

Multidimensional Diagnostic Criteria for Chronic Non-Specific Low Back Pain Patients: A Narrative Review

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ABSTRACT

Background: Chronic non-specific low back pain (CNSLBP) is one of the most prevalent musculoskeletal disorders worldwide and a major cause of long-term disability. Despite its high burden, diagnosis remains challenging because most patients do not present with a single clearly identifiable pathological cause. Conventional diagnostic approaches based mainly on structural findings and imaging are often insufficient to explain symptom persistence, functional limitation, and variation in clinical presentation. This has increased interest in multidimensional diagnostic models that integrate physical, psychosocial, functional, and neurobiological domains. **Objective:** To synthesize the literature on multidimensional diagnostic criteria and assessment domains relevant to patients with chronic non-specific low back pain through a narrative review. **Methods:** A narrative review of the literature was conducted using major electronic databases, including PubMed, Scopus, and Google Scholar. Relevant studies and reviews were identified using terms related to chronic non-specific low back pain, diagnostic criteria, multidimensional assessment, biopsychosocial factors, functional evaluation, psychosocial screening, and pain mechanisms. The evidence was synthesized thematically around key diagnostic domains, including core criteria, common clinical features, psychiatric and medical comorbidities, psychosocial and functional consequences, and putative neurobiological mechanisms. **Results:** The reviewed literature showed that effective diagnosis of CNSLBP requires more than exclusion of specific spinal pathology. Core diagnostic criteria include pain located between the lower rib margin and gluteal folds, symptom duration exceeding 12 weeks, and absence of a clear specific pathological source. The evidence further demonstrated that physical examination, functional assessment, psychosocial screening, and movement-based evaluation are essential components of diagnosis. Common clinical features include diffuse axial pain, activity-related aggravation, and variable functional limitation, whereas psychiatric and medical comorbidities such as anxiety, depression, insomnia, hypertension, diabetes, and osteoarthritis frequently coexist. Psychosocial factors, particularly fear-avoidance, catastrophizing, reduced work participation, and disability, emerged as major contributors to symptom persistence. In addition, neurobiological mechanisms such as central sensitization and altered pain modulation were identified as important explanatory domains in a subgroup of patients. Overall, the findings support the use of multidimensional diagnostic frameworks, including biopsychosocial and movement-based classification models, to improve clinical reasoning and patient stratification. **Conclusion:** Chronic non-specific low back pain should be diagnosed using a multidimensional framework that extends beyond structural assessment to include functional, psychosocial, and neurobiological domains. Adoption of such an approach may improve diagnostic precision, enhance individualized rehabilitation planning, and support better clinical outcomes. **Keywords:** chronic non-specific low back pain; diagnosis; multidimensional assessment; biopsychosocial model; functional evaluation; psychosocial factors; central sensitization; narrative review

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INTRODUCTION

Low back pain is one of the most prevalent musculoskeletal disorders worldwide and remains a leading contributor to disability, activity limitation, and health-care utilization across diverse populations (1,2). It is typically defined as pain localized between the lower rib margin and the inferior gluteal folds, with or without referral to the lower extremity, and may arise from a wide spectrum of spinal and paraspinal structures (3). Global estimates have shown that low back pain affects hundreds of millions of

individuals, with a substantial contribution to years lived with disability, particularly among working-age adults and older populations (1,2). Its societal burden extends beyond physical symptoms to reduced work productivity, recurrent health-care use, impaired quality of life, and considerable economic cost (2,4). Despite this high burden, low back pain is not a uniform entity; rather, it is a heterogeneous clinical presentation that differs in duration, severity, mechanism, and prognostic profile.

From a clinical perspective, low back pain is commonly categorized as specific or non-specific. Specific low back pain refers to cases in which a recognizable pathological source such as fracture, infection, inflammatory disease, radiculopathy, malignancy, or major structural pathology can be identified, whereas non-specific low back pain describes pain for which no single definitive nociceptive generator can be established despite routine clinical evaluation (3,5,6). Non-specific low back pain accounts for the overwhelming majority of presentations and therefore constitutes the main diagnostic challenge in routine practice (3,6). The condition is further stratified temporally into acute, subacute, and chronic forms, with chronic low back pain generally referring to symptoms that persist for more than 12 weeks (7,8). Although many acute episodes improve over time, a clinically important proportion of patients transition to chronic pain, recurrent disability, and persistent functional limitation, making early and accurate characterization of chronic non-specific low back pain especially important (9,10).

