



(REVIEW ARTICLE)



Optimizing Musculoskeletal Pain Management and Functional Restoration through Integrated Behavioral Health Interventions, Evidence-Based Physical Therapy, and Patient-Centered Care Models

Jacinta Ogbemudia ¹, Oladimeji Taiwo ², Dymphna Ghasarah ³, Funmilayo Badru ⁴ and Tanwa Sola Lawal ^{5,*}

¹ *The University of Texas at Tyler, USA.*

² *Western Illinois University, USA.*

³ *Department: School of Public Health, University of Illinois at Chicago, USA.*

⁴ *Leavitt School of Health, Western Governors University, Texas USA.*

⁵ *School of Nursing, Faculty of Health Sciences, North West University, Potchefstroom, South Africa.*

World Journal of Advanced Research and Reviews, 2026, 30(03), 1211-1218

Publication history: Received on 03 May 2026; revised on 10 June 2026; accepted on 13 June 2026

Article DOI: <https://doi.org/10.30574/wjarr.2026.30.3.1647>

Abstract

Musculoskeletal pain disorders remain among the leading causes of disability, reduced productivity, and diminished quality of life worldwide. Traditional biomedical approaches often fail to address the complex physical, psychological, and social factors associated with chronic pain and impaired functional recovery. This review article examines the role of integrated behavioral health interventions, evidence-based physical therapy, and patient-centered care models in optimizing musculoskeletal pain management and functional restoration. The review highlights the effectiveness of cognitive behavioral therapy, pain neuroscience education, exercise therapy, manual therapy, and interdisciplinary rehabilitation programs in improving patient outcomes. Additionally, the article explores the importance of individualized treatment planning, shared decision-making, and collaborative healthcare systems in promoting long-term recovery and patient satisfaction. Evidence suggests that combining physical rehabilitation with psychological support and patient-centered strategies can significantly reduce pain intensity, improve mobility, enhance psychological well-being, and decrease healthcare costs. The review concludes that integrated and multidisciplinary approaches offer the most effective framework for sustainable musculoskeletal pain management and functional restoration.

Keywords: Musculoskeletal pain; Physical therapy; Behavioral health; Functional restoration; Patient-centered care; Rehabilitation

1. Introduction

Musculoskeletal pain disorders represent a major global public health challenge affecting millions of individuals across different age groups and socioeconomic backgrounds[1]. Conditions such as low back pain, neck pain, osteoarthritis, shoulder dysfunction, and work-related musculoskeletal injuries contribute significantly to disability, reduced work productivity, and increased healthcare expenditures. According to global health reports, musculoskeletal disorders are among the leading causes of years lived with disability, particularly in both developed and developing nations [2]. The growing burden of these conditions has increased the need for effective and sustainable pain management strategies.

Traditionally, musculoskeletal pain management relied heavily on biomedical interventions that focused primarily on structural abnormalities and pharmacological treatment [3]. Although medications and surgical interventions may provide temporary relief for some patients, they often fail to address the psychosocial and behavioral factors that

* Corresponding author: Funmilayo Badru

contribute to chronic pain development and persistence. This limitation has encouraged healthcare professionals and researchers to adopt more comprehensive treatment approaches that recognize pain as a multidimensional experience influenced by biological, psychological, and social factors.

Behavioral health interventions have become increasingly important in modern pain management practices. Psychological conditions such as anxiety, depression, stress, fear-avoidance behaviors, and pain catastrophizing can worsen pain perception and interfere with functional recovery. Integrated behavioral health approaches, including cognitive behavioral therapy, mindfulness-based stress reduction, and pain coping strategies, help patients develop healthier emotional and behavioral responses to chronic pain [4]. These interventions not only reduce psychological distress but also improve adherence to rehabilitation programs and long-term treatment outcomes.

Evidence-based physical therapy also plays a central role in restoring function and reducing disability among individuals with musculoskeletal disorders. Modern physical therapy practices emphasize individualized exercise programs, manual therapy techniques, therapeutic education, and movement retraining based on scientific evidence and clinical guidelines [5]. Research demonstrates that active rehabilitation strategies are more effective than passive treatment modalities in improving mobility, reducing pain, and preventing recurrence of musculoskeletal conditions[6].

In addition to behavioral and physical interventions, patient-centered care models have gained recognition as essential components of high-quality healthcare delivery. Patient-centered care emphasizes collaboration between healthcare providers and patients, shared decision-making, respect for patient preferences, and individualized treatment planning. This approach promotes patient engagement, enhances treatment satisfaction, and encourages self-management, which is particularly important for chronic musculoskeletal conditions requiring long-term care.

