

Review on Lower Back Pain Management in Primary Health Care

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Abstract

One of the most common causes for people to seek emergency care is back discomfort. Numerous different probable etiologies could have an impact on both adult and pediatric populations. The etiologies can vary depending on the patient demographic, but mechanical or non specific causes are frequently cited. Back pain can be an issue that lasts from childhood into adulthood and considerably impacts disability rates. It is essential to be able to evaluate patients of all ages and recognize the distinctive variations in how these different demographics present themselves. Studies involving people who had the non-alcoholic fatty liver disease were sought after in the Medline, Pubmed, Embase, NCBI, and Cochrane databases. Analysis of incidence, etiology, and available management strategies The gap between evidence and practice in treating low back pain is significant. The remedies deemed efficient are based on scant data, yet they might be affordable and repeatable in other contexts. Focusing on fundamental concepts, such as the need to reduce unnecessary medical care for low back pain, promote people's participation in physical activity and employment, and modify ineffective patient clinical pathways and reimbursement structures, may serve as a guide for the ensuing phase.

Keywords: Low back pain, Primary care, Non specific lower back pain, Health care

INTRODUCTION

One of the most prevalent musculoskeletal diseases and a significant contributor to disability worldwide is low back pain (LBP) [1].

This type of pain pathology can affect people of all ages, including toddlers and the elderly, making it one of the diseases with very high addressability in primary healthcare [2]. Although a number of risk factors, such as age, sex, physical activity, posture changes, obesity, and a sedentary lifestyle are implicated, the cause is not always obvious, and the diagnosis can occasionally be difficult to make. There are numerous symptoms of LBP [3-8]. But its root cause is not fully understood [9]. Traditional imaging techniques, like plane x-rays, record changes in vertebral statics, but they only partially revealed musculoskeletal or intervertebral disc degeneration [10].

Nuclear magnetic resonance imaging (MRI) and computed tomography imaging (CT) are the most reliable diagnostic imaging modalities for disc or musculoskeletal pathology in the lumbar spine [11]. LBP can be treated conservatively in a number of ways, including by quitting smoking, limiting or avoiding strenuous exercise, avoiding additional risk factors,

and using lumbar spine orthoses [12]. Pharmacological therapy entails the use of analgesics, steroidal anti-inflammatory drugs, most frequently non-steroids, muscle relaxants, and nerve trophic substances [13]. The physical therapies used to treat lumbar spine pain symptoms include massage, electrotherapy, and thermotherapy. Physical therapy is crucial for easing pain symptoms and preventing recurrences of pain [14].

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Epidemiology

Although it is commonly known that low back pain (LBP) is a prevalent health issue, its impact is sometimes dismissed as insignificant [15]. Most people experience LBP at some point in their life, and it can result in varying degrees of pain and dysfunction. Most of the time, the precise source of the pain cannot be determined. It is the major factor in activity restriction and missed work and imposes a significant financial burden on people, families, communities, businesses, and governments [16]. The prevalence of LBP is examined in this epidemiologic study in relation to sociodemographic variables such as age, gender, race, and geography.

LBP is common in both developed and developing nations, according to recent research [17]. According to predictions, more than 80% of people will experience low back pain at some point in their lives, and each year, 7% of adults with symptoms visit a doctor. According to Nachemson [18], Canada, Great Britain, the Netherlands, and Sweden all had significantly worse LBP issues than the US and Germany did. This was based on a careful review of the international literature regarding the prevalence of LBP that is incapacitating. Back pain is the most frequent cause of activity limitations in people under the age of 45, the second most frequent cause of doctor visits, the fifth most frequent cause of hospital admissions, and the third most frequent cause of surgical procedures in the United States [19]. The variation in prevalence rates between nations may be explained by intercultural differences in pain perception or pain reporting.

