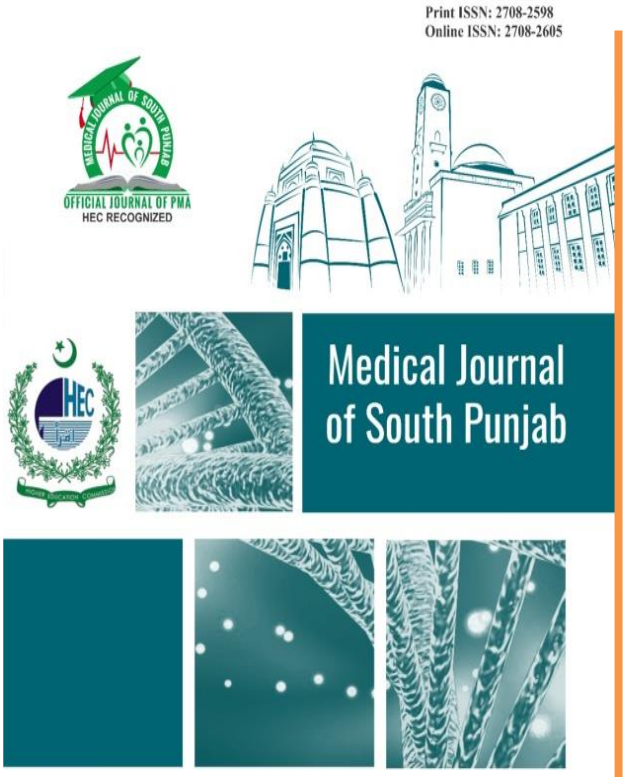
ISSN (E): 2708-2601
ISSN (P): 2708-2598

Medical Journal of South Punjab
Article DOI:10.61581/MJSP.VOL06/04/02
Volume 6, Issue 4, 2025



Prevalence of low back pain and physical disability in food delivery riders

Authors and Affiliation:

Moin Yahya[1], Qurba Kiran[2], Samara Shoukat[3], Muhammad Naveed[4], Usama Tariq[5], Muhammad Bilal[6]

[1,2,3,6] Superior University, Lahore, Pakistan

[4]Lahore Leads University, Pakistan

[5] Khaldunia Institute of Technology and Applied Sciences, Pakistan

*Corresponding Author Email: drmoinyahyapt@gmail.com

Conflict of Interest:

Author(s) declared no conflict of interest.

Acknowledgment:

No Funding received.

Citation: Yahya M, Kiran Q, Shoukat S, Naveed M, Tariq U, Bilal M. Prevalence of low back pain and physical disability in food delivery riders. Medical Journal of South Punjab. 2025 September 30; 6(4):17-24.

Please scan me to access online.

Publication History

Received: June 05, 2025 Revised: Sep 23, 2025
Accepted: Sep 30, 2025 Published: Dec 23, 2025

An official publication of
Medteach Private Limited, Multan, Pakistan.
Email: farman@mjsp.com.pk, Website: https://mjsp.com.pk/index.php/mjsp

Medical Journal of South Punjab
Volume 6, Issue 4, 2025; pp: 17-24
Original Article

Prevalence of low back pain and physical disability in food delivery riders

Moin Yahya[1], Qurba Kiran[2], Samara Shoukat[3], Muhammad Naveed[4], Usama Tariq[5], Muhammad Bilal[6]
[1,2,3,6] Superior University, Lahore, Pakistan
[4]Lahore Leads University, Pakistan
[5] Khaldunia Institute of Technology and Applied Sciences, Pakistan
[*]**Corresponding Author Email**: drmoinyahyapt@gmail.com

ABSTRACT

Objective: To find out the prevalence of low back pain and disabilities in food delivery riders.

Methods: A cross-sectional study was done among male food delivery bike riders from companies of Food Panda and Cheetah with ages ranging between 20-40 years. Data was collected from different areas of Lahore. Data was taken from 180 food delivery riders. Informed consent was obtained before the data was recorded. Data was collected using the Visual Analogue Scale and Oswestry Disability Index scale, which is a descriptive data analysis for the prevalence of low back pain and disability done through SPSS (21).

Results: Results show that 83.33% of food delivery bike riders have low back pain. Results from the Oswestry Disability Index score indicate that our maximum population (69.33%) has a minimal physical disability.

Conclusion: This study concluded that more than 83.33% percent bike riders have low back pain, and Oswestry Disability Index results show that 69.33% have minimal, 20% have moderate, 8% have a severe physical disability, and 2.67% are in a crippled state.

