

Sick leave due to dorsopathies among bus drivers from a company in São Paulo, Brazil

Atestados médicos por dorsopatias em motoristas de ônibus de empresa na cidade de São Paulo

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ABSTRACT | Introduction: Dorsopathies are common among bus drivers and may result in absenteeism due to work disability. Dorsopathies have a multifactorial etiology, including those related to occupational risk factors. **Objectives:** To analyze the factors associated with sick leave due to dorsopathies among bus drivers from a public transport company. **Methods:** This was a cross-sectional, analytical study with information from a database of 2,229 professional bus drivers from a company in the city of São Paulo, Brazil. The study period was from 2016 to 2017. Independent variables were sex, age group, length of service, and work shift; the outcome was the history of sick leave due to dorsopathies in the study period. Logistic regression analysis was performed to investigate the factors associated with the outcome. **Results:** Mean sample age was 47.33 years, and mean length of service was 8.65 years. Most participants were men (98.06%) and worked during the day (85.9%). There was a 17% prevalence of sick leave in the study period, with an average of 1.86 days per medical certificate. Age group was the only variable with a statistically significant distribution, with a reduced probability of sick leave due to dorsopathies in those aged ≥ 40 years. **Conclusions:** Younger workers were more likely to be on sick leave due to dorsopathies than older workers. Actions aimed at permanent health promotion and disease prevention are important to improve the quality of life and well-being of these workers.

Keyword | low back pain; absenteeism; occupational health; epidemiology.

RESUMO | Introdução: As dorsopatias são condições frequentes entre motoristas de ônibus e cursam com absenteísmo por incapacidade laboral. Tais quadros têm etiologia multifatorial, inclusive relacionada a fatores ocupacionais de risco. **Objetivos:** Analisar os fatores associados à apresentação de atestados médicos por dorsopatias entre motoristas de ônibus de uma empresa de transporte coletivo. **Métodos:** Estudo transversal e analítico com informações de banco de dados sobre 2.229 motoristas de ônibus profissionais de uma empresa na cidade de São Paulo. O estudo compreendeu o período de 2016 a 2017. As variáveis independentes foram sexo, faixa etária, tempo de trabalho na empresa e turno de trabalho; o desfecho foi o histórico de atestado médico por dorsopatia no período em estudo. Foi realizada análise de regressão logística para estudar os fatores associados ao desfecho. **Resultados:** A idade média da amostra foi de 47,33 anos, e a média de tempo de trabalho foi de 8,65 anos. A população foi essencialmente masculina (98,06%), e a maioria trabalhava no turno diurno (85,9%). A prevalência de atestados no período foi de 17%, com média de 1,86 dias por atestado. Apenas a faixa etária apresentou distribuição estatisticamente significante, com redução da probabilidade de atestado médico por dorsopatia a partir dos 40 anos. **Conclusões:** Os trabalhadores mais jovens tinham maior chance de apresentar atestados por dorsopatias do que aqueles mais velhos. Ações permanentes de promoção da saúde e prevenção de doenças são importantes para melhorar a qualidade de vida e o bem-estar dos motoristas de ônibus da empresa.

Palavras-chave | dor lombar; absenteísmo; saúde do trabalhador; epidemiologia.

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INTRODUCTION

Back pain is a major cause of work-related health disorders and may cause abnormalities that limit or prevent the adequate performance of physical activities.¹ Those affected by back pain may experience loss of productivity, increased absenteeism due to illness and suffering, which affects their quality of life, and may require compensation for disability.^{1,2}

Back pain affects both sexes, and 70% to 85% of adults will experience this illness at some point in their lives.³ Its etiology is multifactorial, commonly occurring among economically active people, thus having an important social and economic impact. The worldwide prevalence of dorsalgia ranges from 22.8% to 67.0%, and Brazilian studies suggest a range of 9.6% to 71.5%.³

Dorsopathies may be associated with several risk factors, including age, sex, and work activities. For example, sitting for many hours at a time may contribute to the development of chronic low back pain.¹ A study conducted in a city in the state of São Paulo, Brazil, identified a 65.7% prevalence of self-reported muscle pain in bus drivers, with the shoulders, knees, and spine being the most affected sites.⁴ Another study found a rate of 53% of musculoskeletal pain among bus drivers, and 38% reported pain in the lumbar spine.⁵ A study conducted in India suggests an odds of 2-fold higher to complaints low back pain in among bus drivers than other professionals.⁶ These musculoskeletal conditions may generate presenteeism, resulting in reduced productivity or even short- or long-term sick leave, with a consequent socioeconomic impact on the worker, the employer and society.

