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# The High Ratio of Undiagnosed Cases of Low Back Pain: Implications for Its Management

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## Abstract

**Background:** Low back pain, which has a lifetime prevalence of about 84%, has remained a major medical problem worldwide. It has become a burden to the national economy. Of the many cases of low back pain, only about 15% are specifically diagnosed, and the remaining 85% attributed to non-specific causes go undiagnosed, resulting in poor treatment and management outcomes.

**Aim:** This review aims to draw attention to the low percentage of diagnosed cases of low back pain, emphasize the dire need to improve on this percentage, and hence improve upon the disease management outcomes.

**Method:** Manual literature and internet databases (Google Scholar, PubMed, Embase, HINARI, Cochrane Library) were searched for relevant information.

**Results and Discussion:** Clinical research and reviews have shown that the ubiquitous complaint of low back pain remains and increases due to a poor understanding of its aetiology, lack of first-time consultation with specialists in the field, the need for extensive differential diagnosis, and follow-up of patient symptoms.

**Conclusion:** Low back pain causes more global distress and disability than any other condition and, unfortunately, it is poorly diagnosed. There is need for pragmatic and qualitative research to better understand the field of low back pain and to improve its diagnosis as well as management strategies.

## Key Words

Low Back Pain; Non-Specific Low Back Pain; Diagnosis

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## Background

Low back pain is a major and increasing international health challenge. Apart from the well-known pain and disability associated with it, it also has a significant negative impact on work through excuse duty. Moreover, it generates very high costs by way of healthcare expenditure as well as disability insurance<sup>1</sup>. In fact, recent research has shown that low back pain causes more years lived with disability (expressed in disability-adjusted life years [DALYS]) than any other health condition<sup>2</sup>.

Low back pain does not imply a diagnosis but refers to a clinical entity or symptom defined as pain and or discomfort, localised below the costal margin and above the inferior gluteal folds, with or without referred leg pain. Like other symptoms such as fever and headache, it can have varying causes<sup>2-3</sup>. Low back pain that resolves in less than three months is said to be acute or subacute. Chronic low back pain is defined by symptoms that persists for a period greater than three months<sup>3</sup>. Along with pain and impaired function, people with chronic low back pain frequently experience anxiety and depression,

as well as negative effects on social, recreational and work-life. Recognition of this widespread impact has led to the formulation of the biopsychosocial model of low back pain as well as efforts to develop interventions that target all facets of the disorder. The biopsychosocial model combines physical, psychological, educational and/or work related components and it is usually implemented by a team of specialist healthcare providers with expertise in different fields. Increasing widespread acceptance of the biopsychosocial model, along with the relatively modest performance of monotherapies in clinical trials, has led to more research into the effectiveness of multidisciplinary rehabilitation<sup>3-6</sup>.

Multidisciplinary rehabilitation is an umbrella team applied to programmes that adhere to the biopsychosocial conceptualization of chronic pain and include more than just a physical treatment. Substantial variation may exist in the approach used by a particular health facility, the intensity of each component, and the skill and experience of the healthcare practitioners in charge<sup>6</sup>.

The first task of the clinician is to diagnose and/or exclude possible underlying specific causes of low back pain. This has given rise to a simple and practical classification guideline (which has gained international acceptance), the so-called diagnostic triage<sup>7</sup>. The goal of the diagnostic triage of low back pain is to exclude non-spinal causes and to allocate patients to one of three broad categories: specific spinal pathology (<1% of cases), nerve root pain or radicular pain (about 5-10% of cases), or non-specific low back pain which represents 90-95% of cases and is diagnosed by exclusion of the first two categories<sup>7-8</sup>. For specific spinal pathologies (e.g. vertebral fracture, malignancy, infection, axial spondyloarthritis or cauda equina syndrome), a clinical assessment may reveal the key alerting features. For radicular syndrome, clinical features distinguish three subsets of nerve root involvement: radicular pain, radiculopathy and spinal stenosis. Differential diagnosis of back-related pain is complex and clinical manifestations are highly variable<sup>8</sup>.