The difficulty in diagnosing chronic non-specific low back pain lies in the fact that symptoms frequently cannot be explained by structural findings alone. Imaging abnormalities such as disc degeneration, spondylotic change, and other age-related spinal findings are often present in asymptomatic individuals, while many patients with disabling pain do not demonstrate a clear lesion that adequately accounts for symptom severity or chronicity (5,11). As a result, a purely biomedical diagnostic model is often insufficient for explaining patient presentation, guiding individualized management, or predicting outcome. Contemporary evidence instead supports a broader understanding of chronic non-specific low back pain as a multidimensional disorder shaped by interacting biomechanical, neurophysiological, psychological, behavioral, and social influences (2,4,12). In this framework, pain persistence may reflect not only peripheral nociceptive input but also maladaptive movement patterns, altered motor control, central sensitization, fear-avoidance beliefs, catastrophizing, emotional distress, sleep disturbance, and work-related or contextual stressors (12-15).

This shift toward multidimensional understanding has important diagnostic implications. Several conceptual and clinical frameworks have been proposed to move beyond structural exclusion and toward integrated patient assessment. Among these, the ACTION-American Pain Society Pain Taxonomy and related multidomain classification models emphasize core diagnostic features, common clinical characteristics, comorbidities, psychosocial and functional consequences, and putative mechanisms contributing to chronic pain states (16,17). In parallel, rehabilitation-oriented approaches such as movement impairment classification and biopsychosocial assessment models have highlighted the value of physical examination, functional testing, pain-related behavior assessment, and psychosocial screening in identifying meaningful patient subgroups and contributors to persistent symptoms (14,18,19). These approaches do not replace careful screening for serious pathology; rather, they offer a more clinically useful structure for understanding chronic non-specific low back pain once major specific causes have been excluded.

Although multidimensional models are increasingly discussed in the literature, their diagnostic application remains inconsistently described across clinical and academic sources. Existing discussions are often dispersed across epidemiological reviews, pain mechanism papers, rehabilitation classification studies, and guideline documents, which makes it difficult for clinicians and researchers to appreciate how these dimensions converge in practical diagnostic reasoning. In addition, some publications focus heavily on treatment, prognosis, or pathophysiology without sufficiently clarifying how physical, psychosocial, functional, and neurobiological domains can be integrated during assessment. A focused

narrative synthesis is therefore needed to consolidate contemporary concepts and clarify the diagnostic relevance of these interrelated domains in chronic non-specific low back pain.

Accordingly, the objective of this narrative review was to synthesize the contemporary literature on multidimensional diagnostic criteria and assessment domains relevant to patients with chronic non-specific low back pain. Specifically, this review aimed to examine how core clinical features, common presentation patterns, psychiatric and medical comorbidities, psychosocial and functional consequences, and putative neurobiological mechanisms contribute to a more comprehensive diagnostic framework for this condition.

MATERIAL AND METHODS

This study was conducted as a narrative review to provide a conceptually integrated synthesis of the literature on multidimensional diagnostic criteria for chronic non-specific low back pain. A narrative approach was selected because the objective was not to estimate a pooled effect size or formally map all published evidence, but rather to critically examine and organize the main diagnostic concepts, clinical domains, and assessment perspectives relevant to contemporary evaluation of this condition. The review was designed to address the recognized limitations of purely structural and symptom-based diagnostic approaches by bringing together evidence from epidemiological, clinical, rehabilitation, and pain-mechanism literature into a unified interpretive framework.

A targeted literature search was undertaken in PubMed, Scopus, and Google Scholar to identify publications relevant to the diagnosis and multidimensional assessment of chronic non-specific low back pain. Searches focused on combinations of key terms including “chronic non-specific low back pain,” “chronic low back pain,” “diagnostic criteria,” “classification,” “multidimensional assessment,” “biopsychosocial,” “movement impairment,” “functional assessment,” “psychosocial factors,” “comorbidity,” “central sensitization,” and “pain taxonomy.” Reference lists of key articles were also screened manually to identify additional influential studies and seminal papers. Greater emphasis was placed on peer-reviewed articles that contributed to diagnostic frameworks, clinical classification systems, psychosocial screening concepts, functional evaluation strategies, and mechanistic understanding relevant to chronic non-specific low back pain.

