International Journal of Multicultural and Multireligious Understanding

http://ijmmu.com
editor@ijmmu.com
ISSN 2364-5369
Volume 13, Issue 2
February, 2026
Pages: 112-118

Prevalence and Risk Factors of Low Back Pain Injuries at the Health and Sport Center Therapy Service During 2024

Enggista Hendriko Delano; Sumaryanti; Vistor Syapri Maulana; Rizki Mulyawan

Department of Sports Science, Faculty of Sports Science and Health, Yogyakarta State University, Indonesia

http://dx.doi.org/10.18415/ijmmu.v13i2.7291

Abstract

Sports injury cases are cases that need to be handled appropriately to prevent worsening injuries. The number of sports injury cases needs to be mapped so that it is known what injury cases often occur and what risk factors cause injuries to occur, especially in cases of Low Back Pain. The purpose of this study is to determine the prevalence and risk factors of musculoskeletal injuries in the manipulative and rehabilitative therapy service of the Health and Sport Center of Yogyakarta State University, especially in cases of Low Back Pain. This research method is a continuous study with a quantitative descriptive design through an analytical observational approach. This study uses a total sampling technique involving data from therapy patients during 2024 who complained of Low Back Pain. Data analysis will use descriptive tests. The results show that there were 1,119 cases of low back pain during 2024, with the highest risk factor being in the 21-60 age group. The highest risk based on the cause is in daily activities at 63%. Female gender has a high risk of 56%. Office work has the highest risk at 37%. Prevention efforts need to be focused on increasing awareness of the importance of correct body posture, implementing work ergonomics, and carrying out regular and balanced physical activities to maintain health and reduce the prevalence of LBP injuries in the community.

Keywords: *Injury Prevalence; Low Back Pain; Risk Factors*

Introduction

Injuries are the result of forces acting on the body or part of the body that exceed the body's ability to cope with them. These forces can be short-term or long-term. Sports injuries are injuries that occur as a result of direct or indirect sports activities, causing disruption to the functioning of the body's systems, such as the musculoskeletal system and all other systems or organs. According to Ramadina (2019), sports injuries are a problem that occurs in individuals during training, competition, or afterward, with the following injury indicators: very severe, severe, moderate, mild, and very mild. The most common cases of sports injuries among adolescents usually occur when they are overly ambitious in completing activities and want to improve their performance. From these explanations, it can be concluded that sports injuries are injuries that occur as a result of sports activities performed by individuals who engage in excessive activities, either directly or indirectly, which cause functional disorders in the body's organ systems.

Sports injuries can be classified into various types. Injuries can generally be divided into three categories: Grade 1 injuries (minor injuries), Grade 2 injuries (moderate injuries), and Grade 3 injuries (severe injuries). In Grade 1 injuries, the patient does not experience serious complaints, but it can interfere with the athlete's performance. For example: abrasions, bruises, and mild sprains. In Grade 2 injuries (moderate injuries), tissue damage has a more noticeable effect on the athlete's performance. Complaints may include pain, swelling, and functional impairment (signs of inflammation), such as muscle strain, tendon, and ligament tears. In Grade 3 injuries (severe injuries), intensive treatment, complete rest, and possibly surgical intervention are required if there is a complete or near-complete ligament tear (Grade III and IV sprains or sprain fractures) or bone fracture.

Classification of injuries based on the time of occurrence is divided into two categories: acute and chronic injuries (Delano et al., 2023) . Acute injuries are injuries that occur suddenly (within the last few hours), such as lacerations, torn ligaments, or broken bones due to a fall. Symptoms include pain, tenderness, redness of the skin, warm skin, and inflammation. Chronic injuries are injuries that occur/develop slowly, such as hamstring injuries that experience low-level injuries, for example, cramps, but repeatedly experience injuries over a long period of time, which can cause high-level injuries, resulting in hamstring tears/complete ruptures. Signs and symptoms: recurring pain, usually *due to overuse* or acute injury that has not healed completely.

Sports injuries are a frequently discussed topic in the medical world, especially in relation to athletes or individuals who are active in physical activities. Sports injuries can occur in various types of sports, both contact sports (such as soccer, rugby, or hockey) and non-contact sports (such as running, tennis, or cycling) (Sudirman et al., 2021) . Injuries range from mild ones such as sprains to more serious ones such as broken bones or ligament damage (Setiawan, 2021). Proper treatment of sports injuries is very important to speed up recovery and avoid further complications. Quick and appropriate injury management steps can help reduce pain, prevent further damage, and facilitate optimal recovery (Candra et al., 2021) . A lack of understanding about the types of injuries and risk factors that cause sports injuries can be a serious problem, as it can lead to incorrect treatment. One of the fundamental aspects that need to be understood is the prevalence and risk factors of injuries as an initial mapping in preventive efforts to identify the types of injuries that frequently occur and their contributing factors.