In view of the fore-going, the present review was solicited to draw attention to the low percentage of diagnosed cases of low back pain, emphasize the fact that with dogged commitment to improve on the diagnosis, the high percentage diagnosis of non-specific low back pain can be reduced and this will translate to improved management outcomes.

### Methods

We searched the literature and internet databases (Google Scholar, PubMed, Embase, HINARI, Cochrane library) for relevant information using the keywords: Diagnosis of non-specific low back pain; diagnosis of low back pain. Search filters were set to cover the years 2010-2018 and later set to order results by relevance. The following studies were selected: Research supporting the hypotheses that the ratio of diagnosed cases of low back pain is low; that an increase in the ratio of diagnosed cases proposes better treatment outcome; and that there remains a poor understanding of the causes of non-specific low back pain.

### Results and Discussion

Among the reported cases of low back pain globally, specific causes are uncommon (<15%) and about 85% of cases remain undiagnosed hence, classified as non-specific low back pain<sup>4, 6-10</sup>. However, careful examination and follow-up of symptom progression by specialists can lead to an improvement in the number of diagnosed cases of low back pain, which in turn leads to early commencement of treatment and an overall improved outcome.

For example, the Yamaguchi Low Back Pain Study<sup>9</sup> conducted in Yamaguchi Prefecture, Japan, aimed to

prove the hypothesis that the proportion of diagnosable low back pain in previous studies was quite low, despite accurate low back pain diagnosis being the most important step prior to the start of treatment. A total of 320 patients (160 men and 160 women; average age, 55.7 years) with low back pain who sought treatment between April and May 2015 were examined, diagnosed and treated by orthopaedics working in the Japanese clinical setting.

In this study, 78% (250) of low back pain cases were diagnosed and only 22% (70) remained undiagnosed i.e. were classified as non-specific low back pain. Of the 78% of diagnosed cases, 57% had specific causes; 21% had *red flag* lower back pain i.e. required further diagnostic work-up for serious disorders<sup>9, 11</sup>. This presents a marked difference from previous reports that about 10-20% of low back pain cases are often diagnosed. The study also reported that another reason for this low percentage of diagnosable low back pain was due to initial examination by clinicians who were not specialized in the neurological and physical examinations required for accurate diagnosis of low back pain.

Wahl et al,<sup>12</sup> reported a case of a 36 year-old male with chronic lower back and toe pain whose initial physical therapy evaluation supported a diagnosis of mechanical low back pain. However, symptom progression through two treatment sessions indicated that a non-mechanical source of pain was instead the likely cause of the patient's symptoms. Specialists were consulted and a thorough compilation of clinical, laboratory, and imaging findings led to a diagnosis of human leukocyte antigen B-27-positive spondyloarthropathy, urging clinicians to be proficient in screening for non-mechanical low back pain that may mimic a musculoskeletal origin of symptoms.

Nienhaus and van de Laar<sup>13</sup> also suggested that the major reason for lack of effectiveness in treating low back pain is due to the low percentage of diagnosed cases and consequently a high percentage of undiagnosed cases. They argued that the reason for these disappointing results lies in the 'non-specific' nature of low back pain in that the causes for non-specific low back pain are not properly understood albeit research has continued to focus on its treatment even though there is a major lack of understanding of its aetiology.

Traditionally, the notion that the cause of about 85% of low back pain cases is unknown has been perpetuated across decades<sup>14-15</sup>. Fundamentally, any spinal structure can serve as the source of low back pain in affected patients provided the structure is innervated; is capable of causing pain similar to that

encountered clinically; and is susceptible to disease or injury known to be painful. Investigators<sup>14-16</sup>, have adduced the above principles to identify the structural causes of low back pain in adult patients. Independent studies of adult low back pain patients have estimated prevalence rate for painful lumbar intervertebral discs disruption (IDD), facet joint pain (FJP) and sacroiliac joint pain (SIJP) of 39%, 15-32% and 13-18.5%, respectively<sup>14</sup>.