There are several occupational risk factors that contribute to the development of back pain among bus drivers, such as a static sitting posture, repetitive movements, and whole-body vibration.^{4,7} These working conditions have psychological and physiological impacts, such as irritability, insomnia, attention disorders, and musculoskeletal symptoms.⁸ Therefore, studies investigating the health of bus drivers in Brazil should be conducted, given their social role in urban mobility.⁹

Within this context, the objective of this study was to analyze the factors associated with sick leave

due to dorsopathies among bus drivers from an urban transport company in the city of São Paulo, Brazil.

METHODS

This was an analytical, cross-sectional study with information from a database provided by the Human Resources department of an urban transport company in the city of São Paulo, Brazil. We requested a report with information on bus drivers who were linked to and working with the company from January 1, 2016, to December 31, 2017. Those who were inactive or on leave prior to the study period were excluded. The following information were requested: sex, age, length of service, work shift, number of medical certificates per code of the “other dorsopathies” group (M50-M54) of the International Statistical Classification of Diseases and Related Health Problems, 10th revision (ICD-10), and number of absent days per sick leave.

Means, standard deviations (SDs) and rates were calculated for the collected information. Logistic regression was performed to identify which variables were associated with the outcome. Independent variables were sex, age group, length of service, and work shift; the outcome was the history of sick leave due to dorsopathies in the study period. Multiple logistic regression was performed to analyze the effect of the covariates in relation to the outcome, using the independent variables that were statistically significant in the univariate regression ($p < 0.05$).

The research was approved by the Research Ethics Committee of Centro Universitário São Camilo (approval no. 4.304.936/2020) and registered in Plataforma Brasil (CAAE 18841519.8.0000.0062). Participants were not required to sign a consent form because the data provided by the company did not have any identifying information.

RESULTS

We identified 2,229 active drivers during the study period. Mean age was 47.33 years (SD 9.37), and mean length of service was 8.65 years (SD 4.58). Most

participants were men (98.06%), and the majority worked during the day (85.9%) (Table 1).

Of the total number of drivers, 379 had been on sick leave due to dorsopathies, indicating a prevalence of 17% from 2016 to 2017, with an average of 1.86 days per leave. The gross total of medical certificates was 891, with a rate of 2.35 certificates per absent driver. The frequency rate was 0.40, or a rate of 40 certificates per 100 drivers; whereas the severity index was 0.74 lost days per worker. Considering a total of 1,627,170 days worked in the study period and a total of 1,657 days of sick leave, there was a rate of 100 lost days per 100,000 days worked. Twenty out of 379 workers received disability benefits because they were on sick leave for more than 15 days, suggesting a 5.2% prevalence among absent workers or a 0.9% prevalence among the total number of company drivers in the study period.

Univariate logistic regression analysis showed that age group was the only variable with a statistically significant distribution. In multiple modeling adjusted

for sex, workers aged < 40 years were 36% more likely to be on sick leave due to dorsopathies compared to workers aged \geq 40 years (odds ratio: 1.36; 95%CI: 1.07-1.73) ($p = 0.012$).

DISCUSSION

A study conducted in Slovenia identified low back pain as the main cause of absenteeism among bus drivers.¹⁰ The frequency of absenteeism due to dorsopathies among professional drivers (car, truck, and bus) in Nigeria and Slovenia was higher than in our study with Brazilian bus drivers.^{11,12} However, the presence of sick leave in this group should encourage analysis and actions aimed at managing the health of these workers, given the negative impact on their perception of quality of life,² among other aspects.

According to national data, the ICD-10 M50-M54 group was the main reason for the issuing of disability benefits from 2016 to 2017.¹³ In the formal labor

Table 1. Distribution of sick leave due to dorsopathies among drivers from a company in São Paulo according to sex, age group, length of service, and work shift, 2016-2017 (n = 2,229)

	n (%)	Medical certificate of sick leave		p-value
		Yes (n = 379)	No (n = 1,850)	
Sex				0.092
Male	2,197 (98.6)	370	1,827	
Female	32 (1.4)	9	23	
Age group (years)				0.007
< 30	48 (2.2)	6	42	
30 to 39	531 (23.8)	112	419	
40 to 49 years	700 (31.4)	125	575	
50 or older	950 (42.6)	136	814	
Length of service (years)				0.253
< 5	556 (24.9)	104	452	
45 to < 10	823 (36.9)	138	685	
10 to < 15	652 (29.3)	114	538	
15 to < 20	147 (6.6)	17	130	
20 or older	51 (2.3)	6	45	
Shift				0.477
Day	1,915 (85.9)	354	1,561	
Night	102 (4.6)	16	86	
Not reported	212 (9.5)	9	203	

market, the worker must be on leave for more than 15 days before applying for the benefit. Therefore, based on the average number of days per medical certificate in the study group, we can assume there is a group of workers affected by disabling conditions who recovered before applying for the benefit.

