OPEN ACCESS

Rehabilitation Communications
DOI: 10.55627/rehab.002.01.0214

Research Article

Prevalence of Nonspecific Low Back Pain Among the Long Route Bus Drivers in Peshawar, Khyber Pakhtunkhwa Pakistan

Baz Meer Afridi[1]*, Muhammad Suleman Sikander[1], Habib Khan[1], Iftikhar Ahmad[2]

[1]City University Peshawar Pakistan.
[2]NCS Institute of Sciences, Capital Campus, Islamabad, Pakistan
***Correspondence:** bazmeer.afridi786@gmail.com

Abstract

Low back pain (LBP) causes significant socioeconomic loss due to work-related musculoskeletal disorders (WMSDs). Prolonged sitting and vehicle vibration cause back pain, a typical complaint among long-route bus drivers. This study aimed to determine the frequency of job-related nonspecific LBP among long-route bus drivers in Peshawar, Pakistan. A descriptive cross-sectional study was conducted on 348 bus drivers working at three bus terminals (Haji Camp, Lahore, and Daewoo Bus Terminals). Data were gathered from January 2022 to June 2022 using a uniform, modified Nordic questionnaire. The mean age of drivers was 44. The results show a high prevalence of LBP at 93.4%. The most frequently impacted age group was in their fourth decade of life, and the least affected was of the septuagenarians. According to the current study, job-related LBP was common among bus drivers. The study findings showed that long-route bus drivers are at continuous risk of developing nonspecific LBP due to long driving hours, with the driver's weight and age as additional risk factors.

Keywords: Bus drivers, long routes, nonspecific low back pain

1. Introduction

Low back pain (LBP) is a common musculoskeletal condition affecting millions worldwide (Wu et al. 2020). Epidemiological studies of LBP have been conducted among wide-ranging populations and professional drivers in various countries (Wanamo, Abaya, and Aschalew 2017). LBP is the third most prevalent health issue affecting people, after headaches and fatigue (Bader et al. 2018). Bus drivers are more likely to experience musculoskeletal disorders (MSDs), cardiovascular diseases (CVDs), and gastrointestinal disorders (GIDs) than individuals in other occupations, according to studies conducted over the past 40 years (Oakley 2018). Bus driving is an incredibly stressful job with significant psychological demands and low on-job safety (Useche et al. 2017). According to the World Health Organization (WHO), occupational diseases are multifactorial diseases that are influenced by several risk factors, including physical, organizational, psychological, individual, and sociocultural aspects at work (Ullrich 2009). The lumbar spine, often known as the lower back, is one of the fifth subdivisions of the spine. A combination of bones, flexible ligaments, tendons, muscles, and highly complex nerves make up the spine. The spine is thought to be extremely robust. The spine protects the highly sensitive nerve roots (Ankel 2017).

Muscle, bone, nerve, tendon, and other soft tissue pain brought on by work activity are known as a work-related musculoskeletal disorder (WMSD) of LBP. With rising compensation and healthcare costs, declining productivity, and a decreased quality of life,

Table 1 Relationship of Work Experience and LBPs

Have you ever experienced work-related LBP?	
Yes/No	Frequency (%)
No	23 (6.6)
Yes	325 (93.4)
Total	348 (100)

WMSDs are thought to be a substantial contributor to morbidity in several working individuals (Yasobant and Rajkumar 2014, Park et al. 2018). WMSDs are multifactorial in nature, with symptoms that result in conditions that vary across different occupations (Park et al. 2018). The contributing factors include prolonged sitting, whole-body vibration, ergonomic divergence, and the divergence between the drivers' anthropometric sizes and their physical surroundings, including the driving mechanisms (automatic or manual). Individual characteristics like age, gender, weight, height, body mass index, and general health status that drivers experience at work are also linked to health conditions. In the United States, between 1992 and 1997, the bus driver's seat's design was directly responsible for about 5% of Tri-Met bus driver employment compensation claims. Over US $204,000 had been spent on these claims, equaling 23% of the total cost of all compensation claims made during that five-year period (Yasobant, Chandran, and Reddy 2015).