Sports injuries cause musculoskeletal disorders that can potentially interfere with work productivity. Musculoskeletal disorders rank second among diseases causing disability worldwide, measured in terms of years of productive life lost due to disability (*Years Lived with Disability (YLDs)*) (WHO, 2019). The total number of YLDs for musculoskeletal disorders worldwide increased from 77,377,709.4 in 2010 to 103,817,908.4 in 2015. The prevalence of musculoskeletal disorders in Indonesia among people aged 15 years and above reached 24.7%, with the highest prevalence of 33.1% in East Nusa Tenggara, followed by West Java (32.1%), Bali (30%), and South Sulawesi (27.7%). (Ministry of Health of the Republic of Indonesia, 2013) (Patandung & Widowati, 2022).

One of the most common injuries that everyone experiences at some point in their lives is low back pain. *Low back pain* (LBP) is defined as pain localized below the ribs and above the inferior gluteal fold, with or without pain in the legs (Martinez et al., 2018). LBP cases are a common musculoskeletal disorder that affects daily activities and work routines (Baig et al., 2018).Data from *the World Health Organization* (WHO) shows that in industrialized countries, 2-5% of workers experience LBP annually (Hayati & Devi, 2020:140) . Cases in Indonesia reach a percentage of 7.6-37%, and the age group that often experiences LBP is between 20-40 years old (Putri, Imandiri, & Rakhmawati, 2020: 30). A comparison of LBP cases studied in Central Java based on gender shows that 18.2% of cases occur in men and 13.6% in women.This is related to the fact that men engage in more strenuous physical activities, resulting in a higher risk of developing LBP (Saputra, 2020) . Based on the above discussion, it is evident that LBP can be a serious health issue, necessitating the mapping of its prevalence and the risk factors associated with its occurrence.

The prevalence and risk factors of injuries are two interrelated things. Understanding the prevalence of injuries allows us to identify the most influential risk factors. The prevalence of sports injuries refers to how often these injuries occur in a population of athletes or individuals involved in sports activities. Meanwhile, injury risk factors are elements or conditions that increase the likelihood of injury. Mapping sports injuries is very important for understanding the factors that influence injury risk. Proper mapping provides a clearer picture of the causes of injuries and the factors that can increase the risk. Several things to consider in mapping sports injuries include the type of injury, type of sport, age, gender, physical condition, technique, and physical condition. Knowing the types of injuries that occur frequently can help in further analysis of which areas of the body are most vulnerable. Good mapping will result in appropriate and adequate treatment and medication, thereby minimizing the severity of the injury. Based on the above, research is needed to determine the prevalence and risk of sports injuries so that they can be mapped based on the types of injuries that frequently occur and the risk factors that cause injuries so that injuries can be treated and medicated appropriately.

Method

This research method is a quantitative descriptive study using an analytical observational approach. This study uses total sampling techniques involving patient therapy data for the year 2024. Data analysis will use descriptive tests.

Results

The results of the descriptive test of the distribution of patient data complaining of low back pain during 2024 can be mapped based on age with a 10-year age interval and divided by month, as shown in the table below.

Table 2. Distribution of Low Back Pain Injury Data Based on Age

Age	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
<10	4	3	4	0	2	1	6	0	2	2	1	0	25
11-20	5	3	15	4	3	8	11	7	4	14	9	9	92
21-30	15	9	16	12	24	21	13	12	11	20	18	20	191
31-40	22	20	10	15	13	11	24	15	19	28	23	18	218
41-50	14	11	15	8	13	20	26	18	18	22	19	10	194
51-60	17	14	8	13	17	22	27	28	13	14	20	25	218
>61	13	10	2	6	13	15	24	27	13	28	13	17	181
total	90	70	70	58	85	98	131	107	80	128	103	99	1119

Based on the table above, it shows that the age group of 31-41 years old is the most productive age group with a high number of LBP cases, totaling 218 cases. The age group of 51-60 years old has the same number of complaints, namely 218 cases. The age group under 10 years old has the fewest cases, namely 25 cases. Based on the table, it can be concluded that LBP is most commonly experienced during the productive age range of 21 to over 61 years old. The graph below shows the distribution of LBP complaints each month, with July having the highest number of LBP complaints.