The literature selection process was guided by relevance to the review objective rather than by a formal systematic screening protocol. Articles were prioritized if they addressed one or more of the following domains: definitional and core diagnostic features of chronic non-specific low back pain, common clinical presentation patterns, psychiatric or medical comorbidities, psychosocial and functional consequences, neurobiological mechanisms of chronicity, or multidimensional diagnostic frameworks such as the ACTION-American Pain Society Pain Taxonomy. Clinical reviews, observational studies, mechanistic studies, systematic reviews, and guideline-relevant articles were considered where they contributed meaningfully to diagnostic interpretation. Studies focused primarily on clearly specific spinal pathology, isolated surgical management, or intervention efficacy without diagnostic relevance were not emphasized in the synthesis.

The final synthesis was organized thematically around multidimensional diagnostic domains derived principally from contemporary chronic pain taxonomy and biopsychosocial models. The evidence was interpreted under five broad categories: core criteria of diagnosis, common clinical features, psychiatric and medical comorbidities, psychosocial and functional consequences, and putative pathological or neurobiological mechanisms. This organizational strategy was chosen to ensure conceptual coherence and to reflect how diagnostic reasoning in chronic non-specific low back pain extends beyond exclusion of structural disease toward identification of interacting contributors to pain persistence and disability (16,17). Because this was a narrative review, formal risk-of-bias assessment and meta-analysis were not undertaken. The authors acknowledge that narrative synthesis is inherently susceptible to selection bias;

however, transparency was improved by defining the scope, databases, search concepts, and thematic framework used to guide article selection and interpretation.

RESULTS / SYNTHESIS

The retrieved literature consistently indicated that chronic non-specific low back pain should not be approached as a diagnosis of structural exclusion alone, but rather as a multidimensional clinical condition requiring integrated assessment of symptom location and duration, functional performance, psychosocial burden, comorbidity profile, and likely pain-processing mechanisms. Across the reviewed evidence, five major diagnostic domains emerged repeatedly: core diagnostic criteria, common clinical features, psychiatric and medical comorbidities, psychosocial and functional consequences, and putative neurobiological mechanisms. These domains were conceptually consistent with contemporary multidimensional pain taxonomy and biopsychosocial models, although the operationalization of each domain varied across studies and reviews.

The strongest and most consistently described domain was the need to define chronic non-specific low back pain using core clinical criteria, particularly pain localized between the lower rib margin and the inferior gluteal folds, persistence beyond 12 weeks, and the absence of a clear specific spinal pathology or radicular syndrome explaining the presentation. A second major theme was that common clinical features should be established through careful history-taking and physical examination rather than routine imaging. The reviewed literature repeatedly emphasized that imaging findings often correlate poorly with symptoms and may lead to over-medicalization when used indiscriminately. A third recurrent domain concerned psychiatric and medical comorbidities, with anxiety, depression, insomnia, hypertension, diabetes, dyspepsia, and osteoarthritis frequently identified as coexisting factors that may complicate diagnostic interpretation and influence pain chronicity.

The synthesis also showed that psychosocial and functional consequences were central rather than peripheral to diagnosis. Fear-avoidance, catastrophizing, work dissatisfaction, reduced participation, and disability were repeatedly linked to symptom persistence and poorer quality of life. Finally, the reviewed studies supported the inclusion of putative neurobiological mechanisms, particularly central sensitization and altered pain modulation, as clinically relevant contributors in a subgroup of patients with chronic non-specific low back pain. Overall, the literature supported a shift from a narrow biomedical classification model toward a multidimensional framework capable of guiding more individualized clinical reasoning.