Drivers worldwide have been shown to have LBP at high rates ranging from 53% to 91% (Gkikas 2012). Bus drivers may experience work-related stress due to shift schedules, irregular eating habits, poor nutrition, traffic jams, extended periods behind the wheel, constant visual and mental awareness, and nighttime or driving during inclement weather (Hasan et al. 2021). According to the European Agency for Safety and Health at Work, occupational LBP is any back pain that develops while working and is clinically determined to have been likely caused, at least in part, or made worse by the employee's job (Lastovkova et al. 2018). According to estimates, LBP from occupational exposures caused 21.7 million disability-adjusted life years (DALYs) globally in 2010, and was one of the top 10 diseases and injuries (Hoy et al. 2014). In addition, family, community, industry, and national economies all bear a heavy financial weight due to LBP (Khan et al. 2019). However, not many studies were carried out in the Khyber Pakhtunkhwa region of Pakistan, documenting the prevalence of LBP in long-route drivers. In this study, we investigated the prevalence of LBP in the long-route drivers in three bus terminals in Peshawar, the capital city of the Khyber Pakhtunkhwa province in Pakistan.

2. Methodology

A descriptive cross-sectional survey was carried out at the three bus terminals (Daewoo, Lahore, and Haji Camp Bus Terminals) in Peshawar, Khyber Pakhtunkhwa, during a six-month period (from January 2022 to June 2022). Three hundred forty-eight participants who had nonspecific LBP completed a written informed consent form before taking part in the study. The institutional review board & ethics committee approvals were taken from the City University Peshawar. A non-probability convenience sampling was used for data collection. The collected data was kept confidential to maximize participants' ease and feelings of safety. The inclusion criteria were male drivers over 18 years and willing to participate in our study. The exclusion criteria

Table 2 Severity of pain related to LBP

How severe is your pain on numerical pain rating scale (NPRS) ?	
Range:	Frequency (%)
Low Pain 0-3	119 (34.2)
Moderate Pain 4-6	135 (38.8)
High Pain 7-10	72 (20.7)
Total	326 (93.7)
System	22 (6.3)

Table 3 Onset of LBP Cross Tabulation

When did you first experienced this work related LBP?		
Range:		Frequency (%)
Valid	Less than one month	82 (23.6)
	less than 3 months	96 (27.6)
	Less than 6 months	61 (17.5)
	More than 6 months	58 (16.7)
	Don't know	29 (8.3)
	Total	326 (93.7)
Missing	System	22 (6.3)
Total		348 (100)

included drivers who had any disability, malignancy, or any other spinal comorbidity, including autoimmune and infectious diseases etc. A modified Nordic Questionnaire was used, which is reliable and valid and includes different LBP-related parameters. The questionnaire was translated into the local language (Pashto) from English for local participants. After collection, the data were analyzed through SPSS version 22.

3. Results

Of the 348 Participants in the current study, 325 (93.4%) had positive responses, while the rest of the participants, 23 (6.6%), had no LBP complaints (shown in Table 1). LBP's most frequently affected age group was in its fourth decade of life at 135(38.7%). Most of the drivers with LBP had a work experience of more than five years, i.e., 224 (64.4%). The majority of the drivers, i.e., 193 (55.5%), drove for 4 to 5 hours a day. Similarly, drivers working 4 to 5 days per week constituted the majority of the participants with LBP, i.e., 276 (79.3%).

Drivers with high-intensity pain were 72 (20.7%), moderate-intensity pain were 135 (38.8%), and those with low-intensity pain were 119 (34.2%) as measured by numeric rating scales (NRS) in the current study (shown in Table 2). Our results also showed that 275 (79%) participants were absent from jobs due to LBP. In addition, 167 (48%) participants received pharmacotherapy, while physical therapy treatment was received by 86 (24.7%) and surgical treatment by 34 (9.8%). Participants who received other treatments for LBP were 39 (11.2%). Of the total, 187 (53.7) participants improved with treatment.