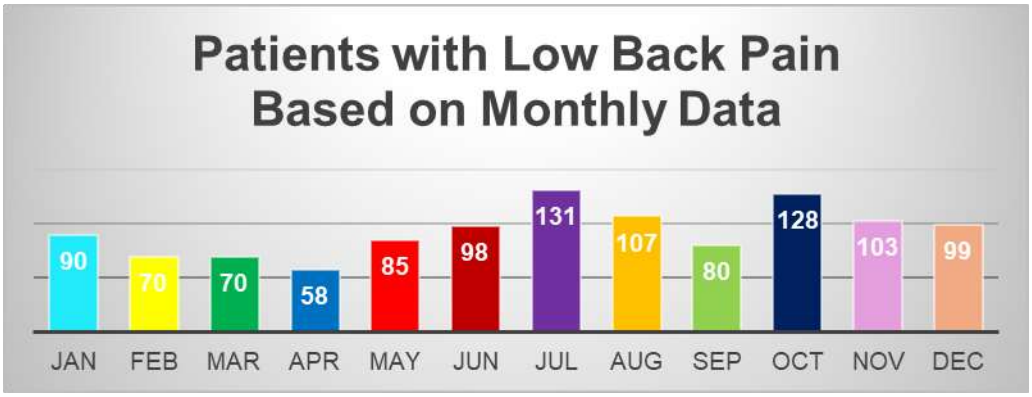

Figure 1. Distribution of Low Back Pain Complaints Each Month

LBP cases can be caused by several factors, which are categorized into three main causes, namely daily activities, sports, and unknown causes. Based on these three categories, LBP cases at the HSC UNY therapy service can be mapped in the diagram below.

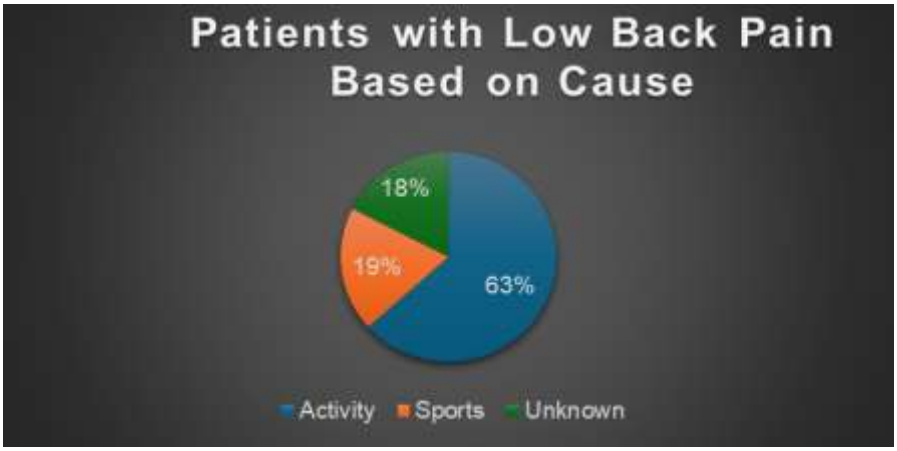

Figure 2. Distribution of Low Back Pain Complaints Based on Causes

Based on Figure 2, it can be seen that daily activities have the highest risk of causing LBP at 63%, followed by sports-related causes at 19%, and unknown causes at 18%. Other risk factors for LBP besides age and activity are gender. Below is the distribution of LBP complaints according to gender.