Table 1. Summary of Key Evidence Included in the Narrative Synthesis

Study	Study type	Primary focus	Main contribution to diagnostic understanding
Krismer and Van Tulder	Review	Definition and classification of low back pain	Clarified distinction between specific and non-specific low back pain and reinforced the high proportion of non-specific presentations
Hartvigsen et al.	Review / Lancet series	Epidemiology and public health relevance	Positioned low back pain as a major cause of disability and emphasized heterogeneity of presentation
Maher et al.	Review	Clinical overview of non-specific low back pain	Supported the concept that most low back pain lacks a clear pathoanatomical diagnosis
Chiarotto and Koes	Clinical review	Nonspecific low back pain	Reinforced limited value of routine imaging and importance of clinical evaluation
Markman et al.	Diagnostic framework paper	AAPT diagnostic criteria for chronic low back pain	Provided multidimensional domains for classifying chronic low back pain
Kent et al.	Taxonomy framework paper	ACTTION-APS-AAPM taxonomy	Supported multidimensional pain classification structure relevant to chronic pain states
O'Sullivan	Conceptual / classification paper	Maladaptive movement and motor control impairments	Highlighted movement dysfunction and behavioral adaptation as diagnostic dimensions
Hush et al.	Mechanistic review	Nociceptive, neuropathic, and neuroplastic mechanisms	Expanded biological understanding beyond structural pathology
Roussel et al.	Review	Central sensitization in chronic low back pain	Supported altered central pain processing as a contributor in selected patients

Study	Study type	Primary focus	Main contribution to diagnostic understanding
Corrêa et al.	Case-control study	Conditioned pain modulation and sensitization	Demonstrated pain-modulation abnormalities in chronic non-specific low back pain
Ciaramella and Poli	Clinical study	Psychiatric comorbidity	Linked chronic low back pain with depression and maladaptive pain perception
Singhal et al.	Clinical study	Psychological comorbidities	Reinforced the need for mental health assessment during diagnostic work-up
Nordstoga et al.	Longitudinal study	Multisite pain and psychological comorbidity	Showed prognostic importance of psychological burden in chronic low back pain
Ramanathan et al.	Medical record review	Comorbidities and appropriateness of care	Identified common medical comorbidities relevant to clinical management
Tushingham et al.	Systematic review and meta-analysis	Long-term conditions coexisting with low back pain	Supported high coexistence of non-communicable disease burden with musculoskeletal pain
Hider et al.	Clinical study	Impact of leg pain and disability	Linked pain distribution to health-care use, work disability, and quality of life
Agnus Tom et al.	Systematic review	Determinants of quality of life	Demonstrated multidimensional impact of chronic low back pain on life quality

Table 2. Multidimensional Diagnostic Domains and Their Clinical Relevance in Chronic Non-Specific Low Back Pain

Diagnostic domain	Typical features	Representative assessment approach	Clinical relevance
Core diagnostic criteria	Pain between lower rib margin and gluteal folds; duration more than 12 weeks; no specific pathological diagnosis	History, symptom duration, exclusion of red flags and major specific pathology	Establishes baseline diagnosis and separates chronic non-specific cases from specific spinal disorders
Common clinical features	Diffuse axial pain, activity-related aggravation, absence of major neurological deficit, variable functional limitation	Clinical interview, physical examination, movement testing, neurological screen, straight leg raise when indicated	Helps characterize presentation and identify whether further investigation is required
Psychiatric and medical comorbidities	Depression, anxiety, insomnia, hypertension, diabetes, osteoarthritis, dyspepsia	Psychosocial screening, medical history, medication review, comorbidity review	Identifies factors that amplify pain, complicate recovery, and influence management choices
Psychosocial and functional consequences	Fear-avoidance, catastrophizing, work dissatisfaction, reduced mobility, social withdrawal, disability	Fear-avoidance questionnaires, pain catastrophizing scales, disability indices, participation assessment	Clarifies why symptoms persist and why functional loss may exceed structural findings
Putative neurobiological mechanisms	Central sensitization, altered pain modulation, temporal summation, neuroplastic adaptation	Clinical sensory profiling, pain-modulation testing where available, mechanism-based reasoning	Supports mechanism-informed subgrouping and helps explain persistent pain without clear tissue pathology

