back pain, so Ho proved that there was no relationship between physical activity and the incidence of low back pain in *ojek* driver in South Jakarta. In a study in Konawe Regency, Southeast Sulawesi, the results obtained p = 1,000 (> 0.05) showed no relationship between physical activity and the incidence of low back pain. These results have similarities to strengthen the statement that there is no relationship between physical activity and the incidence of low back pain [30].

**7. Body Position**

**Bivariate analysis was carried out to prove the hypothesis:**

**Ho:** There is no relationship between work attitude and the incidence of low back
pain among *ojek* drivers in South Jakarta.

**Ha:** There is a relationship between work attitude and the incidence of low back
pain in *ojek* drivers in South Jakarta.

The result is p = 0.028 (<0.05) in the chi-square test, so Ho is rejected. These results indicate a relationship between work attitude and the incidence of low back pain in *ojek* drivers in South Jakarta. In a study conducted in Medan, which Nurzannah conducted, p=0.039 (<0.05) showed a relationship between work attitude and the incidence of low back pain in loading and unloading workers [29]. These results strengthen the statement that there is a relationship between work attitude and the incidence of low back pain in *ojek* drivers in South Jakarta. According to theory, working in an awkward position will cause excessive energy expenditure and inefficient distribution of energy from the muscles to the framework so that it is easy to feel tired; in this study, the awkward position is described as a stooped sitting position where the hips and back form an angle $<90^0$ [31].

## CONCLUSION

Based on research conducted to describe the risk factors for low back pain among *ojek* drivers, it can be concluded as follows: a) The results of the study on 92 *ojek* drivers spread across South Jakarta who experienced low back pain, 46.7% (43 people) experienced low back pain and the acute pain for less than five weeks, 38% (35 people) experienced subacute low back pain

for 5-12 weeks, and 15.2% (14 people) experienced chronic low back pain for more than 12 weeks; b) There is a relationship between years of service, smoking habits, and work attitudes with the incidence of low back pain among *ojek* driver in South Jakarta; and c) There is no relationship between age, body mass index, duration of work and physical activity with the incidence of low back pain among *ojek* driver in South Jakarta. Thus, it is essential to increase education about maintaining health and identifying risk factors for low back pain in *ojek* drivers to work more effectively and efficiently.

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