LBP was previously believed to be primarily a problem in Western nations, but recent research has revealed that it is also a significant problem in low- and middle-income countries [20]. LBP has previously been documented as a common complaint in general practice and primary care settings [21]. Individuals and their families, communities, health care systems, and businesses are all affected by LBP. Depending on socioeconomic status, general access to healthcare, occupational distribution, and other factors connected to the onset and prognosis of LBP, the effects and outcomes of LBP are likely to vary significantly across and within populations. LBP is heavily influenced by sociodemographic factors. In their previous study, Bener *et al.* [22] reported that LBP can significantly negatively impact the quality of life. Physical factors, sociodemographic characteristics, habits, and psychological factors are all risk factors for LBP. The current study focused on the frequency of LBP, its epidemiology, the effects of age, gender, occupational, educational, and social factors, as well as the link between lifestyle choices and LBP [22].

Diagnosis

A common symptom with many potential causes is low back pain. In primary care, low-back pain is divided into four categories: non-lumbar spine-related issues (such as kidney stones); serious lumbar spine issues (such as epidural

abscesses); low-back pain associated with radicular pain (such as from an intervertebral disc herniation) or neurogenic claudication (such as from central spinal canal stenosis); or non-lumbar spine-related issues [23]. Nearly 90% of all low-back pain cases seen in primary care are nonspecific and cannot be diagnosed pathoanatomically [9]. To determine who is at risk for a serious illness or a particular cause of low-back pain, a focused history and physical examination are used. All other instances of low back pain are classified as nonspecific.

A nonspecific diagnosis of low back pain is often disregarded by doctors [24], who instead search for a precise diagnosis of the anatomical structures causing the pain [25]. Two problems exist with this tactic. First off, there is insufficient validity in the tests used to determine anatomic sources of nonspecific low back pain [26]. The diagnoses are therefore only nominal. The majority of patients who report low back pain do not need diagnostic imaging right away. Only when a specific cause of low back pain is suspected is imaging advised, and early diagnosis is essential for safe and efficient treatment [27]. It might be reasonable to delay testing and start a treatment trial if there is only a remote possibility that the patient has cancer or a fracture. However, if there is even the slightest suspicion of cauda equina syndrome or an epidural abscess, an immediate investigation is necessary due to the serious consequences of delayed diagnosis [27].

Patients with radicular pain or radiculopathy due to suspected disc herniation or neurogenic claudication due to suspected central spinal canal stenosis do not need to be referred for immediate imaging, contrary to common practice, because the results will not change primary care management. The treatment for these conditions, as well as nonspecific low-back pain, is the same. When one red flag (such as night pain) is present, some clinical guidelines recommend diagnostic imaging [28]. Although serious disease is uncommon, red flags may occur frequently; thus, this approach is risky.

Risk Factors

Poorer outcomes in back pain patients seem to be predicted by a variety of factors. There are several factors that can make "chronic disabling pain" worse, including previous episodes of back pain, increased back pain intensity, and the presence of leg or widespread symptoms. Patients with higher BMIs (greater than 25) and smoking appear to have worse outcomes, suggesting that lifestyle factors may also be at play [29]. Disability rates are negatively impacted by depression, catastrophizing, and fear-avoidance behavior [30]. Additionally, there are underlying social factors that can be predicted with a high degree of accuracy. A few factors that have a negative impact on outcomes include low educational attainment, a job that requires a lot of physical labor, low pay, and low job satisfaction [31]. In general, back pain cases get better and don't significantly affect a patient's quality of life or ability to function, but pediatrics has less conclusive prognostic data. However, a reasonable assumption is that the underlying cause of the pain has a significant impact on the

prognosis [32]. Muscle strain and cancer pain are likely to affect disability in different ways. The pediatric and adult populations can be compared. According to some studies, behavioral comorbidities like conduct issues, attention deficit hyperactivity disorder (ADHD), psychological distress, passive coping mechanisms, and fear-avoidance behavior are associated with nonspecific back pain [33].