The integration of behavioral health interventions, evidence-based physical therapy, and patient-centered care models provides a comprehensive framework for optimizing musculoskeletal pain management and functional restoration[7]. This review article examines current evidence supporting these integrated approaches and discusses their clinical significance, challenges, and future implications for rehabilitation practice and healthcare systems.

2. Overview of Musculoskeletal Pain and Functional Impairment

Musculoskeletal pain refers to pain affecting muscles, bones, joints, tendons, ligaments, and related soft tissues[8]. It may arise from acute injuries, degenerative diseases, inflammatory conditions, repetitive strain, or postural dysfunction. Acute pain generally resolves within a short period, while chronic musculoskeletal pain persists for more than three months and is often associated with significant functional limitations and psychological distress[9].

Functional impairment resulting from musculoskeletal disorders can affect mobility, physical activity, occupational performance, and social participation[10]. Patients frequently experience difficulty performing activities of daily living, leading to reduced independence and poorer quality of life. Chronic pain conditions may also contribute to sleep disturbances, fatigue, emotional distress, and social isolation.

The biopsychosocial model has become widely accepted as an effective framework for understanding musculoskeletal pain[11,12]. This model recognizes that pain perception and recovery are influenced not only by physical pathology but also by psychological, behavioral, and social factors. Consequently, successful management requires multidisciplinary interventions targeting all dimensions of the patient's experience.

Healthcare systems worldwide continue to face challenges related to increasing rates of opioid dependency, healthcare costs, and long-term disability associated with musculoskeletal disorders. These concerns have strengthened the demand for non-pharmacological and integrative treatment approaches that emphasize rehabilitation, patient education, and self-management.

3. Integrated Behavioral Health Interventions in Musculoskeletal Pain Management

3.1. Cognitive Behavioral Therapy

Cognitive Behavioral Therapy (CBT) is one of the most widely studied psychological interventions for chronic musculoskeletal pain. CBT helps patients identify and modify negative thought patterns, maladaptive beliefs, and fear-related behaviors associated with pain[13,14]. Through structured therapeutic techniques, patients learn coping strategies that improve emotional regulation and reduce pain-related disability.

Research indicates that CBT can effectively reduce pain intensity, anxiety, depression, and fear-avoidance behaviors while improving functional outcomes and quality of life[15]. CBT is particularly beneficial when combined with physical rehabilitation programs, as it enhances patient motivation and adherence to exercise therapy.

3.2. Pain Neuroscience Education

Pain neuroscience education involves teaching patients about the neurophysiological mechanisms of pain perception and central sensitization[16,17]. This educational approach aims to reduce misconceptions about pain and decrease fear associated with movement and physical activity.

Patients who understand the relationship between pain and nervous system sensitization are more likely to participate actively in rehabilitation programs. Pain neuroscience education has demonstrated positive outcomes in reducing pain catastrophizing, improving movement confidence, and promoting long-term self-management[18,19].

3.3. Mindfulness and Stress Reduction Approaches

Mindfulness-based interventions and stress reduction techniques have shown promising results in managing chronic musculoskeletal pain. These approaches encourage patients to develop awareness of their physical sensations, emotions, and thoughts without judgment.

Mindfulness practices may reduce stress-related muscle tension, improve emotional resilience, and enhance pain coping abilities[20]. Studies suggest that mindfulness-based stress reduction programs can improve psychological well-being and reduce disability among patients with chronic pain conditions[21,22].

4. Evidence-Based Physical Therapy Approaches

4.1. Therapeutic Exercise

Therapeutic exercise remains one of the most effective interventions for musculoskeletal rehabilitation. Exercise programs are designed to improve strength, flexibility, endurance, balance, and functional mobility[23]. Tailored exercise interventions can address specific impairments associated with low back pain, osteoarthritis, neck pain, and sports injuries.

Current evidence supports active exercise-based rehabilitation over prolonged rest and passive treatments. Exercise therapy not only reduces pain but also improves cardiovascular health, physical function, and psychological well-being[24,25].

4.2. Manual Therapy

Manual therapy includes hands-on techniques such as joint mobilization, manipulation, soft tissue mobilization, and myofascial release[26]. These interventions may reduce pain, improve joint mobility, and facilitate movement restoration when combined with exercise therapy.