Age is associated with the prevalence of IDD, FJP, and SIJP in adult low back pain patients. The common aetiology of low back pain in the young to middle age adult is IDD, followed by FJP and SIJP with the latter two occurring at a seemingly, similar prevalence rate<sup>14</sup>. It has been reported<sup>10,12,14</sup> that an increase in age is significantly associated with a decrease in the probability of IDD as the source of low back pain and an increase in the probability of FJP or SIJP being the source of low back pain until approximately the age of 70. In simpler terms, the younger the low back pain patient, the likely his or her low back pain is discogenic in origin. In contrast, the older the low back pain patient the more likely his or her low back pain is facetogenic or SIJP in origin. For the oldest of the population, other sources of low back pain (Baastrup's disease or insufficiency fractures) have been suggested<sup>14, 17-19</sup>.

Chronic low back pain has been associated with abnormal brain anatomy and function. When compared with pain-free controls, individuals with chronic low back pain have been shown to have reductions in cortical grey matter in the bilateral dorsolateral prefrontal cortex, thalamus, brainstem, primary somatosensory cortex and posterior parietal cortex<sup>20-21</sup>. In addition to chronic low back pain, cortical abnormalities occur in a wide variety of other chronic pain conditions, such as chronic headache, arthritis and fibromyalgia<sup>20</sup>. Several studies have also indicated abnormal cortical function in people with chronic low back pain<sup>22-23</sup>. Additionally, there is evidence that some people with chronic pain such as chronic low back pain, also have cognitive impairment. This cognitive impairment may be the result of demands that pain puts on cognitive brain networks because cognitive load-related activity is enhanced by pain<sup>20,24</sup>. Heartily, these brain abnormalities are normalised by effective treatment<sup>20</sup>.

It appears that low back pain, will remain a major medical challenge notwithstanding the many national guidelines, recommendations and research focused on effective non-pharmacological and pharmacological modes of treatment. It appears so because there is a yawning gap in understanding of the aetiology and pathology of low back pain<sup>17-19</sup>. Nonetheless, accurate diagnosis of the specific

source of low back pain will help break the futile cycle into which many patients are directed after ineffective spinal procedures. For example, it would seem indefensible that a 35-year-old chronic low back pain patient would experience low back pain relief after undergoing neurotomy of the bilateral L4 medial branches and L5 dorsal rami. Despite the performance of technically sound neurotomy procedures, this procedure is doomed for a poor outcome because the most likely source of this patient's symptoms resides within the anterior column unaffected by a procedure targeting a posterior element. In essence, the therapeutic utility of the diagnosis itself is that treatment can then be directed, or avoided, toward the source of symptoms<sup>14,17-19</sup>.

Although many health care practitioners have now noted that psychosocial issues influence the natural history of low back pain, highlighting these factors that influence the outcome of (sub)acute low back pain is a major challenge to improving prognosis. Despite several studies on this topic, besides the well known biomedical conditions and occupational biomechanical characteristics, research is still ongoing to determine which psychosocial factors might prospectively be associated with transition from sub(acute) to chronic low back pain in primary health care<sup>5,17-19,25-28</sup>. Indeed, the prognosis for low back pain is not as good as previously thought, particularly because of frequent relapse or transition to chronic low back pain. Thus, primary healthcare practitioners often feel frustrated, due in part to the impression of failure and to the absence of specific treatment<sup>25,29-30</sup>.

### Conclusion

Low back pain is a global health challenge that causes more years lived with disability than any other health conditions. Low back pain is a symptom and not a diagnosis. Careful differential diagnosis is required and in primary care, the diagnostic triage of low back pain is the anchor for correct diagnosis. A diagnosis of non-specific low back pain presumes exclusion of specific pathologies and nerve root involvement. As opposed to traditional beliefs that about 85% of low back pain cannot be diagnosed, reports by numerous investigators have now demonstrated that the converse is, in fact, true<sup>6,9-10,12,13-16,18-20,25,27-30</sup>. A biopsychosocial model of care underpins nonspecific low back pain- this includes managing pain intensity and considering risk for disability.