4. Discussion

LBP is a relatively common issue that affects most people at some time throughout their lives but its social, economic, and public health consequences are significant. The frequency of

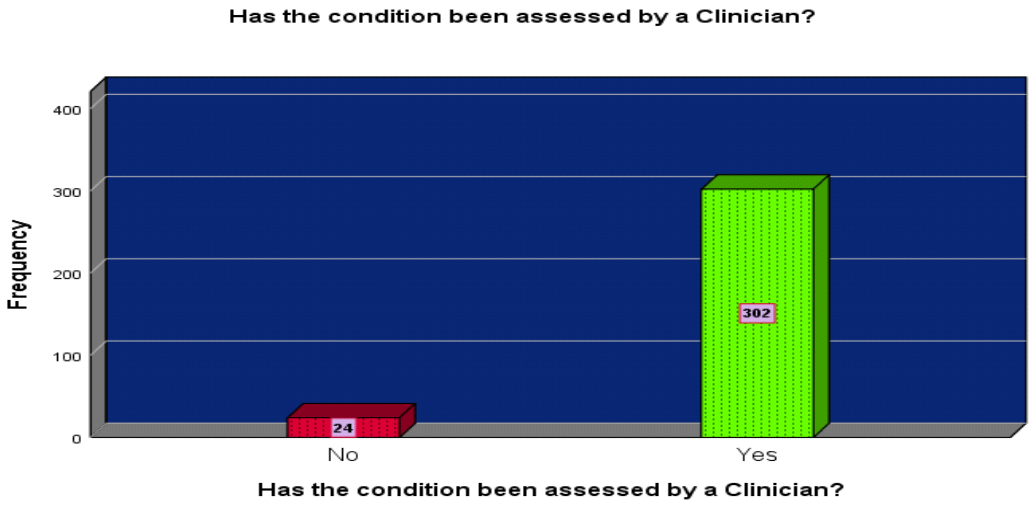

Figure 1: Graphical representation of the frequency of patients who were assessed by a clinician.

nonspecific LBP among long-route bus drivers in Peshawar, Khyber Pakhtunkhwa, Pakistan, is only briefly discussed in the literature. The current study aimed to evaluate the prevalence of LBP among drivers at various bus terminals in Peshawar, Khyber Pakhtunkhwa, Pakistan. An overwhelming majority of our cohort (93.4%) had a history of LBP. It was also found that the most frequently affected age group was in their forties (38.7%), and the least affected group was of the septuagenarians (0.6%). In a relevant study, investigators revealed high WRMSDs in Hong Kong urban bus drivers, and 71.4% of drivers below 40 had LBP (Szeto and Lam 2007). In the current study, 65.68% of drivers below the age of 40 years had LBP.

Our study also shows that drivers with a body weight of 75 kg (n = 49) (14.1%) were maximally affected. Similarly, drivers with high daily driving hours (4-5 hours), more than half of the sample, i.e., 193 (55.5%), were mostly affected. The participants who were driving 1-2 hours were marginally affected 2 (0.6%). A relevant study found that driving for more than 7 hour/ day (8-16 hour/day) increased the risk of LBP by about four times more than those who drove 1-7 hour/day (Nahar, Ashan, and Khan 2012). Another study recruited 273 drivers, in which pain was investigated according to region, such as neck 12 (4.4%), shoulder 35 (12.8%), upper back 17 (6.2%), elbow 3 (1.1%), wrist and hand 2 (0.7%), low back 17 (6.2%), hip and thigh 5 (1.8%), knee 14 (5.1%), ankle and foot (1.8%) (Aslam, Tanveer, and Arshad 2016). This study recorded drivers with high-intensity pain at 72 (20.7%), with moderate-intensity pain at 135 (38.8%), and with low-intensity pain at 119 (34.2%).

Over three-quarters (79%) of the participants, reported occasionally missing work because of LBP. In addition, about half of the participants received pharmacotherapy (48%), about one-quarter received physical therapy, 9.8% had surgery, and 39 people (11.2%) received other types of care.

