

Impact of Patient Education on Physiotherapy Outcome in Chronic Lower Back Pain: A Critical Review of a Level I Systematic Review and Meta-analysis

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Abstract

Chronic lower back pain (CLBP) remains a widespread public health concern. While education is a cornerstone of multidisciplinary rehabilitation, its additive value when combined with physiotherapy is still debated. This review critically evaluates a recent level I systematic review and meta-analysis published in the European Journal of Trauma and Emergency Surgery, which assessed the role of educational interventions in patients undergoing physiotherapy for CLBP. Synthesizing findings from 80 randomized controlled trials and over 8,000 patients, the authors concluded that educational interventions did not significantly improve pain or disability outcomes. This article utilizes the AMSTAR-2 appraisal framework to analyse the study's methodology, integrates pain science theories to interpret findings, and explores societal implications for resource allocation.

Keywords: Chronic lower back pain, Physiotherapy, Rehabilitation, Patient Education, Critical Review.

1. Introduction

lower back pain (LBP) is a pervasive musculoskeletal condition affecting up to 90% of individuals at some point in life. Its transition into chronicity is associated with considerable physical, psychological, and economic burdens. Despite widespread implementation of physiotherapy and patient education, the precise value of combining these interventions remains

controversial. A recently published systematic review and meta-analysis by Migliorini et al. (2025) addressed this uncertainty by analysing the impact of educational programs adjunctive to physiotherapy on pain and disability in patients with CLBP. Given the level I evidence and robust sample size, their findings provide a pivotal opportunity for critical reappraisal of prevailing rehabilitation paradigms.

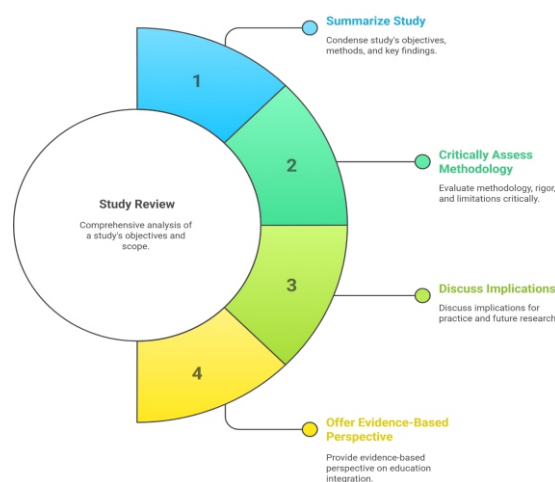


Figure 1: Review Objectives and Scope

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2. REVIEW OBJECTIVES AND SCOPE

this article review aims to:

- Summarize the objectives, methods, and key findings of the original study.
- Critically assess the methodology using formal appraisal tools (AMSTAR-2).
- Discuss implications for physiotherapy practice, specifically differentiating between educational formats.

- Offer an evidence-based perspective on societal impact and future research.

3. SUMMARY OF THE STUDY

3.1 Aim:

To determine whether educational interventions enhance pain reduction and functional outcomes when added to physiotherapy for CLBP.