Keywords: Low back pain, Oswestry Disability Index, Visual Analogue Scale

1. INTRODUCTION

LBP is one of the most common medical applications in the present time and appears as a clear global public health issue in all types of economic countries. LBP is a kind of symptom and not a disease that can continue by different types of disorders or abnormalities[1]. A significant welfare and economic issue, chronic LBP is the second disability cause worldwide. Over the past decade, the occurrence of low back pain in adults has increased by more than 100%. It continues to increase significantly in the aging population, affecting both males and females in all racial groups, with an important effect on functional capacity and professional activities[2].

The thoracolumbar region sustains from the rib cage to the gluteal folds through the S-shaped lordotic curve and five large vertebrae of the lumbar region (L1-L5). It has strong facet joints, muscles, ligaments, and discs to encase the spinal cord and accommodate the flexing for weight and trunk-related activities. Intervertebral discs at L4-L5 and L5-S1, which bear most of the weight and facilitate movement, are at a higher risk[3]. There are variations of LBP, such as acute and chronic, and most manifest with signs and symptoms affecting the legs and the capability to perform daily tasks. It comprises musculoskeletal pain arising from muscles, ligaments, and joints and radicular pain resulting from nerve root compression, most commonly associated with certain occupations or tasks[4].

Motorcycles are an important and common type of transport both locally and globally. Motorcycles, however, are favored because they are lightweight, agile, less fuel-consuming, move easily in rushy areas (cities or towns), are less expensive, and need less workshop work compared to cars. Humans are mechanically programmed not to sit but to walk. The biomechanical phenomenon (load and stress reaction) in the human body may be related to this[5]. Lower back pain (LBP) is a common overuse injury among motorbike riders. The prolonged flexed posture maintained by a bike rider can lead to increased lumber spine mechanical strain, causing LBP[6].

In the lumber area of the spine, the intradiscal pressure is also higher when sitting than when standing.In terms of ergonomics, one of the significant elements to be considered is motorcyclists riding comfortably sitting[7]. Motorcycle riders are more prone to sitting threats during the riding period compared to car drivers[8]. During cycling, different positions, including lumbar spine flexion, are used to achieve appropriate aerodynamics and increase speed and efficiency. Bike riders commonly derive a flexed back posture that changes the physiological intervertebral angle, changing the area of spinal loading[9]. Lumbar flexion is related to low back pain, and the term flexion pattern disorder describes the area of spinal loading. Core stability is essential to increase riding power. Motorcycle component settings affect the position of the spine during cycling, which subsequently affects motorbike riding performance[10].

For low back pain pathomechanics in bike riders, several mechanisms are hypothesized, including mechanical creep, disc ischemia, muscle fatigue, and back extensor over-activation. The flexion relaxation phenomenon is another mechanism in which the erector spinal and multifidus muscles are relaxed with a flexed spine, resulting in the loading. In addition, several risk factors, including asymmetries in muscle activation, flexibility, motorcycle fit, and training volume, are associated with low back pain in bike riders[11].

With the increasing trend of online shopping, including food delivery, there is a growing number of food delivery e-bike riders in China[12]. Due to their increased workload, these riders face many problems associated with bike riding, one of them being low back pain[13]. The main purpose of this study is to identify the frequency associated with low

back pain in food delivery bike riders and provide practical solutions to alleviate this issue.

2. METHODOLOGY

This cross-sectional study was conducted over six months in various markets of Lahore, including Johar Town, ThokarNiazBaig, Garden Town, DHA, Wapda Town, Liberty, and Iqbal Town. The target population of this research was the Food Panda and Cheetah food delivery bike riders. Based on the calculation formula, the sample size was estimated at 180 from the actual population with a 7% margin of error, a 5% significant level, and a 65% prevalence rate, hence a rounded-down sample size of 178. Concerning the sampling technique used in the study, it was non-probability purposive sampling, which provided a diverse representation.

Males only were selected, and their ages ranged between 20 and 40. Patients with spinal disorders who have undergone operation, trauma, congenital deformity, or any pathology were also excluded. The pain intensity and the prevalence of LBP among the riders were determined using the Visual Analogue Scale and the Oswestry Disability Index. The research was carried out in the Gulab Devi Hospital, and questionnaires were administered at the identified markets in Lahore. Participants' consent was sought and documented, and all the analyses were done anonymously. The data collected was then analyzed by Statistical Package for Social Sciences (SPSS) version 21 to find out the proportion of low back pain and disability among the food delivery bike riders.

3. RESULTS

In a cross-sectional survey on pain experienced among food delivery riders, it was observed that 83% of respondents had pain. Pain was reported by 3% of the riders; this means there were only 16. 7% who said they had no pain. Riders from two companies participated in the study, with 74.4% working for Food Panda and 25. Several areas were sampled, and it was discovered that participants belonged to Johar Town, while 35.5%. Descriptive statistics on the age of the riders were also given, with a mean age of 27.87±5 years. Show in Table-1

Fig 1 shows that the Visual Analogue scale was distributed among 150 food delivery riders with low back pain. They were asked to rank their pain between 1 and 10, with 1 being “Mildest pain” and 10 being “Maximum, unimaginable, and unbearable pain.”The level of pain was not extreme, and most of the riders reported mild pain. Particularly, 26% of riders assessed their pain as moderate, which was a 2, and 21. 33% reported the least pain intensity of 1. A total of 33% of the riders reported grade 3 pain, and 14% reported grade 4 pain. This distribution implies that the majority of the riders feel less pain, which might be due to different reasons: managing pain, conditioning of the riders, or the widely held notion that the activity may not be painful after all.