Moraes et al.⁹ believe that the long hours worked by bus drivers contribute to musculoskeletal pain, which is more prevalent among these workers than in other professions. Sitting for too long and the seat angle are considered risk factors for low back pain among drivers,⁴ as they modify the natural curvature of the spine and increase pressure on the posterior region of the intervertebral discs.⁷ This can lead to biomechanical changes, such as muscle imbalance between trunk extensor and flexor strength and decreased stability and mobility of the lumbo-pelvic-hip complex, which are responsible for the development of lower back pain.¹⁴

Sick leave due to back pain was more prevalent among female drivers than male drivers. There was a significantly higher number of men than women in the sample, which probably influenced the lack of statistical significance in the distribution. This disparity suggests that this type of work is mostly configured as male, given the distribution observed in other countries.¹² Other studies did not evaluate biological sex as a risk factor for absenteeism by cause of dorsopathies due to a small study sample, which did not allow statistical inference,¹⁰ or due to the lack of female bus drivers.^{6,11,15} Considering that there are social (double burden – home/job)¹⁴ and physiological³ characteristics that can cause painful symptoms in the musculoskeletal system, the variable sex was included as an adjustment in the analysis of factors associated with absenteeism due to dorsopathies among bus drivers in this study.

Workers aged < 40 years were more likely to report back pain than older workers. This result is different from other studies. Musculoskeletal pain among bus drivers was associated with those aged > 40 years in India¹⁵ and with older professional drivers in Nigeria.¹¹ The higher probability of sick leave among younger workers suggests the effect of the healthy worker, in which the labor market is composed of healthier and fitter workers.¹⁶ This means that older workers and those with chronic musculoskeletal conditions may be

on leave due to disability or have not been considered suitable for admission to the company. Thus, the older workers found in this group may be “survivors” and, therefore, less susceptible to sick leave due to dorsopathies.

In our study, length of service was not associated with absenteeism, similarly to a study of low back pain complaints^{6,10,11} among professional drivers. Jadhav⁶ found higher prevalence and intensity of low back pain among drivers, but the number of sick leaves and days of hospitalization was lower than among non-drivers. This suggests presenteeism among drivers, meaning that workers have reduced functionality and productivity, with changes in their professional performance, but do not require sick leave.⁶

In Slovenia,¹² the work shift was associated with absenteeism due to low back pain, whereas in India the night shift was associated with low back pain among professional drivers.⁶ One possible explanation would be the relationship between sleep disorders resulting from this condition, which may lead to lower tolerability to physical discomfort, resulting in higher rates of low back pain. In our Brazilian study, the work shift was not associated with sick leave due to dorsopathies; however, the lack of information regarding the work schedule of 9.5% of the participants may have influenced this outcome.

CONCLUSIONS

This study analyzed the prevalence of sick leave due to dorsopathies among bus drivers from a company in São Paulo, Brazil, and found no differences regarding gender, length of service, and work shift. However, younger workers were more likely to be on sick leave due to back pain compared to older workers, which can be explained by the healthy worker effect. Other risk factors were not evaluated in this study, thus limiting the understanding of the problem and hampering the recommendation of interventions.

Lost workdays have socioeconomic impacts on the worker and the company. In view of our study results, which found cases of work disability due to musculoskeletal conditions, we recommend further

analysis for implementation of permanent health promotion and disease prevention actions. Programs aimed at improving health conditions, quality of life and well-being of bus drivers should be developed, given the important social role of this professional category.

Author contributions

ATA was responsible for the study conceptualization, investigation, formal analysis, and writing - original draft. VLB contributed to formal analysis, data curation, and writing - original draft. JSSJ was involved in study conceptualization, formal analysis, data curation, and writing - review & editing. All authors have read and approved the final version submitted and take public responsibility for all aspects of the work.

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