Treatment

Depending on the cause, age, and severity of back pain, a variety of pain medications are available. The Agency for Healthcare Research and Quality's "Noninvasive treatments for low back pain: current state of the evidence" clinician summary states that the best evidence for treating adult back pain is as follows:

In Adults

Exercise, traction, and spinal manipulation are examples of nonpharmacologic therapies for radicular low back pain that have shown some promise but are backed by scant data. The benefits of non-steroidal anti-inflammatory medicines (NSAIDs) are only weakly supported. However, alternative pharmaceutical treatments like diazepam and systemic steroids don't appear to have any advantages [AHRQ, 2016]. Acetaminophen appears to offer limited evidence of no effect for non-radicular acute or subacute low back pain. However, NSAIDs, heat, and muscle relaxants have little evidence for benefit. Weak evidence suggests that massage is beneficial [AHRQ 2016].

There is modest evidence to recommend physical therapy for non-radicular persistent low back pain [AHRQ 2016], particularly when using the McKenzie approach [34]. Moderately strong evidence supports the benefits of acupuncture in this demographic as well. The benefits of tai chi, yoga, psychological techniques (such as biofeedback and progressive relaxation), spinal manipulation, and multimodal rehab are frequently supported by scant evidence. There is some proof of the advantages of returning to school [35]. When used in the pharmacologic treatment of chronic low back pain, NSAIDs and duloxetine consistently outperform opioids [AHRQ 2016]. Although gabapentin is a fairly well-liked anticonvulsant for chronic pain, it doesn't really help people with persistent low back pain. Compared to piracetam, a placebo is less effective. Examples of topical anesthetics that are no more effective than a placebo include transcutaneous electrical nerve stimulation (TENS) devices and lidocaine patches [36].

According to the American Pain Society, people with incapacitating low back pain that has negatively impacted their quality of life for more than a year should only be referred for surgery. However, there is conflicting research on some of the widespread invasive treatments, including spinal fusion, lumbar disk replacement, injectable therapy for the facet joints, local sites, and the epidural space [37].

In Children

Less research has been done on pain management in children. However, there is widespread support for NSAIDs, physical therapy, and activity moderation as first-line treatments. The recommended course of action is to treat any underlying problems if a malevolent underlying cause is apparent. The majority of cases of spondylolysis may be treated non-operatively; however, some will require a referral. If symptoms continue after receiving conservative treatment for more than six months or if there is Grade III or IV spondylolisthesis, one may refer a child to a pediatric spine surgeon for additional testing [3]. Patients with Scheuermann's kyphosis who have curvatures under 60 degrees may benefit from physical therapy and supervised exercise, while bracing may be added for those with curvatures under 70 degrees. Patients who have a curvature of more than 75 degrees may require surgery to correct it, particularly if conservative measures have failed and they are skeletally mature [4]. Significant scoliosis, increasing curvature, unusual scoliosis, and scoliosis of 20 degrees or more at peak growth are all reasons for surgical referral [5].

CONCLUSION

The most recent clinical practice guidelines advise against routine imaging unless a serious pathology is suspected and recommend diagnostic triage using history taking, physical examination, and neurological testing to identify red flags and identify radicular pain/radiculopathy. Yellow flags need to be evaluated in the first or second evaluation using the psychosocial criteria listed in the guidelines. The majority of treatments for acute LBP supported recommendations for patient education, assurance of a good outcome, and advice on returning to normal activities, avoiding bed rest, and using NSAIDs and mild opioids for brief periods of time when necessary. The majority of recommendations for treating chronic LBP included the use of exercise therapy, psychological counseling, and, when necessary, NSAIDs and antidepressants. Consulting a specialist is also suggested in cases where there is a chance of serious diseases or radiculopathy or if there has been no improvement after four weeks to two years.