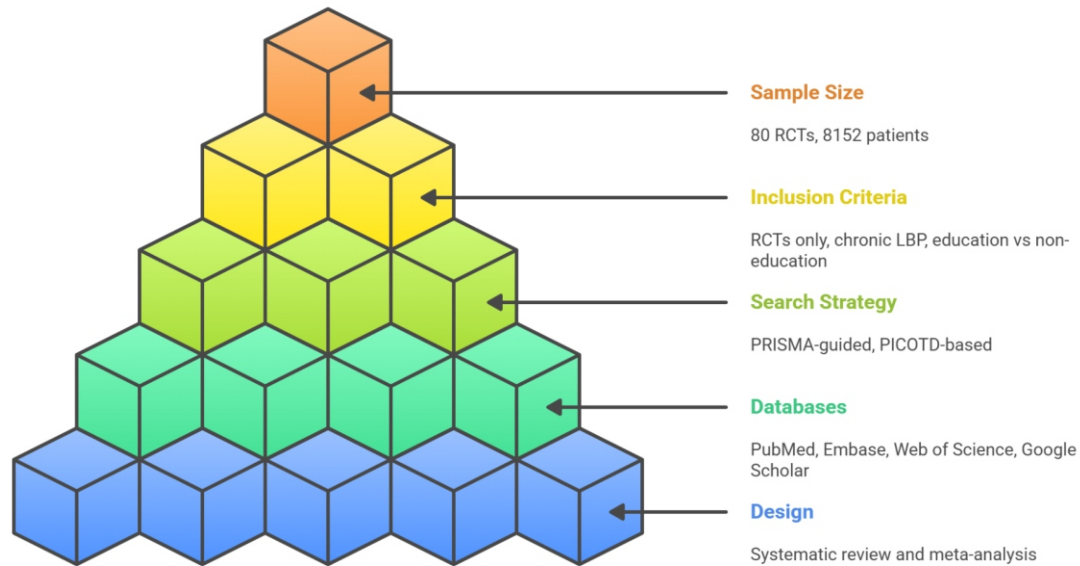


Figure 2: Methodology

3.2 Methodology Overview:

Feature	Details
Study Design	Level I Systematic Review and Meta-Analysis
Databases Searched	PubMed, Embase, Web of Science, Google Scholar
Search Strategy	PRISMA-guided, PICOTD-based protocol
Selection Criteria	RCTs only; Chronic non-specific/mechanical LBP; Education vs. Non-Education comparisons
Total Included	80 Randomized Controlled Trials (RCTs)
Population	8,152 Patients

3.3 Primary Outcomes:

Pain intensity (Visual Analog Scale / Numeric Rating Scale) & Disability (Roland-Morris Disability Questionnaire)

3.4 Key Findings:

The meta-analysis revealed no statistically significant differences in pain scores ($P = 0.4$) or disability

scores ($P = 0.9$) between the education + physiotherapy group and the physiotherapy-alone group. The risk of bias across studies was generally low to moderate, suggesting that the addition of education did not outperform standard physiotherapy interventions.

Ineffective pain and disability reduction through additional education alongside physiotherapy.

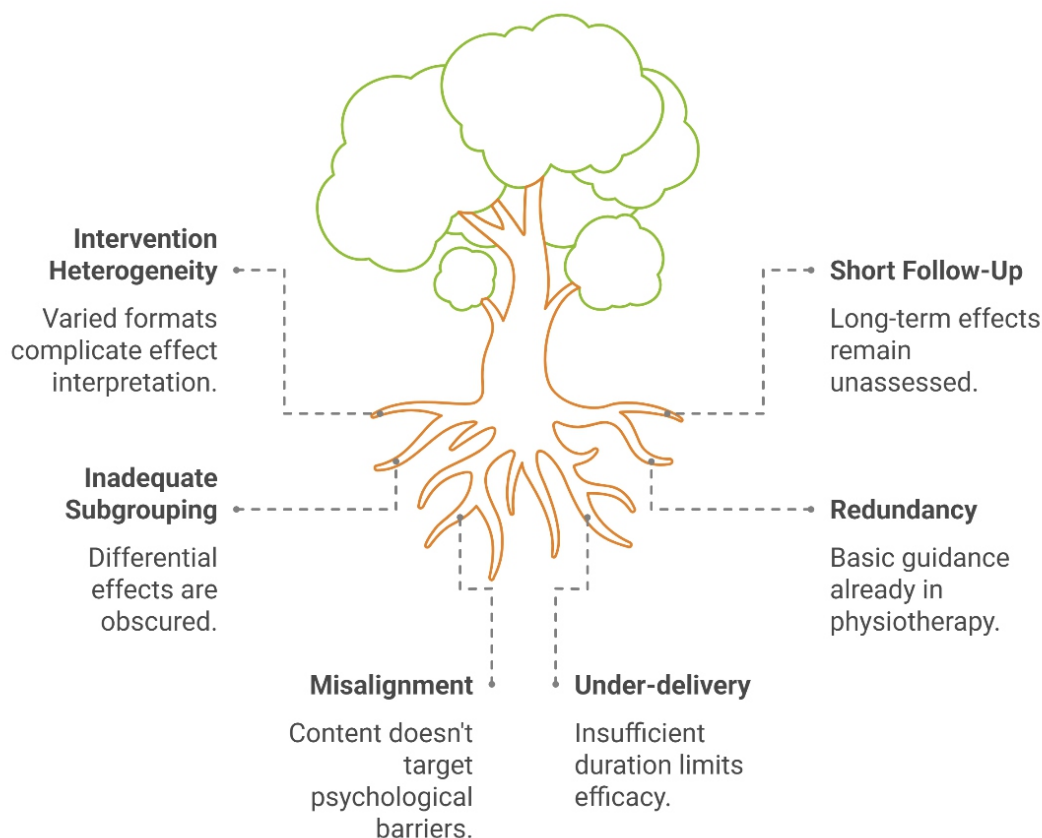


Figure 3: Education alongside Physiotherapy

4. CRITICAL ANALYSIS

4.1 Methodological Strengths

- **Rigorous Design:** The study followed a PRISMA-compliant protocol. The exclusive inclusion of RCTs strengthens the internal validity of the review.
- **Large Sample Size:** When assessed against the AMSTAR-2 checklist, the review demonstrates high methodological transparency, particularly in its search strategy and risk of bias assessment.
- **Statistical Sophistication:** The use of fixed and random-effects models, along with heterogeneity testing (I^2) and Egger's test for publication bias, supports a robust statistical analysis.