The pie chart illustrates the distribution of disability levels based on ODI percentage and frequency. According to the chart, 69.33% of individuals have a minimal physical disability, 20% have a moderate physical disability, 8% have a severe physical disability, and 2.67% experience a more severe (crippled) physical disability. Show in Fig 2.

Fig-1 Shows: Visual Analogue Scale

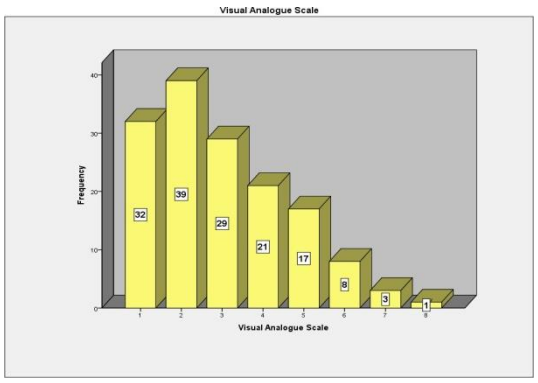


Fig 2 Shows: Disability Range

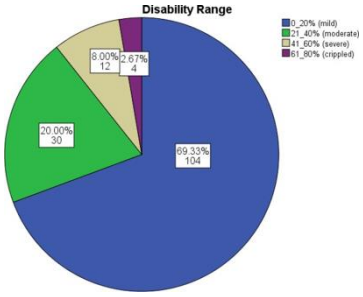


Table 1: Demographics of Bike Rider

Variable	Construct	Frequency (%)
Pain Prevalence	Yes	150 (83.3)
	No	30 (16.7)
Rider's Company	Food Panda	134 (74.4)
	Cheetah	46 (25.6)
Area of Sampling	Johar Town	19 (10.5)
	Thokar Niaz Baig	64 (35.5)
	Garden Town	23 (12.7)
	DHA	21 (11.6)
	Wapda Town	23 (12.7)
	Liberty	13 (7.2)
	Iqbal Town	17 (9.4)
Descriptive Statistics		**Mean** ± SD
Age of Rider		27.87 ± 5.19

4. DISCUSSION

This cross-sectional study was conducted by using non-probability purposive sampling in the setting of Gulab Devi Educational Complex. Data was collected by distributing VAS and ODI scales among 180 food delivery bike riders from different areas of Lahore. Informed consent was taken priorly. The prevalence of low back pain and physical disability in food delivery riders was focused. Results show that 83.33% of food delivery bike riders complained about low back pain.

This study resembles the study conducted by Jongprasitkul and his fellows in Sriracha in 2016, in which 120 subjects were considered. The occurrence of low back pain among bike taxi riders was 58.3%, which is lower than that in this study. The difference can be due to road infrastructure, bike ergonomics, and awareness of self-care and physical activities[14]. Some other studies show similar results regarding low back pain in bike riders. One of them was conducted in Porto-Novo by Zavier and his colleagues, and they took 270 bike riders. The prevalence of low back pain in this research was 68.89%, which is also lower than in this study[15]. Another research was conducted by BhavnaAnand and her fellows in Delhi in 2021. The total number of participants was 50 in the age group 20-50. The calculated value of the r is 0.727, showing a strong relationship between bike riders and low back pain[4].

Aqsa Memon conducted one research study, and her fellows explored lumbar pain among medical students at Dow University of Health Sciences, Karachi, in 2019. A cross-sectional study was done between 180 students. Ninety-five of the scholars, which means 53%, had experienced LBP. According to our research, 83.3% had low back pain; the difference could be due to lifestyle and professional changes[6]. Posture has a great influence on lower back pain. Riders adopt different postures during riding. Some researchers found that bikers who sit upright have a lower incidence of lower back pain than bikers who sit forward-bent. The main reason why biker riders bend forward is the poor ergonomics of the vehicle[16].

The prevalence of lower back pain is low in riders who perform stretches daily and take breaks during duty hours to relieve stress on their back compared to others. In Italy,Battista S. et al. showed that riders who use lumbar support have less strain due to some external support on their lumbar region, reducing the prevalence of low back pain[17]. Many studies have been conducted to focus on the presence of low back pain in bike riders. Some of them focused on Road Infrastructure, others on bike ergonomics, hours of bike riding, riders' age, and riders' sitting posture related to low back pain. Most of them showed a strong association between Low Back Pain and bike riding[18].