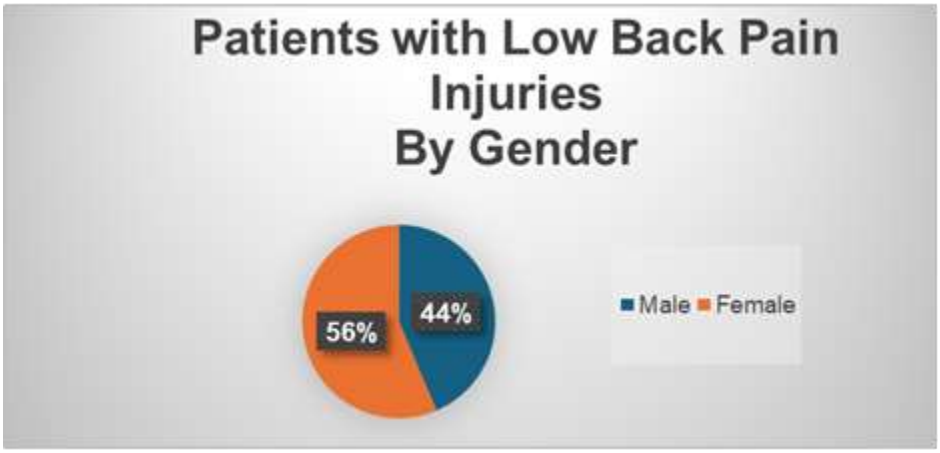

Figure 3. Distribution of Low Back Pain Complaints Based on Gender

Based on the diagram above, it can be seen that women have a higher risk of developing LBP than men. Women account for 56% of cases, while men account for 44%.

Another risk factor for LBP complaints is related to the patient's occupation. Work is an activity that patients routinely do every day and spend most of their time on in a 24-hour period. Of course, this can be one of the risk factors for LBP that needs to be known. The following is a diagram of the distribution of LBP cases based on the patient's occupation, which is divided into self-employed, office workers, elementary and middle school students, college students, retirees, and housewives.

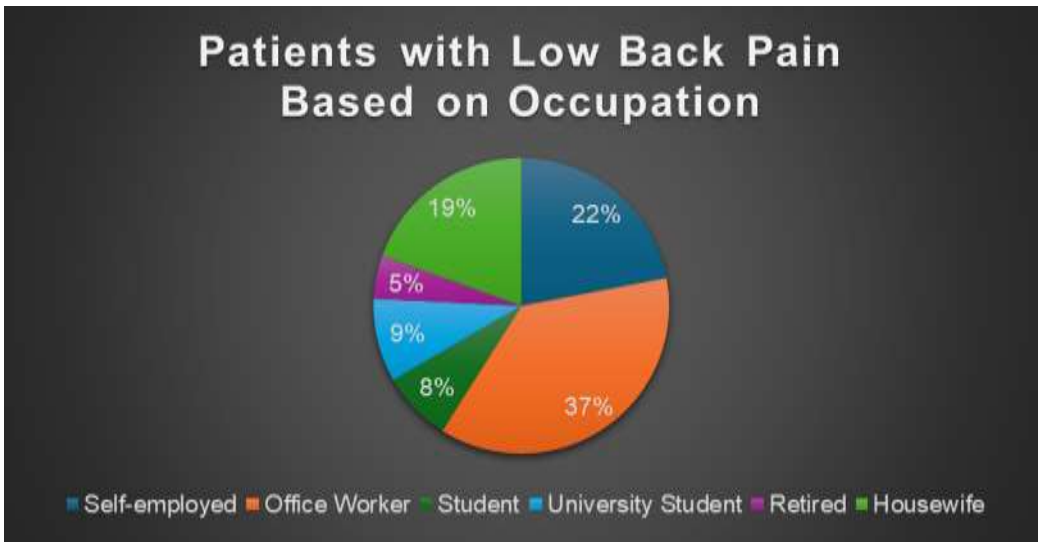

Figure 4. Distribution of Low Back Pain Cases Based on Occupation

Based on the diagram above, it shows that office workers have the highest number of LBP complaints at 37%, followed by entrepreneurs at 22% in second place, and housewives in third place at 19%. The lowest risk of LBP complaints is among retirees at 5%.

Discussion

Low back pain (LBP) is one of the most common musculoskeletal complaints experienced by people of all ages. Its prevalence is very high in both developed and developing countries. This condition is a major cause of decreased work productivity and quality of life. LBP affects not only physical laborers, but also those with sedentary jobs such as office workers, indicating that its risk factors are multifactorial and complex.

Age is one of the important determinants in the occurrence of LBP. In general, the prevalence of LBP increases with age, especially in the productive age group. This is caused by degenerative processes in the spinal structures such as the intervertebral discs, ligaments, and lower back muscles. The decline in tissue elasticity and muscle capacity to support body weight makes older individuals more susceptible to injury. However, in younger age groups, LBP is often caused by excessive physical activity, poor posture, or prolonged sitting.

The level of physical activity also has a significant effect on the risk of LBP. Activities that are too strenuous, such as repeatedly lifting heavy loads without proper technique, can put excessive pressure on the spine. Conversely, too little activity or a sedentary lifestyle can cause weakness in the back and abdominal muscles, leading to decreased spinal stability. Therefore, balanced physical activity, including core muscle strengthening exercises, is very important in preventing LBP.