4.2 Limitations

- The finding that education provided "no added value" contradicts common clinical intuition. This result can be better understood by grounding it in established pain science frameworks.
- The Fear-Avoidance Model (Vlaeyen & Linton): Education that is purely anatomical (e.g., "spine structure") may inadvertently reinforce fear. Effective education must target catastrophizing and fear-

avoidance beliefs to change outcomes.

- **Pain Neuroscience Education (PNE)** (Moseley & Butler): The failure of education in this review may reflect a failure of content. If the interventions focused on "back schools" (biomechanics) rather than neurophysiology (PNE), they likely failed to address the central sensitization drivers of CLBP.
- **Heterogeneity of Interventions:** A major limitation is the lack of differentiation between educational formats. The review pools "didactic education" (e.g., pamphlets), "ergonomic training" (lifting techniques), and "cognitive-behavioural" interventions together. This heterogeneity obscures the potential benefits of specific high-value interventions like PNE or CBT.
- **Inadequate Subgrouping:** The analysis did not stratify patients by psychosocial risk profile (e.g., high vs. low kinesiophobia), potentially washing out positive effects in high-risk subgroups.

4.3 Clinical Relevance and Interpretation

Contrary to widely held assumptions, education—though central in patient-centred care—did not confer measurable benefits in pain or disability when layered onto physiotherapy. This may stem from:

- **Redundancy:** Basic patient guidance is already embedded in physiotherapy sessions.
- **Misalignment:** Educational content may not target the psychological barriers (e.g., fear-avoidance, catastrophizing) relevant to chronicity.
- **Under-delivery:** Insufficient duration or depth of educational interventions may limit efficacy.

4.4 Societal and Health-System Implications

Beyond clinical outcomes, these findings have significant societal implications:

- **Cost-Effectiveness:** If generic education adds no value to physiotherapy, eliminating these redundant layers could reduce treatment costs and session times.
- **Resource Allocation:** Resources currently spent on producing general educational pamphlets or running generic "back schools" could be reallocated to targeted psychological support for high-risk patients.

5. SYNTHESIS WITH EXISTING LITERATURE

The findings align with prior Cochrane reviews indicating modest benefits of educational interventions in isolation (Engers et al., 2008). However, this challenges current clinical guidelines, such as those by the ACP (Qaseem et al., 2017), which broadly recommend education as a first-line treatment. The data suggests that guidelines should be refined to recommend specific types of education (e.g., biopsychosocial) rather than education as a blanket intervention.

6. FUTURE DIRECTIONS

- **Target High-Risk Subgroups:** Patients with elevated kinesiophobia or maladaptive beliefs may benefit most from education, whereas low-risk patients may find it redundant.
- **Standardize Content:** Research must differentiate between "Back School" (biomechanical) and "PNE" (neurophysiological) interventions.
- **Long-term Follow-up:** As most studies were limited to short-term follow-up, future research must assess outcomes beyond 12 months to evaluate retention and lifestyle change.

7. PRACTICAL IMPLICATIONS

- **Selective Use of Education:** Clinicians should not universally prescribe education alongside physiotherapy but consider psychosocial profiling to guide intervention.
- **Holistic Multimodal Models:** Education may still hold value as part of broader biopsychosocial and multidisciplinary programs.

- **Policy and Guideline Re-evaluation:** Treatment protocols and guidelines should reconsider the uncritical inclusion of education unless clearly indicated.

8. CONCLUSION

This review of Migliorini et al.'s high-quality meta-analysis reveals that education, when added to physiotherapy, does not yield superior outcomes in pain or disability for CLBP. While counterintuitive to prevailing practice norms, these findings underscore the need for personalized, targeted, and context-specific use of educational interventions. Future research must dissect "what kind" of education works, for "whom," and "how"—to refine clinical utility and optimize patient-centered care.