Paracetamol was once the recommended first-line medicine for LBP. However, the absence of effectiveness in acute LBP and its potential for harm has led to recommendations against its use. Health professionals are guided to consider oral non-steroidal anti-inflammatory drugs (NSAIDs). Opioid therapy should be used only in carefully selected patients for a short duration with appropriate monitoring. The role of gabaergic drugs, such as pregabalin, is now being reconsidered after a 2017 trial showed

pregabalin to be ineffective for radicular pain. Guidelines generally suggest muscle relaxants for short-term use, although further research is recommended (Foster et al. 2018). A separate analysis of 43 trials of the 61 original studies reviewed only therapeutic options with chronic LBP. It examined the characteristics of exercise therapy programs that improved pain and decreased disability for people with chronic LBP (Hayden et al. 2005). According to the results, 187 (53.7%) improved with exercise, 13 (3.7%) worsened, and 126 (36.2%) had no effect.

A separate study in which participants were followed up for one year showed that favorability for surgery was about twice as high as that for nonsurgical treatment (Brox et al. 2003). In addition, the percentage of men was lower in the group given cognitive intervention and exercise (33%) than in the group given lumbar fusion (43%). However, the groups did not differ in age, duration of disease, or occupational education. Twenty-four percent of the patients had surgery, and 22% were given cognitive intervention and exercise at the time of inclusion.

5. Conclusions & Recommendations

This study concludes that long-route bus drivers are constantly at risk of acquiring nonspecific LBP, probably due to many factors, including long driving hours, age, and weight. It was also found that most participants received medical treatment for LBP. Prospective studies are necessary to confirm the cause and effect of this association. The recommendations and suggestions are to avoid prolonged exposure to driving, take regular breaks, avoid overtime work, take vacations whenever possible, and get psychological support. Safety professionals should start with ergonomics, and the cabin of a bus should be comfortable.

Conflict of interest

The authors declare that they have no conflicts of interest to disclose.

Funding

There was no specific funding available for this project.

Study Approval

The review board of the City University Peshawar, Pakistan, approved this study.

Consent Forms

Each participant signed a consent form. These forms are available with the authors.

Authors Contributions

BMA and IA conceptualized the study and wrote the initial manuscript, MSS, and HK helped with the literature search analysis and writing the first draft, MSS, and HK did the data collection and review of the studies, and BMA supervised the whole project and wrote the final manuscript.

Acknowledgments

The corresponding author acknowledges the support of the City University Peshawar, Pakistan, throughout the project.

References

Ankel, Friderun. 2017. "Vertebral morphology of fossil and extant primates." In *The functional and evolutionary biology of primates*, 223-240. Routledge.

Aslam, Muhammad Wajahat, Fahad Tanveer, and Hafiz Sheraz Arshad. 2016. "Job-related musculoskeletal disorders in bus drivers of Lahore, Pakistan." *Int J Sci Res* no. 5 (5):796-800.

Bader, Christine E, Nicholas A Giordano, Catherine C McDonald, Salimah H Meghani, and Rosemary C Polomano. 2018. "Musculoskeletal pain and headache in the active duty military population: an integrative review." *Worldviews on Evidence-Based Nursing* no. 15 (4):264-271.

Brox, Jens Ivar, Roger Sørensen, Astrid Friis, Øystein Nygaard, Aage Indahl, Anne Keller, Tor Ingebrigtsen, Hege R Eriksen, Inger Holm, and Anne Kathrine Koller. 2003. Randomized clinical trial of lumbar instrumented fusion and cognitive intervention and exercises in patients with chronic low back pain and disc degeneration. LWW.

Foster, Nadine E, Johannes R Anema, Dan Cherkin, Roger Chou, Steven P Cohen, Douglas P Gross, Paulo H Ferreira, Julie M Fritz, Bart W Koes, and Wilco Peul. 2018. "Prevention and treatment of low back pain: evidence, challenges, and promising directions." *The Lancet* no. 391 (10137):2368-2383.

Gkikas, Nikolaos. 2012. *Automotive ergonomics: driver-vehicle interaction*: CRC Press.