Although manual therapy can provide short-term symptom relief, research suggests that its effectiveness is maximized when integrated with active rehabilitation strategies and patient education.

4.3. Functional Movement Training

Functional movement training focuses on restoring movement patterns required for daily activities, occupational tasks, and sports performance[27,28]. This approach emphasizes posture correction, movement coordination, balance training, and neuromuscular control.

Functional training helps reduce reinjury risk and supports long-term functional independence[29]. It is particularly valuable for patients recovering from surgery, workplace injuries, and chronic musculoskeletal disorders.

5. Patient-Centered Care Models in Rehabilitation

Patient-centered care is a healthcare approach that prioritizes patient preferences, values, and active participation in treatment planning. In musculoskeletal rehabilitation, patient-centered care encourages collaborative communication between patients and healthcare providers[30,31].

Shared decision-making is an important component of patient-centered care. Patients who participate in selecting treatment options are more likely to adhere to rehabilitation programs and maintain long-term lifestyle modifications[32]. Effective communication also strengthens trust and therapeutic relationships between patients and clinicians[33,34].

Interdisciplinary rehabilitation teams contribute significantly to patient-centered care delivery. These teams may include physical therapists, physicians, psychologists, occupational therapists, nurses, and social workers working collaboratively to address the multifaceted needs of patients with chronic pain conditions.

Technology has also enhanced patient-centered rehabilitation through telehealth services, mobile health applications, and remote monitoring systems[35]. These innovations improve accessibility, continuity of care, and patient engagement, particularly in underserved communities.

6. Clinical Outcomes of Integrated Rehabilitation Approaches

Integrated rehabilitation approaches combining behavioral interventions, physical therapy, and patient-centered care have demonstrated improved clinical outcomes across various musculoskeletal conditions. Patients receiving multidisciplinary care often report lower pain intensity, better physical function, enhanced psychological well-being, and greater treatment satisfaction[36,37].

Evidence also suggests that integrated care models can reduce opioid dependence, decrease unnecessary surgical interventions, and lower healthcare utilization costs[38]. Functional restoration programs focusing on return-to-work outcomes have shown success in improving occupational performance and reducing disability claims[39].

Furthermore, early intervention and preventive rehabilitation strategies may decrease the progression of acute musculoskeletal pain into chronic disability. Comprehensive rehabilitation programs promote long-term self-management and empower patients to maintain active lifestyles[40,41].

7. Challenges and Future Directions

Despite the growing evidence supporting integrated musculoskeletal rehabilitation, several challenges remain. Limited access to interdisciplinary care, insufficient healthcare funding, workforce shortages, and variability in clinical practice guidelines may restrict implementation in some healthcare settings[42].

Cultural beliefs, socioeconomic barriers, and inadequate patient education can also influence treatment adherence and rehabilitation outcomes. Healthcare systems must therefore prioritize equitable access to evidence-based rehabilitation services and culturally sensitive care delivery[43,44].

Future research should focus on personalized rehabilitation approaches, digital health innovations, artificial intelligence-assisted rehabilitation planning, and long-term outcome evaluation.

Additional studies are needed to identify the most cost-effective and scalable models for integrated musculoskeletal pain management[45].

8. Conclusion

Musculoskeletal pain disorders continue to impose substantial physical, psychological, and economic burdens globally. Traditional biomedical approaches alone are insufficient for addressing the complex and multidimensional nature of chronic musculoskeletal pain. Integrated behavioral health interventions, evidence-based physical therapy, and patient-

centered care models provide a more comprehensive and effective framework for pain management and functional restoration.

The combination of psychological support, active rehabilitation, patient education, and collaborative healthcare delivery can significantly improve pain outcomes, mobility, emotional well-being, and overall quality of life. Multidisciplinary rehabilitation approaches also contribute to reduced healthcare costs and improved long-term patient independence.

As healthcare systems continue to evolve, the adoption of integrated and patient-centered rehabilitation strategies will remain essential for achieving sustainable musculoskeletal pain management and functional recovery.

Recommendations

Healthcare systems and rehabilitation institutions should strengthen interdisciplinary collaboration in musculoskeletal pain management by integrating behavioral health professionals, physical therapists, physicians, occupational therapists, and social workers into coordinated care teams. Such collaboration would ensure that patients receive comprehensive treatment addressing both the physical and psychological dimensions of chronic pain. Hospitals and rehabilitation centers should also prioritize continuous professional training in evidence-based rehabilitation techniques, pain neuroscience education, and patient-centered communication strategies to improve clinical outcomes and quality of care.