For improved outcome in the treatment and management of low back pain, an increase in the percentage of diagnosed cases is imperative. As much as possible, patients should consult clinicians who are specialists in the physical and neurological

examinations required for accurate diagnosis of low back pain. Extensive differential diagnosis as well as sensitivity and specificity tests should be carried out before a final diagnosis is made. There should be proper follow-up of symptom progression or regression. New directions of research will lead to a better understanding of the various mechanisms undergirding low back pain. Research should focus more on understanding the aetiology, course and trajectory of non-specific low back pain. The problem of low back pain could also be ameliorated by conducting awareness campaigns urging those with the said complaint to consult specialist physicians as well as educating the public on the impact of low back pain and ways to reduce its incidence.

### References

1. Clark S, Horton R. Low back pain: a major global challenge. *Lancet*. June 2018. Vol 391 (10137), pg 2302 DOI: [https://doi.org/10.1016/50140-6736\(18\)30725-61](https://doi.org/10.1016/50140-6736(18)30725-61). Hoy D, March L, Brooks P, et al. The global burden of low back pain: estimates from the Global Burden of Disease 2010 study (Extended Report). *Annals of the Rheumatic Diseases*. June 2014. Vol 73, pg 963-974.
2. Kamper SJ, Apeldoorn AT, Chiarotto A, et al. Multidisciplinary biopsychosocial rehabilitation for chronic low back pain: Cochrane systematic review and meta-analysis. *British Medical Journal*. Feb 2015. Vol 350, h444 doi:10.1136/bmj.h444.
3. Airaksinen O, Brox JJ, Cedraschi C, et al. European guidelines for the management of chronic nonspecific low back pain. *European Spine Journal*. March 2006. Vol 15 Suppl 2, pg 192-300.
4. Qaseem A, Wilt TJ, McLean RM, Forciea MA. Clinical Guidelines Committee of the American College of Physicians. Noninvasive treatments for acute, subacute and chronic low back pain: A clinical practice guideline from the American College of Physicians. *Annals of Internal Medicine*. April 2017. Vol 166(7), pg 514-530.
5. Synnott A., O'Keeffe M., Bunzli S., et al. Physiotherapists report improved understanding of and attitude toward the cognitive, psychological and social dimensions of chronic low back pain after Cognitive Functional Therapy training: a qualitative study. *Journal of Physiotherapy*. October 2016. Vol 62 (4), pg 215-221.
6. Waddell G. Volvo award in clinical sciences. A new clinical model for the treatment of low-back pain. *Spine*. September 1987. Vol 12(7), pg 632-644.
7. Bardin LD, King P, Maher CG. Diagnostic triage for low back pain: a practical approach for primary care. *The Medical Journal of Australia*. April 2017. Vol 206(6), pg 268-273.
8. Suzuki H, Kanchiku T, Imajo Y, et al. Diagnosis and characters of non-specific low back pain in Japan: The Yamaguchi Low Back Pain Study. Sumitani M, ed. *PLoS ONE*. August 2016. Vol 11 (8), e0160454. doi:10.1371/journal.pone.0160454.
9. Krismser M, van Tulder M. Low back pain (non-specific). *Best Practice and Research. Clinical Rheumatology*. February 2007. Vol 21(1), pg 77-91.
10. Underwood M, Buchbinder R. Red flags for back pain. *British Medical Journal*. December 2013. Vol 347, f7432. doi: 10.1136/bmj.f7432.
11. Wahl EC, Smith D, Sesto M, Boissonnault W. Differential diagnosis of a patient with low back and toe pain. *The Journal of Manual and Manipulative Therapy*. May 2013. Vol 21(2), pg 81-89. doi:10.1179/2042618612Y.0000000023.
12. Niënhaus BEC, van de Laar FA. Lage rugpijn: niet leren behandelen, maar begrijpen. *Nederlands Tijdschrift voor Geneeskunde*. 2017. Vol 161(0), D2032. Article in Dutch.
13. DePalma MJ, Ketchum JM, Saullo T. What is the source of chronic low back pain and does age play a role? *Pain Medicine*. February 2011. Vol 12(2), pg 224-233.
14. Spratt KF, Lehman TK, Weinstein JN, et al. A new approach to low back physical examination. Behavioural assessment of mechanical signs. *Spine*. February 1990. Vol 15 (2), pg 96-102.
15. Balague F, Mannion AF, Pellise F, Cedraschi C. Non-specific low back pain. *Lancet*. February 2012. Vol 379(9814), 482-491.
16. Chou R, Qaseem A, Snow V, et al. Diagnosis and Treatment of Low Back Pain: A Joint Clinical Practice Guideline from the American College of Physicians and the American Pain Society. *Annals of Internal Medicine*. October 2007. Vol 147(7), pg 478-491. doi: 10.7326/0003-4819-147-7-200710020-00006
17. van der Windt DA, Dunn KM. Low back pain research--future directions. *Best Practice and Research. Clinical Rheumatology*. October 2013. Vol 27(5), pg 699-708. doi: 10.1016/j.berh.2013.11.001. Epub 2013 Nov 14.
18. Kongsted A., Kent P., Axen I., Downie A.S., Dunn K.M. What have we learned from ten years of trajectory research in low back pain? *BioMed Central Musculoskeletal Disorders*. May 2016. Vol 17, pg 220. doi:10.1186/s12891-016-1071-2.
19. Seminowicz DA, Wideman TH, Naso L, et al. Effective treatment of chronic low back pain in humans reverses abnormal brain anatomy and function. *The Journal of Neuroscience*. May 2011. Vol 31(20), pg 7540-7550.

