

RESEARCH ARTICLE

The Correlation between Duration of Employment, Body Posture and Smoking Habit on Low Back Pain Incidence

An Analytic Observational Study Among Taxi Driver in Semarang Municipality

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ABSTRAK

Pendahuluan: Nyeri punggung bawah merupakan penyakit gangguan neurologi dengan prevalensi tertinggi kedua di Indonesia sesudah sefalgia dan migren. Nyeri punggung sering dialami oleh para sopir, akibat duduk dalam waktu lama, kebiasaan merokok dan kurang olahraga, sehingga mempengaruhi postur tubuh. **Tujuan:** penelitian ini bertujuan untuk mengetahui hubungan antara lama kerja, postur tubuh dan kebiasaan merokok terhadap kejadian nyeri punggung bawah pada sopir taksi.

Metode: dalam penelitian analitik observasional dengan rancangan *cross-sectional*, sebanyak 74 sopir taksi di Kota Semarang diseleksi menggunakan kuesioner *Beck's Depression Inventory Scale* untuk dilakukan inklusi dan eksklusi sampel. Sampel yang lolos kriteria inklusi diberikan kuesioner mengenai Faktor Risiko Nyeri Punggung Bawah. Uji Korelasi Bivariat Koefisien Kontingensi dilakukan untuk melihat hubungan dan keeratan hubungan antara lama kerja, postur tubuh, kebiasaan merokok dengan nyeri punggung bawah.

Hasil: hasil penelitian ini menunjukkan bahwa, postur tubuh sopir taksi yang sudah bekerja selama >10 tahun, adalah tipe astenik dan sebagai perokok sedang. Analisis uji korelasi koefisien kontingensi menunjukkan bahwa terdapat hubungan bermakna antara lama kerja sebagai sopir taksi ($p=0.000$), postur tubuh ($p=0.000$), dan sebagai perokok sedang ($p=0.010$) dengan kejadian nyeri punggung bawah. **Kesimpulan:** Hasil penelitian ini menyimpulkan bahwa sopir taksi dengan lama kerja > 10 th, postur tubuh tipe astenik, dan sebagai perokok sedang mempunyai korelasi positif dengan kejadian nyeri punggung bawah.

Kata kunci : nyeri punggung bawah, lama kerja, postur tubuh, kebiasaan merokok

ABSTRACT

Introduction: Low back pain (LBP) ranks as number two of neurological disease's highest prevalence after cephalgia and migraine in Indonesia.

Objective: This study aim to determine the relationship between duration of employment, body posture and smoking habit on the incidence of low back pain on taxi driver.

Method: This research is an observational analytic cross sectional design. Seventyfour taxi drivers in Semarang municipality was screened with Beck's Depression Inventory Scale to meet the inclusion and exclusion criteria. Respondents were then given Risk Factor of LBP questionnaire. Data were analyzed with a bivariate correlation test contingency coefficient to see the relationship between duration of employment, body posture, smoking habit and low back pain.

Result: the taxi driver with duration of employment >10 years were moderate smokers and having astenik body posture. The analysis of correlation coefficients contingency test showed a significance relationship between duration of employment ($p = 0,000$), body posture ($p = 0,000$), and moderate smokers ($p=0.010$) with the incidence of LBP.

Conclusion: the taxi driver with duration of employment >10 years with astenik body posture, and moderate smokers were positively correlated with LBP.

Keywords : low back pain, duration of employment, body posture, smoking habit

INTRODUCTION

Low back pain (LBP) is a complaint that may affect people of all ages, from children to the elderly. The onset of LBP start at the ages of 20-55 years, and the highest incidence of LBP between the ages of 35 and 55. Besides advancing age, the factors for LBP include

pregnancy, smoking habit, body posture, inflammation and lumbar injury, and psychological factors.

Nowadays, the most common cause of LBP is work related activities especially jobs requiring static postures (sitting) for extended period of time such a driver. Thus, the period of employment as a

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driver can have a detrimental health effect due to the excessive sitting habit. The prolonged sitting can result in a cartilage injury, abdominal & iliopsoas muscle strain iliopsoas because the two muscles are engaged in the task of supporting the body weight while sitting. In fact, muscle strain will lead to spasm and trigger inflammation causing LBP.

The job as a driver is closely related to smoking habit and lack of exercise, worsen the body posture and LBP. This finding supports the result conducted by Perdani in Karyadi central general hospital of Semarang, stating that there is a correlation between body posture and LBP (Perdani, 2010 et Fathoni, 2009). Tana at 2011 conducted a study among medical professionals in Jakarta showing that LBP incidence on smokers were higher than non smokers (Tana, 2011).

