

Factors Related to the Low Back Pain (LBP) of Truck Freight Driver on Trans Java-Bali in Gilimanuk

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Abstract: Pain in the lower back that affects productivity in work and activity is an understanding of Low Back Pain (LBP). This study aims to determine the factors associated with complaints of Low Back Pain (LBP) on truck drivers for the Java-Bali freight transportation at Gilimanuk Port. These factors include age, BMI, sports activity, driving duration, and work position. This research is a cross sectional analytic study with the purposive sampling method. The instrument used was a questionnaire with a sample of 38 respondents. Analysis of the data used in univariate and bivariate with the chi-square test. The results of this research are the age factor (p-value = 0.0001), BMI (p-value = 0.046), sports activities (p-value = 0.0001), and driving duration (p-value = 0.019) have a relationship with the occurrence LBP on a trans-Java-Bali freight truck driver in Gilimanuk port. While the work position factor (p-value = 0.501) does not correlate with the occurrence of LBP in the trans-Java-Bali freight truck driver at Gilimanuk Port.

Keywords: Age, BMI, Driving Duration, LBP, Sports Activities, Work Position.

I. INTRODUCTION

Transportation is needed as a link between several regions. Transportation is used as public transportation and freight distribution of the company. The company needs transportation to transfer freights or freight distribution to consumers. More stuff is shipped (47.15%) using truck transport with a load of 100 kg. Truck transportation can be used more than 21 times in a month at the company for freight distribution¹. Shipping freights between islands using trucks with the help of ships has a high intensity, one of which is at the Port of Ketapang-Gilimanuk. The Port of Ketapang-Gilimanuk is the port that has the most docks in Indonesia with ± 995 trucks crossing every day in ± 118 crossings². Increasing community demand for large quantities of freights and long distances make drivers work longer hours. The increase in workload can affect workers' health. This increases the risk of diseases such as Low Back Pain (LBP)³. Low Back Pain (LBP) is a condition of pain or discomfort in the lower back L1-L5 and L5-S1. That part is the vertebra that receives the pressure and most considerable mechanical stress⁴.

Factors that influence the occurrence of LBP are working with long sitting more than 4 hours³. Workers aged 25-39 have an 84.4% risk of LBP⁵. The high public demand for transportation makes drivers rarely take the time to exercise. The risk of contracting LBP is very high for workers without sport activities at least once a week⁶. Research conducted on students with body mass index in overweight and obesity categories has a risk of LBP⁷. There are no reports on what factors are associated with LBP occurrence in freight truck drivers. Based on this problem, many workers have complaints of pain continuously. The number of patients who had pain complaints was 4456 people with 819 of them experiencing LBP complaints⁸. Based on these reports, it is important to know the factors associated with the occurrence of LBP on workers so it can work with high productivity.

II. METHODOLOGY

This research uses a cross-sectional study or analytic cross-sectional study to determine the factors associated with the occurrence of LBP on the truck driver of freight trans-Java at Gilimanuk Bali. This research was conducted from 4 to 6 October 2019 at Gilimanuk Port. The sample used in this research is a freight transport truck driver operating or crossing

from 4 to 6 October 2019 at Gilimanuk Port and willing to become respondents. The sample selection process uses a non-probability sampling type of purposive sampling, using a questionnaire instrument and assessment of work positions using REBA. The variables used in this research were divided into two variables, which are independent variables and dependent variables. The independent variable consists of:

1. Age, the life of a person which is calculated from birth to data collection. Data obtained by checking the SIM or respondent's identity. Divided into two criteria with age ≥ 35 years and ≤ 34 years.
2. Body mass index (BMI), BMI is the distribution of body weight (kg) divided by height squared (m²). Data obtained from weight measurements using electronic scales and height obtained from the identity of the respondent's driver's license. BMI is divided into two categories, which are normal (≤ 24.9 kg / m²) and abnormal (≤ 25 kg / m²).
3. Sports activities carried out are divided into two, routinely exercise and not exercise. The data obtained from the results of questionnaire interviews with respondents.
4. Long-time driving, that is time the driver drives transportation in one trip. Data obtained from questionnaire interviews with respondents. Divided into two parts, which is the length of driving > 8 hours and < 8 hours.
5. Working position, an overview of body position when working. The data is collected by evaluating the REBA form. Work positions are divided into two which is need to be improved and can be ignored.

The dependent variable in this research is Low Back Pain (LBP), which is a complaint of pain felt by someone in the lower back. This data was obtained from the results of the questionnaire interview. The collected data were analyzed statistically using the SPSS 22.0 program and analyzed using univariate and bivariate data analysis with the Chi-square test.