21. Buckalew N, Haunt MW, Morrow L, et al. Chronic pain associated with brain volume loss in older adults: preliminary evidence. *Pain Medicine*. March 2008. Vol 9(2), pg 240-248.
22. Taliazucchi E, Balenzuela P, Fraiman D, et al. Brain resting state is disrupted in chronic back pain patients. *Neuroscience Letters*. November 2010. Vol 485(1), pg 26-31.
23. Baliki MN, Geha PY, Apkarian AV, et al. Beyond feeling: chronic pain hurts the brain, disrupting the default mode network dynamics. *The Journal of Neuroscience*. February 2008. Vol 28 (6), pg 1398-1403.
24. Lee DM, Pendleton N, Tajar A, et al. Chronic widespread pain is associated with slower cognitive processing speed in middle-aged and older European men. *Pain*. October 2010. Vol 151(1), pg 30-36.
25. Ramond A, Bouton C, Richard I, et al. Psychosocial risk factors for chronic low back pain in primary care--a systematic review. *Family Practice*. February 2011. Vol 28(1), pg 12-21. doi:10.1093/fampra/cm072.
26. Kent PM, Keating JL. Can we predict poor recovery from recent-onset nonspecific low back pain? A systematic review. *Manual Therapy*. February 2008. Vol 13(1), pg 12-28.
27. Melloh M, Elfering A, Egli PC, et al. Identification of prognostic factors for chronicity in patients with low back pain: a review of screening instruments. *International Orthopaedics*. April 2009. Vol 33(2), pg 301-313.
28. Young CC, Greenberg MA, Nicassio PM, et al. Transition from acute to chronic pain and disability: a model including cognitive, affective and trauma factors. *Pain*. January 2008. Vol 134 (1-2), pg 69-79.
29. Chew-Graham C, May C. Chronic low back pain in general practice: the challenge of the consultation. *Family Practice*. February 1999. Vol 16(1), pg 46-49.
30. Truchon M. Determinants of chronic disability related to low back pain: towards an integrative biopsychosocial model. *Disability and Rehabilitation*. November 2001. Vol 23(17), pg 758-767.

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