Healthcare providers should emphasize individualized and patient-centered rehabilitation programs that encourage active patient participation in treatment planning and recovery processes. Clinicians should adopt evidence-based physical therapy interventions, therapeutic exercise programs, and behavioral health strategies tailored to each patient's functional limitations, psychological status, and personal goals. Additionally, greater attention should be given to patient education and self-management programs that empower individuals to understand their conditions, improve adherence to rehabilitation, and maintain long-term healthy lifestyle behaviors.

Governments, policymakers, and healthcare stakeholders should increase investment in accessible and affordable rehabilitation services, particularly in underserved and low-resource communities where musculoskeletal disorders often remain inadequately treated. Expansion of telehealth services, digital rehabilitation technologies, and community-based rehabilitation programs can improve healthcare accessibility and continuity of care. Furthermore, future research should continue exploring innovative multidisciplinary approaches, long-term treatment effectiveness, and cost-efficient rehabilitation models capable of reducing disability, improving functional restoration, and enhancing overall patient quality of life.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

References

- [1] Jin Y, Guo C, Abbasian M, Abbasifard M, Abbott JH, Abdullahi A, Abedi A, Abidi H, Abolhassani H, Abu-Gharbieh E, Aburuz S. Global pattern, trend, and cross-country inequality of early musculoskeletal disorders from 1990 to 2019, with projection from 2020 to 2050. *Med*. 2024 Aug 9;5(8):943-62.
- [2] Harlianto NI, GBD 2021 Other Musculoskeletal Disorders Collaborators. Global, regional, and national burden of other musculoskeletal disorders, 1990–2020, and projections to 2050: a systematic analysis of the Global Burden of Disease Study 2021.
- [3] El-Tallawy SN, Nalamasu R, Salem GI, LeQuang JA, Pergolizzi JV, Christo PJ. Management of musculoskeletal pain: an update with emphasis on chronic musculoskeletal pain. *Pain and therapy*. 2021 Jun;10(1):181-209.
- [4] Burns JW, Jensen MP, Thorn B, Lillis TA, Carmody J, Newman AK, Keefe F. Cognitive therapy, mindfulness-based stress reduction, and behavior therapy for the treatment of chronic pain: randomized controlled trial. *Pain*. 2022 Feb 1;163(2):376-89.