All the data in the study were collected only in Lahore, which was a limitation because data could not be gathered from other cities. Moreover, this research targeted only male motorbike riders between the ages of 20 and 40, thus eliminating female subjects. The data was collected from riders belonging to only two firms, Food Panda and Cheetah. The study findings indicate that LBP is common among bike riders, and this calls for the adoption of ideas like posture

awareness programs. Moreover, future research should enroll organizations with different characteristics and extend this research to other cities to acquire more extensive results about this issue.

5. CONCLUSION

This study concluded that more than 83.33% percent bike riders have low back pain, and Oswestry Disability Index results show that 69.33% have minimal, 20% have moderate, 8% have a severe physical disability, and 2.67% are in a crippled state.

6. REFERENCES

1. Islam A, Ahmed S, Kamrujjaman M, Akhter S. Effect of physical exercise and routine intervals on LBP assessment using VAS, OLBPDQ, and RMQ among professional motorbike riders in Dhaka city. Journal of Physical Education and Sport. 2020;20(4):1747-53.
2. da Silva T, Mills K, Brown BT, Pocovi N, de Campos T, Maher C, et al. Recurrence of low back pain is common: a prospective inception cohort study. Journal of physiotherapy. 2019;65(3):159-65.
3. Evans FG. Of Thesis: Rehabilitation Plan and Process to Treat a Patient with Chronic. Pain. 2023;58:59.
4. Anand B, Bachch S. ASSOCIATION OF LOW BACK PAIN A WHEELER. 2021.
5. Wadsworth DJ, Weinrauch P. The role of a bike fit in cyclists with hip pain. A clinical commentary. International journal of sports physical therapy. 2019;14(3):468.
6. Memon A, Imran A, Aftab S, Nawaz U, Ishaque F. Low back pain among student motorcyclists: a cross-sectional study. Journal of the Dow University of Health Sciences (JDUHS). 2019;13(2):113-6.
7. Alamin TF, Agarwal V, Zagel A, Qeli A. The effect of standing vs. variants of the seated position on lumbar intersegmental angulation and spacing: a radiographic study of 20 asymptomatic subjects. Journal of Spine Surgery. 2018;4(3):509.
8. Arunachalam M, Mondal C, Singh G, Karmakar S. Motorcycle riding posture: A review. Measurement. 2019;134:390-9.
9. Holliday W, Swart J. A dynamic approach to cycling biomechanics. Physical Medicine and Rehabilitation Clinics. 2022;33(1):1-13.
10. Chen Y-L, Chen Y, Lin W-C, Liao Y-H, Lin C-J. Lumbar posture and individual flexibility influence the back muscle flexion-relaxation phenomenon while sitting. International Journal of Industrial Ergonomics. 2019;74:102840.
11. Isidro T, Gregory E, Lachman L, Isidro S, Cortez AN. Lumbar spine and lower extremity overuse injuries. Physical Medicine and Rehabilitation Clinics. 2022;33(1):201-14.
12. Wang Z, Neitzel RL, Zheng W, Wang D, Xue X, Jiang G. Road safety situation of electric bike riders: A cross-sectional study in courier and take-out food delivery population. Traffic injury prevention. 2021;22(7):564-9.
13. Scoz RD, de Oliveira PR, Santos CS, Pinto JR, Melo-Silva CA, de Júdice AFT, et al. Long-term effects of a kinematic bikefitting method on pain, comfort, and fatigue: A prospective cohort study. International Journal of Environmental Research and Public Health. 2022;19(19):12949.
14. Jongprasitkul N, Konchalard K, Sinthoppong K. Prevalence and associated factors of low back pain amongmotorcycle taxi drivers in Sriracha. Chulalongkorn Medical Journal. 2016;60(1):31-43.
15. Zomalhèto Z, Mikponhoué R, Wanvoègbe A, Adikpéto I, Ayélo P. Prevalence and factors associated with

low back pain among motorcycle taxi drivers in Porto-Novo (Benin). 2019.
16. Karmegam K, Irniza R, MT SB, Vivien H, Mani KK, Sivasankar S, et al. High-powered police motorcycle: muscle discomfort among Malaysian traffic police riders. Malaysian Journal of Public Health Medicine. 2020;20(Special1):255-9.
17. Battista S, Sansone LG, Testa M. Prevalence, characteristics, association factors of and management strategies for low back pain among italian amateur cyclists: an observational cross-sectional study. Sports Medicine-Open. 2021;7:1-11.
18. Rakheja S, Dewangan KN, Dong RG, Marcotte P. Whole-body vibration biodynamics-a critical review: I. Experimental biodynamics. International journal of vehicle performance. 2020;6(1):1-51.