The above description shows that working as a driver (taxi driver) requiring prolonged sitting for more than 18 hours a day, accompany with smoking habit and poor body posture are the risk factors for LBP.

METHOD

This was an analytic observational study with a cross sectional design. The population of this study was taxi drivers in Semarang Municipality in the year of 2013 meeting the inclusion and exclusion criteria. The 74 respondents were recruited consecutively. The stress or psychological factors was measured by Beck Depression Inventory scale, while other questionnaire was given to assess LBP risk factors including the body posture type, frequency and duration of smoking habit, duration of driving and also the present of low back pain.

The data were analyzed using bivariate descriptive statistics and of Coefficient Contingency (Dahlan, 2008). The statistical significance level was set at $p < 0.05$.

RESULTS

There were 46 respondents (62.2%) having duration of employment ≥ 10 and 28 respondent (37.8%) having duration of employment < 10 . LBP was more prevalent among those with ≥ 10 duration of employment (93.4%) than those of with < 10 duration of employment (14.3%). The most common body posture of respondents was asthenic (47 respondents or 63.5%) followed by athletic (24 respondents or 32.4%) and leptosome (3 respondents or 4.1%). All of respondents with leptosome (100%), 38 respondents (80.9%) with asthenic type and 6 respondents (25%) with athletic type reported to have LBP. In term of smoking habit, non smokers, heavy, mild, moderate and heavy smokers were 15 (20.3%), 12 (16.2%), 32 (43.2%) and 15 (20.3%)

respectively. All heavy smokers respondents reported LBP (15/15; 100%), while 16 (16/32; 50%) moderate smokers, 7 (7/12, 58.3%) mild smokers and 9 (9/15, 60%) non smokers also reported LBP.

DISCUSSION

The study shows that there is a strong positive correlation between the duration of employment and LBP. It suggests that the longer duration of employment as taxi driver, the more health effects due to prolong sitting such as abdominal muscle sprain and iliopsoas, leading to LBP (Noerjanto, 2006). This finding supports the result conducted by Fathoni (2009) among 32 nurses of RSUD Purbalingga in Januari 2009 stating that there is a correlation between the duration of employment and LBP with $p = 0.021$. Similarly, a study conducted by Tana (2011) among the medical professionals in Jakarta showing a correlation between the duration of employment and LBP with $p = 0.003$.

The study resulted in a moderate correlation between body posture and LBP. This finding supports the study by Perdani (2010) among patients attending Neurology's clinic in central general hospital of Karyadi Semarang showing that there is a correlation between asthenic body posture and leptosome with LBP with $p = 0.000$. This might have been due to protruding belly in asthenic body posture and loss of abdominal and iliopsoas muscle's strength on leptosome body posture (Fathoni, 2009). The two body posture are prone to have strain on both abdominal and iliopsoas muscle, and sprain on ligamentum longitudinalis posterior leading to LBP.

In term of the correlation between smoking and LBP, the study showed that there are a weak correlation between smoking and LBP. This study supports the study by Tana et al (2011) among medical professional working in Hospitals in Jakarta on correlation between smoking habit and LBP. This is due to the fact that the more cigarettes smoked, the more cigarette chemical components (nicotine and carbon monoxide) accumulated in body, hindering the oxygen and nutrition transport to the muscle, ligamentum and intervertebrate discs. As a results, tissues and discs will undergo ischemic that lead to injury and LBP.

In contrary, more non smoking respondents reported more incidence of LBP compared to moderate and light smoking respondents. This might have been due to the asthenic body type of most of the non smoking respondents. Similarly, among the moderate smokers, out of 12 respondents, 7 (58.3%) reported LBP, this was because they have body posture that at high risk of LBP, which were asthenic (6 respondents) and leptosome (1

respondent). Among the moderate smokers, 16 out of 32 respondents (50%) reported to have LBP. Among the moderate smokers, 16 respondents have astenis and 1 leptosome type. Another 16 respondents reporting no LBP, 10 respondents have an athletic body posture and 6 respondents have an astenis type of posture (Fathoni, 2009). In this study, there is a weak correlation between smoking and LBP. This might have been due to the factor of body posture.

CONCLUSION

There is a positive correlation between duration of employment, body posture, smoking habit and LBP with a strong, moderate and weak correlation respectively.

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