Hasan, Nurul Atikah Che, Karmegam Karuppiah, Nurul Ainun Hamzah, and Shamsul Bahri Mohd Tamrin. 2021. "Risk Factors of Fatigue: A Systematic Review Among Transportation Drivers." *Malaysian Journal of Medicine and Health Sciences* no. 17 (October):184-192.

Hayden, Jill, Maurits W Van Tulder, Antti Malmivaara, and Bart W Koes. 2005. "Exercise therapy for treatment of non-specific low back pain." *Cochrane database of systematic reviews* (3).

Hoy, Damian, Lyn March, Peter Brooks, Fiona Blyth, Anthony Woolf, Christopher Bain, Gail Williams, Emma Smith, Theo Vos, and Jan Barendregt. 2014. "The global burden of low back pain: estimates from the Global Burden of Disease 2010 study." *Annals of the rheumatic diseases* no. 73 (6):968-974.

Khan, Noor Zaman, Suha K Shihab, Rajesh Attri, Arshad Noor Siddiquee, and Zahid A Khan. 2019. "Prioritization of lower back pain risk factors among industrial workers using the best–worst method." *International Journal of Occupational Safety and Ergonomics*.

Lastovkova, Andrea, Melanie Carder, Hans Martin Rasmussen, Lars Sjoberg, Gerda J De Groene, Riitta Sauni, Jiri Vevoda, Sarka Vevodova, Gerard Lasfargues, and Magnus Svartengren. 2018. "Burnout syndrome as an occupational disease in the European Union: an exploratory study." *Industrial health* no. 56 (2):160-165.

Nahar, Begum Nurun, GU Ashan, and Nazmul A Khan. 2012. "Prevalence of low back pain and associated risk factors among professional car drivers in Dhaka city, Bangladesh." *South East Asia Journal of Public Health* no. 2 (1):60-63.

Oakley, Ann. 2018. *Social support and motherhood (Reissue): The natural history of a research project*: Policy Press.

Park, Jiyoun, Changi Nam, Hye-jin Kim, and Seongcheol Kim. 2018. "What are the relative importance of smart car utilities from consumer perspective and who will lead them?".

Szeto, Grace PY, and Peggo Lam. 2007. "Work-related musculoskeletal disorders in urban bus drivers of Hong Kong." *Journal of occupational rehabilitation* no. 17 (2):181-198.

Ullrich, PF. 2009. "Spinal Anatomy and Back Pain." *Spine-Health Trusted Information for Back Pain Relief. http://www. spinehealth. com/conditions/spine-anatomy/spinal-anatomy-and-back-pain [Diakses 18 Desember 2015].*

Useche, Sergio A, Boris Cendales, Francisco Manuel Alonso Plá, and Andrea Serge. 2017. "Comparing job stress, burnout, health and traffic crashes of urban bus and BRT drivers." *American Journal of Applied Psychology, 2017, vol. 5, num. 1, p. 25-32*.

Wanamo, Melaku Erjabo, Samson Wakuma Abaya, and Ayele Belechew Aschalew. 2017. "Prevalence and risk factors for low

back pain (LBP) among taxi drivers in Addis Ababa, Ethiopia: a community based cross-sectional study." *Ethiopian Journal of Health Development* no. 31 (4):244-250.

Wu, Aimin, Lyn March, Xuanqi Zheng, Jinfeng Huang, Xiangyang Wang, Jie Zhao, Fiona M Blyth, Emma Smith, Rachelle Buchbinder, and Damian Hoy. 2020. "Global low back pain prevalence and years lived with disability from 1990 to 2017: estimates from the Global Burden of Disease Study 2017." *Annals of translational medicine* no. 8 (6).

Yasobant, S, M Chandran, and EM Reddy. 2015. "Are bus drivers at an increased risk for developing musculoskeletal disorders." *An ergonomic risk assessment study. J Ergonom* no. 2015.

Yasobant, Sandul, and Paramasivan Rajkumar. 2014. "Work-related musculoskeletal disorders among health care professionals: A cross-sectional assessment of risk factors in a tertiary hospital, India." *Indian journal of occupational and environmental medicine* no. 18 (2):75.