Table 3. Key Outcome Measures Relevant to a Multidimensional Diagnostic Work-Up

Dimension assessed	Example tools / measures	Diagnostic value
Pain intensity	Numeric Pain Rating Scale, Visual Analogue Scale	Quantifies perceived pain severity but should not be used alone for diagnosis
Disability	Oswestry Disability Index, Roland-Morris Disability Questionnaire	Captures activity limitation and functional burden
Psychosocial burden	Fear-Avoidance Beliefs Questionnaire, Pain Catastrophizing Scale, depression/anxiety screening tools	Identifies maladaptive beliefs and emotional distress linked to chronicity
Functional performance	Movement analysis, trunk control assessment, sit-to-stand, gait and postural evaluation	Detects movement impairment, avoidance patterns, and load intolerance
Mechanistic pain profile	Clinical indicators of sensitization, pain provocation and modulation patterns	Helps identify patients with dominant nociplastic or centrally sensitized features

RESULTS NARRATIVE

The narrative synthesis demonstrated that the evidence base clustered around five interrelated diagnostic domains rather than a single dominant pathoanatomical explanation. Core diagnostic criteria and common clinical features were the most consistently addressed domains, reflecting the continued importance of symptom location, chronicity, physical examination, and exclusion of specific pathology in initial case identification. However, the literature also showed that these foundational criteria alone were insufficient to explain the broad variation in pain intensity, disability, and treatment response seen in chronic non-specific low back pain. This limitation was most apparent in studies emphasizing weak

concordance between imaging findings and clinical presentation, thereby reinforcing the need for broader diagnostic reasoning.

A second major pattern was the repeated association between chronic non-specific low back pain and coexisting psychiatric or medical conditions. The reviewed evidence indicated that depression, anxiety, insomnia, and multisite pain frequently coexist with persistent low back pain, while non-communicable conditions such as hypertension, diabetes, and osteoarthritis are also common. These findings suggest that diagnosis should not be limited to identifying pain location and excluding red flags, but should include active assessment of factors that may maintain symptom chronicity, increase health-care use, and reduce treatment responsiveness.

The third and most conceptually rich theme concerned psychosocial and functional consequences. Across the included literature, fear-avoidance, catastrophizing, reduced work satisfaction, disability, and social restriction emerged as recurrent correlates of persistent low back pain. These factors were not merely downstream outcomes; rather, they appeared to interact bidirectionally with pain behavior, movement limitation, and recovery expectations. This supports the argument that functional disability in chronic non-specific low back pain should be interpreted as part of the diagnostic profile rather than treated solely as a consequence measured after diagnosis.

The final major theme was the increasing recognition of neurobiological mechanisms, especially central sensitization and altered pain modulation. Although not all patients with chronic non-specific low back pain demonstrate the same pain-processing profile, the reviewed evidence suggested that a clinically relevant subgroup exhibits amplified central nociceptive processing, altered temporal summation, and impaired conditioned pain modulation. When considered together, these findings support a multidimensional diagnostic model in which chronic non-specific low back pain is understood as a condition emerging from the interaction of clinical presentation, functional behavior, psychosocial context, and pain-processing mechanisms rather than from structural pathology alone.

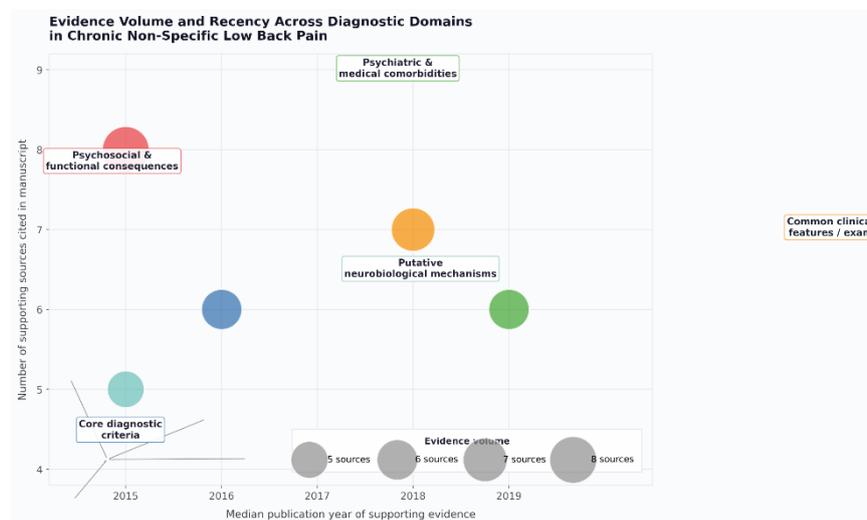


Figure 1 Evidence volume and recency across multidimensional diagnostic domains in chronic non-specific low back pain.