III. RESULT AND DISCUSSION

3.1 LBP on Trans Java-Bali Freight Truck Driver

Based on previous research, there were 38 samples with 27 samples (71.1%) of whom had LBP complaints and 11 samples (28.9%) did not have LBP complaints. Based on the age of workers with LBP, there is an age group ≤ 34 years by 1 person (3.7%), age group ≥ 35 years by 26 people (96.3%). Samples who experienced LBP with normal BMI (≤ 24.9 kg / m²) were 10 people (37%), and abnormal (≤ 25 kg / m²) were 17 people (63%). The number of samples who experienced LBP by never exercise was 23 people (85.2%), and those who routinely exercise were 4 people (14.8%). Samples based on LBP complaints with long driving did not exceed working hours by 4 people (14.8%), which exceeded working hours by 23 people (85.2%). The number of samples that have LBP complaints with work positions doesn't need improvement by 1 person (5.3%) and 26 people (94.7%) need improvement in work positions. For more details on the distribution of LBP are presented in Table 3.1.

Table 3.1: Low Back Pain (LBP) Distribution

Variable	Number of Workers	Presentage (%)
Age		
≤ 34 years old	1	3,7
≥ 35 years old	26	96,3
BMI		
Normal	10	37
Abnormal	17	63
Exercise (Sports Activities)		
Routine	4	14,8
Never	23	85,2
Driving Time		
According to Work Hours	4	14,8
Exceed Working Hours	23	85,2
Work Position		
Don't Need Improvement	1	5,3
Need Improvement	26	94,7

3.2 Factors Related to LBP

The bivariate analysis presents factors related to LBP occurrence in trans Java-Bali freight truck drivers. In this research, a factor has a significant relationship if p-value <0.005. For more details, the data can be seen through the table as follows:

Table 3.2.1: The Relationship between age and LBP

Age	Low Back Pain (LBP)				p
	Pain		Normal		
	N	%	N	%	
≤ 34 Years Old	1	12,5	7	7,0	0,0001
≥35 Years Old	26	86,7	4	57,1	
Total	27	71,1	11	28,9	

Table 3.2.2: The Relationship between BMI and LBP

BMI	Low Back Pain (LBP)				P
	Pain		Normal		
	N	%	N	%	
≤ 24,9 kg/m ²	10	55,6	8	44,4	0,046
≥25 kg/m ²	17	85	3	15	
Total	27	71,1	11	28,9	

Table 3.2.3: The Relationship between exercise (sports activities) and LBP

Exercise (Sports activities)	Low Back Pain (LBP)				P
	Pain		Normal		
	N	%	N	%	
Routinely Exercise	4	33,3	8	66,7	0,001
Never Exercise	23	88,5	3	11,5	
Total	27	71,1	11	28,9	

The results showed that there was a significant relationship between the age factor and the occurrence of Low Back Pain (LBP) in the trans-Java-Bali freight truck driver at Gilimanuk Port. There were 86.7% of respondents aged ≥35 years experiencing LBP complaints. Increasing age affects a person's risk of having LBP complaints. This research is in the following research conducted on urban transport drivers, as many as 52.7% of workers with age over 35 years experience LBP⁹. Body mass index (BMI) factor is a factor that has a significant relationship with the occurrence of LBP in trans-Java-Bali freight truck drivers at Gilimanuk Port. The group with a healthy BMI category has a smaller risk of developing LBP and the group tends to be healthier. The research is in the following results of the research with a p-value = 0.0001 conducted at Dr. Moewardi Surakarta¹⁰. Exercise or sports activity factor has a significant relationship with the occurrence of LBP in the trans-Java-Bali freight truck driver at Gilimanuk Port with a p-value obtained of 0.001. The study is in the following research conducted on labor load and load with LBP results felt in never exercised drivers (p-value = 0.021)¹¹. Routinely exercise drivers are healthier than the group of drivers that never exercise (sports activities).