- [5] Al Murdif HH, Al Sawidan HM, Alsharif MH, Alfaqir MA, Alnasser NM, Al Abya HD, Alfaqir GA, Alharthi FA, Alrashah RA, Aldossary JJ. Critical Analysis of Rehabilitation Strategies in Modern Physical Therapy. *J. Ecohumanism*. 2024;3:2472-81.
- [6] Flynn DM. Chronic musculoskeletal pain: nonpharmacologic, noninvasive treatments. *American family physician*. 2020 Oct 15;102(8):465-77.
- [7] Tatta J, Pignataro RM, Bezner JR, George SZ, Rothschild CE. PRISM—Pain Recovery and Integrative systems Model: a process-based cognitive-behavioral Approach for Physical Therapy. *Physical Therapy*. 2023 Oct 1;103(10):pzad077.
- [8] National Academies of Sciences, Engineering, and Medicine. Musculoskeletal disorders. In *Selected Health Conditions and Likelihood of Improvement with Treatment* 2020 Apr 21. National Academies Press (US).
- [9] El-Tallawy SN, Nalamasu R, Salem GI, LeQuang JA, Pergolizzi JV, Christo PJ. Management of musculoskeletal pain: an update with emphasis on chronic musculoskeletal pain. *Pain and therapy*. 2021 Jun;10(1):181-209.
- [10] Alhashim AA, Alyousof AA, Aldawsari MR, Alghannam AA, Alsayed MA, Alawadh RA, Alhussain FK, Alsuqair HM, AlJafari LA, Alhumaidy MS, Almulhim SA. Work-related musculoskeletal disorders and their impact on quality of life: a comprehensive review. *Saudi J Med Pharm Sci*. 2025;11(5):360-77.
- [11] Smart KM. The biopsychosocial model of pain in physiotherapy: past, present and future. *Physical Therapy Reviews*. 2023 Mar 4;28(2):61-70.
- [12] Ng W, Beales D, Gucciardi DF, Slater H. Applying the behavioural change wheel to guide the implementation of a biopsychosocial approach to musculoskeletal pain care. *Frontiers in Pain Research*. 2023 May 9;4:1169178.
- [13] Sangut JC. Combining manual therapy, therapeutic exercises and cognitive behavioral therapy for non-specific chronic pain management in physiotherapy: a descriptive literature review. 2025.
- [14] Day MA, Thorn BE. Psychological interventions: a focus on cognitive-behavioral therapy. *Clinical Pain Management: A Practical Guide*. 2022 Mar 9:272-81.
- [15] Yang J, Lo WL, Zheng F, Cheng X, Yu Q, Wang C. Evaluation of cognitive behavioral therapy on improving pain, fear avoidance, and self-efficacy in patients with chronic low back pain: A systematic review and meta-analysis. *Pain Research and Management*. 2022;2022(1):4276175.
- [16] Lepri B, Romani D, Storari L, Barbari V. Effectiveness of pain neuroscience education in patients with chronic musculoskeletal pain and central sensitization: a systematic review. *International journal of environmental research and public health*. 2023 Feb 24;20(5):4098.
- [17] Louw A, Riera-Gilley V. Pain neuroscience education: Teaching people about pain. *Journal of Pain & Palliative Care Pharmacotherapy*. 2024 Jul 2;38(3):292-301.
- [18] Alcon CA, Wang-Price S. Non-invasive brain stimulation and pain neuroscience education in the cognitive-affective treatment of chronic low back pain: evidence and future directions. *Frontiers in Pain Research*. 2022 Nov 10;3:959609.
- [19] Ram A, Booth J, Thom JM, Gibbs MT, Jones MD. Are improvements in pain neurophysiology knowledge following pain science education associated with improved outcomes in people with chronic pain?: a systematic review and meta-analysis. *The Clinical Journal of Pain*. 2023 Jan 1;39(1):41-52.
- [20] Kashyap A. The role of mind-body practices in managing stress-related disorders. *Journal of Ayurveda and Naturopathy*. 2025;2(1):26-30.
- [21] Beaulac J, Bailly M. Mindfulness-Based Stress Reduction: pilot study of a treatment group for patients with chronic pain in a primary care setting. *Primary health care research & development*. 2015 Jul;16(4):424-8
- [22] Crowe M, Jordan J, Burrell B, Jones V, Gillon D, Harris S. Mindfulness-based stress reduction for long-term physical conditions: A systematic review. *Australian & New Zealand Journal of Psychiatry*. 2016 Jan;50(1):21-32.
- [23] Panton LB, Artese AL. Types of exercise: Flexibility, strengthening, endurance, balance. In *Exercise for Aging Adults: A Guide for Practitioners* 2024 Apr 24 (pp. 47-69). Cham: Springer International Publishing.
- [24] D'Onofrio G, Kirschner J, Prather H, Goldman D, Rozanski A. Musculoskeletal exercise: Its role in promoting health and longevity. *Progress in Cardiovascular Diseases*. 2023 Mar 1;77:25-36.