The bubble chart illustrates the distribution of supporting literature across five diagnostic domains relevant to the multidimensional assessment of chronic non-specific low back pain (CNSLBP). The horizontal axis represents the median publication year of the cited evidence within each domain, reflecting the recency of the literature, while the vertical axis indicates the number of supporting sources cited in the manuscript. Bubble size is proportional to the evidence volume, with larger bubbles representing a greater number of supporting references. The psychosocial and functional consequences domain demonstrates the highest evidence density (8 sources), highlighting the substantial emphasis on psychological and behavioral contributors to chronic pain. Common clinical features and examination approaches are supported by 7 sources, while both psychiatric and medical comorbidities

and core diagnostic criteria are represented by 6 sources each. Putative neurobiological mechanisms, including central sensitization and altered pain modulation, show comparatively lower evidence volume (5 sources) but represent an emerging mechanistic perspective within the diagnostic framework. Overall, the figure demonstrates that contemporary understanding of CNSLBP diagnosis is supported most strongly by psychosocial-functional and clinical assessment domains, reinforcing the importance of multidimensional diagnostic models beyond purely structural explanations.

DISCUSSION

The present narrative review synthesized contemporary evidence on multidimensional diagnostic criteria for chronic non-specific low back pain and showed that meaningful diagnosis cannot be achieved through structural reasoning alone. The reviewed literature consistently indicated that chronic non-specific low back pain is better understood as a multidomain clinical construct in which symptom localization and chronicity form the starting point, but diagnostic interpretation must also incorporate functional impairment, psychosocial burden, comorbidity profile, and plausible pain-processing mechanisms (2,4,12,16,17). This finding is clinically important because most patients presenting with persistent low back pain do not have a single pathoanatomical lesion that adequately explains the severity, persistence, or disability associated with their symptoms (3,5,6). The synthesis therefore supports a transition from a narrow exclusion-based model toward a more integrated diagnostic framework that reflects the heterogeneity of chronic pain presentations.

A principal finding of the review was that core diagnostic criteria remain necessary but insufficient. Duration of symptoms beyond 12 weeks, pain distributed between the lower rib margin and gluteal folds, and the absence of red flags or clear radicular pathology remain foundational clinical elements (3,7,16). However, these criteria alone offer only limited explanatory value for the substantial variation seen in patient disability, recovery trajectory, and treatment responsiveness. This is consistent with broader low back pain literature showing that chronicity is not simply a function of tissue persistence but of interacting biological, psychological, and contextual influences (2,4,14). The current synthesis therefore extends conventional diagnostic reasoning by positioning core criteria as an entry point rather than an endpoint of clinical assessment.

Another major observation was the recurrent mismatch between imaging findings and patient presentation. Contemporary clinical reviews and guideline-oriented literature have repeatedly shown that structural abnormalities identified on imaging are common in asymptomatic individuals and often correlate poorly with pain severity or activity limitation in chronic non-specific low back pain (6,11,20,21). The diagnostic implication is not that imaging lacks value altogether, but that it should be reserved for situations in which serious pathology, progressive neurological involvement, or a clearly specific pain generator is suspected. Over-reliance on imaging may contribute to misclassification, reinforce biomedical beliefs, and divert attention from functional and psychosocial contributors that are often more relevant in persistent pain states. In this regard, the present review aligns with existing clinical guidance while adding emphasis on multidimensional interpretation once serious structural causes have been reasonably excluded.

The psychosocial and functional domains emerged as some of the most strongly represented elements in the evidence base. Fear-avoidance, catastrophizing, emotional distress, reduced work participation, and activity restriction were repeatedly associated with persistent symptoms and poorer quality of life, suggesting that these variables should be considered intrinsic components of diagnosis rather than secondary outcomes measured after the diagnostic process is complete (15,22,23). This interpretation is consistent with biopsychosocial models of chronic pain, which propose that pain persistence is shaped by reciprocal interactions between nociceptive experience, cognitive appraisal, behavioral adaptation, and environmental stressors (14,15). The present synthesis advances this literature by framing psychosocial screening not merely as a prognostic adjunct but as a diagnostic necessity in chronic non-

specific low back pain, particularly when symptom burden appears disproportionate to structural findings.