Gender shows differences in the prevalence of LBP between men and women. Women tend to have a higher risk of experiencing LBP, which can be attributed to hormonal factors, pelvic anatomy, and the double burden of work and household responsibilities. Pregnancy and postpartum phases can also increase the risk of low back pain due to biomechanical and hormonal changes. In men, LBP is more often associated with heavy physical activity and jobs that require physical strength, putting them at risk of developing LBP.

Work is one of the main external risk factors contributing to the occurrence of LBP. Jobs that involve repetitive activities such as lifting, bending, or standing for long periods of time increase the risk of back injury. Jobs that involve sitting in a static position and prolonged use of computers are also risky. Poor workplace ergonomics exacerbate the likelihood of LBP.

Conclusion

Low Back Pain (LBP) is a musculoskeletal health problem with a high prevalence in various community groups, especially among people of productive age. Factors such as age, activity level, gender, and type of work play an important role in increasing the risk of lower back injury. Degenerative processes due to aging, unbalanced physical activity, and biological differences between men and women are significant internal factors. Meanwhile, external factors such as heavy workloads, poor posture, and poor ergonomic conditions in the workplace also exacerbate the risk of LBP. Therefore, prevention efforts need to focus on raising awareness of the importance of correct posture, implementing workplace ergonomics, and engaging in regular and balanced physical activity to maintain health and reduce the prevalence of LBP injuries in the community.

References

Baig, A. A. M., Ahmed, S. I., Ali, S. S., Rahmani, A., & Siddiqui, F. (2018). Role of posterior-anterior vertebral mobilization versus thermotherapy in non-specific lower back pain. *Pakistan Journal of Medical Sciences*, *34* (2), 435–439. https://doi.org/10.12669/pjms.342.12402

Candra, O., Dupri, D., Gazali, N., Muspita, M., & Prasetyo, T. (2021). Application of the Price Technique in the Management of Sports Injuries in Athletes of the Mahameru Pekanbaru Basketball Club. *Community Education Engagement Journal*, *2* (2), 44–51. https://doi.org/10.25299/ceej.v2i2.6490

Delano, E. H., Kushartanti, W., Arovah, N. I., Shafi, S. H. A., Nugroho, W. A., Sabillah, M. I., & Ndayisenga, J. (2023). Comparison of the effectiveness of Tepurak therapy with deep tissue massage and stretching in treating non-specific low back pain injuries. *Polish Physiotherapy*, *23* (3), 222–227. https://doi.org/10.56984/8ZG143A4A

Hayati, K., & Devi, T. (2020). The Effectiveness of Ice Massage and Back Massage Therapy on Changes in Pain Intensity in Low Back Pain Patients at Grandmed Lubuk Pakam Hospital in 2020. *Journal of Nursing and Physiotherapy (Jkf)*, *2* (2), 139–146. https://doi.org/10.35451/jkf.v2i2.385

Martinez, F. C., Amador, S. C., & Lopez, G. V. E. (2018). Effectiveness of classic physical therapy proposals for chronic non-specific low back pain: a literature review. *Physical Therapy Research*, *21* (1), 16–22. https://doi.org/10.1298/ptr.e9937

Patandung, L. N., & Widowati, E. (2022). Body Mass Index, Work Fatigue, Physical Workload with Musculoskeletal Disorders Complaints. *Higeia Journal of Public Health Research and Development*, *6* (1), 126–135. https://journal.unnes.ac.id/sju/higeia/article/view/51839

Putri, D. A. R., Imandiri, A., & Rakhmawati. (2020). Therapy for low back pain with Swedish massage, acupressure, and turmeric. *Journal of Vocational Health Studies*, *4* (1), 29–34. https://doi.org/10.20473/jvhs.v4.i1.2020.29-34

Saputra, A. (2020). Work Attitude, Length of Service, and Age on Low Back Pain Complaints among Batik Crafters. *Higeia Journal of Public Health Research and Development*, *1* (3), 625–634. http://journal.unnes.ac.id/sju/index.php/higeia

Setiawan, A. (2021). Factors Contributing to Sports Injuries. *Indonesian Sports Science Media*, *1*(1), 94–98.

Sudirman, A., Mahyuddin, R., & Asyhari, H. (2021). Understanding the Causes of Injuries in Soccer. *Jendela Olahraga*, *6* (2), 1–9. https://doi.org/10.26877/jo.v6i2.8273

Copyrights