- [25] De la Corte-Rodriguez H, Roman-Belmonte JM, Resino-Luis C, Madrid-Gonzalez J, Rodriguez-Merchan EC. The role of physical exercise in chronic musculoskeletal pain: best medicine—a narrative review. *InHealthcare* 2024 Jan 18 (Vol. 12, No. 2, p. 242). Mdpi.
- [26] Makofsky HW. *Spinal manual therapy: an introduction to soft tissue mobilization, spinal manipulation, therapeutic and home exercises*. Routledge; 2024 Jun 1.
- [27] Cech DJ, Martin ST, editors. *Functional Movement Development Across the Life Span-E-Book: Functional Movement Development Across the Life Span-E-Book*. Elsevier Health Sciences; 2023 Nov 20.
- [28] Wu C, Cheong M, Wang Y, Wang X, Zhang Q, Li M, Lei S. Impact of functional training on functional movement and athletic performance in college dragon boat athletes. *International Journal of Environmental Research and Public Health*. 2023 Feb 22;20(5):3897.
- [29] Gali JC, Fadel GW, Marques MF, Almeida TA, Gali Filho JC, FARIA FA. THE NEW INJURIES' RISK AFTER ACL RECONSTRUCTION MIGHT BE REDUCED WITH FUNCTIONAL TRAINING. *Acta Ortopédica Brasileira*. 2021 Mar 10;29(1):21-5
- [30] Naylor J, Killingback C, Green A. What are the views of musculoskeletal physiotherapists and patients on person-centred practice? A systematic review of qualitative studies. *Disability and rehabilitation*. 2023 Mar 13;45(6):950-61.
- [31] Hutting N, Caneiro JP, Ong'wen OM, Miciak M, Roberts L. Patient-centered care in musculoskeletal practice: key elements to support clinicians to focus on the person. *Musculoskeletal Science and Practice*. 2022 Feb 1;57:102434.
- [32] Collado-Mateo D, Lavín-Pérez AM, Peñacoba C, Del Coso J, Leyton-Román M, Luque-Casado A, Gasque P, Fernandez-del-Olmo MA, Amado-Alonso D. Key factors associated with adherence to physical exercise in patients with chronic diseases and older adults: an umbrella review. *International journal of environmental research and public health*. 2021 Feb;18(4):2023.
- [33] Drossman DA, Ruddy J. Improving patient-provider relationships to improve health care. *Clinical gastroenterology and hepatology*. 2020 Jun 1;18(7):1417-26.
- [34] Matlhaba K. *Communication and interpersonal skills*. In *Enhancing Clinical Competence of Graduate Nurses 2025* Jan 31 (pp. 135-148). Cham: Springer Nature Switzerland.
- [35] Ben-Tzur D, Sabovich S, Hutzler Y, Rimon J, Zach S, Epstein M, Vadasz B, Diniz CV, Nabutovsky I, Klempfner R, Eilat-Adar S. Advances in technology promote patient-centered care in cardiac rehabilitation. *Cardiology in Review*. 2025 Mar 1;33(2):160-5.
- [36] Kovačević I, Pavić J, Filipović B, Ozimec Vulinec Š, Ilić B, Petek D. Integrated approach to chronic pain—the role of psychosocial factors and multidisciplinary treatment: a narrative review. *International journal of environmental research and public health*. 2024 Aug 28;21(9):1135.
- [37] Mallick-Searle T, Sharma K, Toal P, Gutman A. Pain and function in chronic musculoskeletal pain—treating the whole person. *Journal of multidisciplinary healthcare*. 2021 Feb 10:335-47.
- [38] Hyland SJ, Brockhaus KK, Vincent WR, Spence NZ, Lucki MM, Howkins MJ, Cleary RK. Perioperative pain management and opioid stewardship: a practical guide. *InHealthcare* 2021 Mar 16 (Vol. 9, No. 3, p. 333). MDPI.
- [39] De Dios Perez B, McQueen J, Craven K, Radford K, Blake H, Smith B, Thomson L, Holmes J. The effectiveness of occupational therapy supporting return to work for people who sustain serious injuries or develop long-term (physical or mental) health conditions: A systematic review. *British Journal of Occupational Therapy*. 2023 Jul;86(7):467-81
- [40] Yang Z, Zheng X, Gao Y, Zhang C, Wang A. Strategies for enhancing home-based cardiac rehabilitation self-management for patients with coronary heart disease: a qualitative study. *BMC nursing*. 2025 Jan 8;24(1):27.
- [41] Oleiwi IF. Patient Education and Self-Management: Assessing the Effectiveness of Patient Education Programs and Self-Management Strategies in Improving Patient Outcomes, Promoting Self-Care, and Enhancing Patient Empowerment. *Journal Of Medical Series*. 2025 Apr 26;4(4):15-22.
- [42] Alsadaan N, Ramadan OM. Barriers and facilitators in implementing evidence-based practice: a parallel cross-sectional mixed methods study among nursing administrators. *BMC nursing*. 2025 Apr 10;24(1):403.

- [43] Weeks A. Culturally adapting evidence-based and informed practices to meet client population needs and ensure appropriate allocation of scarce resources: a systematic review. *Human Service Organizations: Management, Leadership & Governance*. 2022 May 27;46(3):238-63.
- [44] Amatya B, Khan F. Implementation of rehabilitation innovations: a global priority for a healthier society. *Journal of the International Society of Physical and Rehabilitation Medicine*. 2022 Apr 1;5(2):51-60.
- [45] Roy JS, Massé-Alarie H, Dubé MO, Pinard AM, Lamontagne M, Sole G, Tittley J, Laberge M, Dupuis F, Fiset F, Nduwimana I. Effectiveness and Cost-Effectiveness of a Stepped Model of Care for Musculoskeletal Disorders: Protocol for a Multiarm Randomized Controlled Trial (Edu-First Trial). *JMIR research protocols*. 2025 Nov 19;14(1):e77574.