The review also highlighted the importance of mechanism-informed reasoning, particularly in relation to neuroplastic and pain-modulation changes. Evidence from mechanistic reviews and case-control studies suggests that a subgroup of patients with chronic non-specific low back pain demonstrates altered conditioned pain modulation, enhanced temporal summation, and features compatible with central sensitization (13,24,25). These findings do not imply that all chronic non-specific low back pain is centrally mediated, nor do they justify abandoning tissue-based or movement-based examination. Rather, they support a layered diagnostic model in which clinicians consider whether dominant contributors appear nociceptive, movement-related, psychosocial, or nociplastic in character. From a rehabilitation perspective, this layered interpretation is valuable because it may explain why seemingly similar patients differ substantially in symptom persistence, movement behavior, and response to standard care.

The reviewed literature also suggests that medical and psychiatric comorbidities substantially influence diagnostic complexity. Depression, anxiety, insomnia, hypertension, diabetes, osteoarthritis, and multisite pain were frequently reported alongside persistent low back pain and may act as amplifiers of pain chronicity, disability, and health-care use (22,23-26). These comorbidities are clinically relevant because they influence the interpretation of symptom severity, physical tolerance, adherence potential, and management priorities. Accordingly, diagnosis in chronic non-specific low back pain should move beyond identifying the painful region to defining the broader clinical phenotype of the patient. Such phenotyping may allow more appropriate stratification, reduce oversimplified labeling, and improve the precision of subsequent physiotherapy and interdisciplinary management planning.

This review has several limitations that should be considered when interpreting its conclusions. First, as a narrative review, it did not employ formal systematic screening, duplicate study selection, or structured risk-of-bias assessment; accordingly, the synthesis is susceptible to selection bias and uneven representation of the literature. Second, the included evidence was heterogeneous in design, ranging from conceptual papers and guideline-informed reviews to observational and mechanistic studies, which limited the extent to which evidence strength could be directly compared across diagnostic domains. Third, the operational definitions of multidimensional assessment varied between sources, particularly for psychosocial and mechanistic domains, making standardization difficult. Fourth, some influential literature in chronic low back pain focuses primarily on prognosis or treatment rather than diagnosis, and its diagnostic relevance had to be interpreted indirectly. Despite these limitations, the narrative design was appropriate for integrating dispersed conceptual and clinical literature and for clarifying how multiple diagnostic dimensions converge in routine assessment.

The clinical implications of this synthesis are substantial. For practice, the findings support a structured multidimensional diagnostic work-up incorporating symptom chronology, exclusion of specific pathology, focused physical examination, functional assessment, psychosocial screening, and consideration of mechanism-based pain features. For education and policy, the review suggests that chronic non-specific low back pain should be taught and managed as a heterogeneous condition requiring interdisciplinary reasoning rather than as a default label applied after structural causes are ruled out. Future research should focus on developing and validating clinically feasible multidimensional diagnostic algorithms, testing whether such models improve patient stratification and outcomes, and identifying the most informative combinations of physical, psychosocial, and mechanistic markers for use in rehabilitation settings. Prospective cohort studies and implementation research would be particularly valuable in determining whether multidimensional diagnostic frameworks can enhance real-world clinical decision-making beyond conventional biomedical assessment.

CONCLUSION

Chronic non-specific low back pain is best understood as a multidimensional clinical condition in which diagnosis should extend beyond structural exclusion to include functional limitation, psychosocial burden, comorbidities, and mechanism-based pain features. The evidence synthesized in this narrative review indicates that integrated diagnostic reasoning provides a more clinically meaningful framework for understanding symptom persistence and heterogeneity than traditional biomedical models alone. Adoption of multidimensional assessment strategies may improve patient stratification, support more individualized rehabilitation planning, and strengthen clinical decision-making in persistent low back pain. Future work should prioritize validation of standardized, clinically applicable multidimensional diagnostic models for routine use.

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