Table 3.2.4: The Relationship between Driving Time and LBP

Driving Time	Low Back Pain (LBP)				P
	Pain		Normal		
	n	%	N	%	
According to Work Hours	4	40	6	60	0,019
Exceed Work	23	82,1	5	17,9	
Total	27	71,1	11	28,9	

Table 3.2.5: The Relationship between Work Position and LBP

Work Position	Low Back Pain (LBP)				P
	Pain		Normal		
	n	%	n	%	
Don't Need Improvement	1	50	1	50	0,501
Need Improvement	26	72,2	10	27,8	
Total	27	71,1	11	28,9	

Another factor that has a significant relationship with the occurrence of LBP in truck drivers for the Java-Bali freight transportation in the port of Gilimanuk is the length of driving with p-value = 0.019. The results of the research are in the following research of a significant relationship between the length of driving on a public transport driver with the occurrence of LBP¹². The driver group with a long time driving does not exceed working hours has a smaller risk of experiencing LBP complaints and that group is healthier. In the results of the research, the work position factor did not have a significant relationship with the occurrence of LBP in the trans Java-Bali freight truck driver at Gilimanuk Port with a p-value = 0.501. This research is in the following research conducted on Purbalingga Regional Hospital staff with the result don't have a significant relationship between the work position and LBP occurrence¹³. The results of this research are also not in the following research conducted on industrial workers in Boyolali with the results of p-value = 0.009 meaning that it has a significant relationship¹⁴. This condition occurs because the respondents used are few or during the process of data retrieval. Respondents improve the work position, therefore the data don't have a correlation.

IV. CONCLUSION

Based on these results, the factors associated with the occurrence of LBP in the trans Java-Bali freight truck driver at Gilimanuk Port are age, BMI, exercise (sports activities), and driving time. The working position with the occurrence of LBP in the Trans Java-Bali freight truck driver at Gilimanuk Port does not have a significant relationship. Freight truck drivers should pay more attention to factors related to LBP by maintaining healthy lifestyles such as conducting routine sports activities and maintaining nutritional status.

REFERENCES

- [1] Kusumatandianma, D. Aditama, H. Sulistio, H. & Wicaksono, A. Model Pemilihan Moda antara KA dan Truk untuk Pengiriman Barang Koridor Surabaya-Jakarta). 2013;
- [2] Suparsa I.G.P., Optimasi Kinerja Pelabuhan Penyeberangan Ketapang-Gilimanuk. 2009; 13 (1)
- [3] Samara, D. Lama dan Sikap Duduk Sebagai Faktor Risiko Terjadinya Nyeri Pinggang Bawah. *Jurnal Kedokteran Trisakti*. 2004;23(2),pp. 63–67.

- [4] Sayogya, D.D. & Riyanto, A. Perbedaan Pengaruh SWD dan Massage dengan SWD dan Myofacial Release Terhadap Peningkatan Kemampuan Fungsional Low Back Pain Myogenic. 2016; [downloaded: 11 November 2018]
- [5] Koesyanto, H. Masa Kerja dan Sikap duduk terhadap Nyeri Punggung bawah. *Jurnal Kesehatan Masyarakat*. 2013;8(2), pp. 113–120.
- [6] Padmiswari, S. & Griadhi, A. Hubungan Sikap Duduk Dan Lama Duduk Terhadap Keluhan Nyeri Punggung Bawah Pada Pengrajin.2016; 6(2).
- [7] Negara, K. N. D. P., Wibawa, A. & Purnawati, S. Hubungan Antara Indeks Massa Tubuh (IMT) Kategori Overweight Dan Obesitas Dengan Keluhan Low Back Pain (LBP) Pada Mahasiswa Fakultas Kedokteran Universitas Udayana. 2014;
- [8] Standar Pelayanan Medis (SPM) & Standar Prosedur Operasional Neurologi. Perhimpunan Dokter Spesialis Saraf Indonesia. 2008;
- [9] Nelwan C., Joseph W. B. S., & Kawatu P. Hubungan antara Umur dan Posisi Duduk dengan Keluhan Nyeri Punggung pada Pemengemudi Angkutan Kota di Kota Bitung;2014.
- [10] Satyaningrum M. S., Fibriani A., & Mahmudah N. Hubungan Indeks Massa Tubuh dengan Angka Kejadian *Low Back Pain* (LBP). 2014;
- [11] Nurdjanah N., & Puspitasari R. Faktor yang Berpengaruh terhadap Konsentrasi Pengemudi. 2017;29(1)
- [12] Irene R. Hubungan Durasi Mengemudi dengan Keluhan Nyeri Punggung Bawah (Low Back Pain) pada Sopir Angkutan Umum (Superben) Di Bangkinang Tahun 2016. 2017; 1(1)
- [13] Fathoni H., Handoyo, Swasti K. Hubungan Sikap dan Posisi Kerja dengan *Low Back Pain* Pada Perawat RSUD Purbalingga. 2012;7(2)
- [14] Sari R. 2017. Hubungan Sikap Kerja Dan Masa Kerja Dengan Keluhan Nyeri Punggung Bawah Pada Pekerja Industry Rumah Tangga Rambak Kering Desa Dopleng Kecamatan Teras Boyolali. 2017;