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REFERENCES

1. Hoy D, Bain C, Williams G, March L, Brooks P, Blyth F, et al. A systematic review of the global prevalence of low back pain. *Arthritis Rheum.* 2012;64(6):2028-37.
2. Manchikanti L, Singh V, Falco FJ, Benyamin RM, Hirsch JA. Epidemiology of low back pain in adults. *Neuromodulation.* 2014;17 Suppl 2:3-10.
3. Helenius I, Lamberg T, Osterman K, Schlenzka D, Yrjönen T, Tervahartala P, et al. Scoliosis research society outcome instrument in evaluation of long-term surgical results in spondylolysis and low-grade isthmic spondylolisthesis in young patients. *Spine (Phila Pa 1976).* 2005;30(3):336-41.

4. Tsirikos AI, Jain AK. Scheuermann's kyphosis; current controversies. *J Bone Joint Surg Br.* 2011;93(7):857-64.
5. Parent S, Newton PO, Wenger DR. Adolescent idiopathic scoliosis: etiology, anatomy, natural history, and bracing. *Instr Course Lect.* 2005;54:529-36.
6. Aldossary K, Alotaibi A, Alkhaldi K, Alharbi R. Prevalence of polycystic ovary syndrome, and relationship with obesity/overweight: cross-sectional study in Saudi Arabia. *J Adv Pharm Educ Res.* 2020;10(1):186-90.
7. Haghighi-Morad M, Shakoobi A, Salevatipour B. Evaluation of abdominal obesity using ultrasound and its correlation with intima-media thickness in carotid arteries. *Int J Pharm Phytopharmacol Res.* 2019;9(5):43-7.
8. Atallah HA, Alhejaili AF, Noorwali AA, Alsehl SA. An Overview Management Of Obesity In Primary Health Care Center: Literature Review. *Pharmacophore.* 2020;11(5):168-73.
9. Koes BW, van Tulder MW, Thomas S. Diagnosis and treatment of low back pain. *BMJ.* 2006;332(7555):1430-4.
10. Johnson SM, Shah LM. Imaging of Acute Low Back Pain. *Radiol Clin North Am.* 2019;57(2):397-413.
11. Svanbergsson G, Ingvarsson T, Arnardóttir RH. MRI for diagnosis of low back pain: Usability, association with symptoms and influence on treatment. *Laeknabladid.* 2017;103(1):17-22.
12. Will JS, Bury DC, Miller JA. Mechanical Low Back Pain. *Am Fam Physician.* 2018;98(7):421-8.
13. Wong JJ, Cote P, Sutton DA, Randhawa K, Yu H, Varatharajan S, et al. Clinical practice guidelines for the noninvasive management of low back pain: a systematic review by the Ontario Protocol for Traffic Injury Management (OPTIMA) Collaboration. *Eur J Pain.* 2017;21(2):201-16.
14. van Middelkoop M, Rubinstein SM, Verhagen AP, Ostelo RW, Koes BW, van Tulder MW. Exercise therapy for chronic nonspecific low-back pain. *Best Pract Res Clin Rheumatol.* 2010;24(2):193-204.
15. Rapoport J, Jacobs P, Bell NR, Klarenbach S. Refining the measurement of the economic burden of chronic diseases in Canada. *Chronic Dis Can.* 2004;25(1):13-21.
16. Thelin A, Holmberg S, Thelin N. Functioning in neck and low back pain from a 12-year perspective: a prospective population-based study. *J Rehabil Med.* 2008;40(7):555-61.
17. Latza U, Kohlmann T, Deck R, Raspe H. Can health care utilization explain the association between socioeconomic status and back pain? *Spine.* 2004;29(14):1561-6.
18. Nachemson AL. Newest knowledge of low back pain: a critical look. *Clin Orthop Relat Res.* 1992;(279):8-20.
19. Hart LG, Deyo RA, Cherklin DC. Physician office visits for low back pain. Frequency, clinical evaluation, and treatment patterns from a U.S. national survey. *Spine (Phila Pa 1976).* 1995;20(1):11-9.