9. REFERENCES

- Migliorini F, Maffulli N, Schäfer L, et al. Impact of education in patients undergoing physiotherapy for lower back pain: a level I systematic review and meta-analysis. *Eur J Trauma Emerg Surg.* 2025;51:113. <https://doi.org/10.1007/s00068-025-02788-9>
- Hayden JA, Ellis J, Ogilvie R, et al. Exercise therapy for chronic low back pain. *Cochrane Database Syst Rev.* 2021;9:CD009790. <https://doi.org/10.1002/14651858.CD009790.pub2>
- Qaseem A, Wilt TJ, McLean RM, et al. Noninvasive treatments for low back pain: clinical practice guideline from the ACP. *Ann Intern Med.* 2017;166(7):514–530. <https://doi.org/10.7326/M16-2367>
- Engers A, Jellema P, Wensing M, et al. Individual patient education for low back pain. *Cochrane Database Syst Rev.* 2008;1:CD004057. <https://doi.org/10.1002/14651858.CD004057.pub3>
- Geneen LJ, Moore RA, Clarke C, et al. Physical activity and exercise for chronic pain in adults: an overview of Cochrane reviews. *Cochrane Database Syst Rev.* 2017;4:CD011279. <https://doi.org/10.1002/14651858.CD011279.pub3>
- Costa LD, Maher CG, Hancock MJ, et al. The prognosis of acute and persistent low-back pain: a meta-analysis. *CMAJ.* 2012;184(11):E613–E624.
- Maher C, Underwood M, Buchbinder R. Non-specific low back pain. *Lancet.* 2017;389(10070):736–747. [https://doi.org/10.1016/S0140-6736\(16\)30970-9](https://doi.org/10.1016/S0140-6736(16)30970-9)
- Kongsted A, Ris I, Kjaer P, Hartvigsen J. Self-management at the core of back pain care. *Braz J Phys Ther.* 2021;25(4):396–406. <https://doi.org/10.1016/j.bjpt.2021.05.002>
- Baroncini A, Maffulli N, Eschweiler J, et al.

- Physiotherapeutic and non-conventional approaches in chronic low back pain: a Bayesian network meta-analysis. *Sci Rep.* 2024;14:11546. <https://doi.org/10.1038/s41598-024-62276-9>
- Baroncini A, Maffulli N, Pilone M, et al. Prognostic factors in patients undergoing physiotherapy for CLBP: level I review. *J Clin Med.* 2024;13(22):6864. <https://doi.org/10.3390/jcm13226864>
 - Migliorini F, Maffulli N. Choosing the appropriate pharmacotherapy for nonspecific CLBP. *J Orthop Surg Res.* 2022;17(1):556. <https://doi.org/10.1186/s13018-022-03426-5>
 - Banerjee A, Hendrick P, Blake H. Predictors of self-management in chronic low back pain. *BMC Musculoskelet Disord.* 2022;23:1071. <https://doi.org/10.1186/s12891-022-05933-2>
 - Ganesan S, Acharya AS, Chauhan R, Acharya S. Prevalence and risk factors for low back pain. *Asian Spine J.* 2017;11(4):610–617. <https://doi.org/10.4184/asj.2017.11.4.610>
 - Hernandez-Lucas P, Leirós-Rodríguez R, et al. Back school-based intervention on non-specific neck pain. *BMC Sports Sci Med Rehabil.* 2023;15:60. <https://doi.org/10.1186/s13102-023-0006>
 - Straube S, Harden M, et al. Back schools for the treatment of chronic LBP: a meta-analysis. *Pain.* 2016;157(10):2160–2172. <https://doi.org/10.1097/j.pain.0000000000000640>
 - Zhang SK, Gu ML, Zhang T, et al. Exercise therapy on QoL in the elderly with CLBP: a systematic review. *J Orthop Surg Res.* 2023;18(1):513. <https://doi.org/10.1186/s13018-023-03988-y>
 - Forssell MZ. The Swedish back school. *Physiotherapy.* 1980;66(4):112–114.
 - Gianola S, Barger S, et al. Effectiveness of treatments for acute and subacute non-specific LBP: network meta-analysis. *Br J Sports Med.* 2022;56(1):41–50. <https://doi.org/10.1136/bjsports-2020-103596>
 - Wiese M, Kramer J, et al. Back school—an update. *Z Orthop Unfall.* 2009;147(2):194–198. <https://doi.org/10.1055/s-2008-1039234>
 - Furlong B, Aubrey-Bassler K, et al. Patient education materials for LBP: protocol for systematic review. *BMJ Open.* 2020;10(9):e039530. <https://doi.org/10.1136/bmjopen-2020-039530>