20. Hoy D, Toole MJ, Morgan D, Morgan C. Low back pain in rural Tibet. *Lancet.* 2003;361(9353):225-6.
21. Bener A, El-Rufaie OF, Siyam A, Abuzeid MS, Toth F, Lovasz G. Epidemiology of low back pain in the United Arab Emirates. *APLAR J Rheumatol.* 2004;7(3):189-95.
22. Bener A, EL-Rufaie OF, Kamran S, Georgievski AB, Farooq A, Rysavy M. Disability, depression and somatization in a low back pain population. *APLAR J Rheumatol.* 2006;9(3):257-63.
23. Maher C, Underwood M, Buchbinder R. Non-specific low back pain. *Lancet.* 2017;389(10070):736-47.
24. Kent P, Keating J. Do primary-care clinicians think that nonspecific low back pain is one condition? *Spine (Phila Pa 1976).* 2004;29(9):1022-31.
25. Kent P, Keating JL. Classification in nonspecific low back pain: what methods do primary care clinicians currently use? *Spine (Phila Pa 1976).* 2005;30(12):1433-40.
26. Hancock MJ, Maher CG, Latimer J, Spindler MF, McAuley JH, Laslett M, et al. Systematic review of tests to identify the disc, SIJ or facet joint as the source of low back pain. *Eur Spine J.* 2007;16(10):1539-50.
27. Chou R, Qaseem A, Owens DK, Shekelle P; Clinical Guidelines Committee of the American College of Physicians. Diagnostic imaging for low back pain: advice for high-value health care from the American College of Physicians. *Ann Intern Med.* 2011;154(3):181-9.
28. Dagenais S, Tricco AC, Haldeman S. Synthesis of recommendations for the assessment and management of low back pain from recent clinical practice guidelines. *Spine J.* 2010;10(6):514-29.
29. Chou R, Shekelle P. Will this patient develop persistent disabling low back pain? *JAMA.* 2010;303(13):1295-302.
30. Hendrick P, Milosavljevic S, Hale L, Hurley DA, McDonough S, Ryan B, et al. The relationship between physical activity and low back pain outcomes: a systematic review of observational studies. *Eur Spine J.* 2011;20(3):464-74.
31. Werltli MM, Eugster R, Held U, Steurer J, Kofmehl R, Weiser S. Catastrophizing-a prognostic factor for outcome in patients with low back pain: a systematic review. *Spine J.* 2014;14(11):2639-57.
32. Jones GT, Watson KD, Silman AJ, Symmons DP, Macfarlane GJ. Predictors of low back pain in British schoolchildren: a population-based prospective cohort study. *Pediatrics.* 2003;111(4 Pt 1):822-8.
33. Lynch AM, Kashikar-Zuck S, Goldschneider KR, Jones BA. Psychosocial risks for disability in children with chronic back pain. *J Pain.* 2006;7(4):244-51.
34. Dunsford A, Kumar S, Clarke S. Integrating evidence into practice: use of McKenzie-based treatment for mechanical low back pain. *J Multidiscip Healthc.* 2011;4:393-402.
35. Straube S, Harden M, Schröder H, Arendacka B, Fan X, Moore RA, et al. Back schools for the treatment of chronic low back pain: possibility of benefit but no convincing evidence after 47 years of research-systematic review and meta-analysis. *Pain.* 2016;157(10):2160-72.
36. Franke H, Franke JD, Fryer G. Osteopathic manipulative treatment for nonspecific low back pain: a systematic review and meta-analysis. *BMC Musculoskelet Disord.* 2014;15:286.
37. Chou R, Loeser JD, Owens DK, Rosenquist RW, Atlas SJ, Baisden J, et al. Interventional therapies, surgery, and interdisciplinary rehabilitation for low back pain: an evidence-based clinical practice guideline from the American Pain Society. *Spine (Phila Pa 1976).* 2009;34(10):1066-77.