East African Scholars Journal of Medical Sciences
Abbreviated Key Title: East African Scholars J Med Sci
ISSN: 2617-4421 (Print) & ISSN: 2617-7188 (Online)
Published By East African Scholars Publisher, Kenya

OPEN ACCESS

Volume-9 | Issue-4 | Apr-2026 | DOI: https://doi.org/10.36349/easms.2026.v09i04.007

Review Article

Kinesiophobia as a Predictor of Functional Outcomes Following Fracture Rehabilitation: A Narrative Review of Biopsychosocial Mechanisms, Evidence Synthesis, and Clinical Implications

Dr. Rashtradeep (PT)[1], Dr. Raina Priyadarshini (PT)[1], Dr. Swami Prabhuranjan (PT)[2], Dr. Sujay Podder (PT)[2], Dr. Dwarikanath Rout (PT)[2]*

[1]Assistant Professor, Hi-Tech College of Physiotherapy, Bhubaneswar, Odisha
[2]Assistant Professor, KIMS School of Physiotherapy, KIMS, KIIT DU, Bhubaneshwar

Article History
Received: 20.02.2026
Accepted: 14.04.2026
Published: 22.04.2026

Journal homepage:
https://www.easpublisher.com

Quick Response Code

Abstract: ***Background:*** Kinesiophobia, defined as an excessive fear of movement due to pain or reinjury, has emerged as a significant psychological factor influencing recovery in musculoskeletal conditions. In fracture rehabilitation, where early mobilization is essential, fear-related avoidance behaviors may compromise functional outcomes despite adequate biological healing. ***Objective*****:** To evaluate the role of kinesiophobia as a predictor of functional outcomes following fracture rehabilitation and to synthesize current evidence regarding its prevalence, mechanisms, and clinical implications. ***Methods*****:** A narrative review was conducted using evidence from peer-reviewed literature indexed journals. Studies examining kinesiophobia in fracture populations, its association with functional outcomes, and related rehabilitation strategies were analyzed and synthesized. ***Results*****:** Kinesiophobia is highly prevalent in fracture populations, affecting approximately 50–60% of patients. Evidence demonstrates a consistent negative association between kinesiophobia and functional outcomes, with reported correlation coefficients ranging from r = –0.40 to –0.77. Higher levels of fear are linked with reduced mobility, lower functional independence, and delayed recovery. Mechanistically, kinesiophobia contributes to avoidance behavior, altered motor patterns, reduced rehabilitation adherence, and physical deconditioning. Longitudinal findings suggest that early kinesiophobia may predict long-term functional limitations. ***Conclusion*****:** Kinesiophobia is a significant and modifiable predictor of functional outcome following fracture rehabilitation. Integrating psychological assessment and targeted interventions such as graded exposure and cognitive-behavioral strategies into physiotherapy practice may enhance recovery and reduce disability. Further high-quality research is required to establish standardized protocols and optimize management approaches.

Keywords: Kinesiophobia, Fracture Rehabilitation, Functional Outcome, Fear-Avoidance, Physiotherapy; Musculoskeletal Injury, Recovery, Disability.

1. INTRODUCTION

Fractures impose a substantial global health burden, driving disability, diminished quality of life, and elevated healthcare demands across age groups. Although surgical advancements and early mobilization have enhanced union rates, functional recovery varies widely and remains suboptimal, particularly among elderly and high-risk patients. Conventional rehabilitation prioritizes biomechanical goals- bone consolidation, joint mobility, and muscular strength yet biological healing alone seldom ensures optimal function, underscoring the importance of non-physical influences.

Recent research has spotlighted psychological elements within the biopsychosocial paradigm, with kinesiophobia an excessive, irrational fear of movement triggered by anticipated pain or reinjury emerging as a key factor in post-fracture recovery. Initially described in chronic pain cohorts, kinesiophobia now garners attention in orthopedic trauma rehabilitation.

Rooted in the fear-avoidance model, kinesiophobia arises when pain catastrophizing fosters movement avoidance, culminating in deconditioning and chronic impairment. In fractures, inherent pain, immobilization, and reinjury concerns amplify this

***Corresponding Author:** Dr. Dwarikanath Rout
Assistant Professor, KIMS School of Physiotherapy, KIMS, KIIT DU, Bhubaneshwar

pathway, prompting conscious or subconscious limb guarding that hampers progress.

Prevalence is striking approximately 60% of elderly femoral neck fracture patients show clinically relevant kinesiophobia per the Tampa Scale for Kinesiophobia (TSK), while 59.7% of pediatric cases post-surgery exhibit similar levels, spanning age demographics.

Associations with outcomes are robust. Elevated kinesiophobia correlates negatively with function (e.g., r = –0.77 versus Harris Hip Score in intertrochanteric fractures), independence, and rehab timelines. High-fear patients face extended hospitalizations, higher complications, and delayed autonomy. Mechanisms span psychological (anxiety, low self-efficacy, catastrophizing), physiological (disrupted neuromuscular control, protective patterns), and behavioral (exercise avoidance, atrophy) domains. Longitudinally, scores often decline over 12-week rehab, though persistent trajectories occur in subsets. Modifiable drivers include pain intensity, social support, resilience, and education; weaker factors predict worse results. Kinesiophobia further erodes quality of life and elevates falls/reinjury risks, perpetuating a maladaptive cycle.

Predictive utility in fractures lags chronic pain literature, with inconsistent findings possibly attributable to methodological variances. Comprehensive synthesis is thus warranted. Clinically, as a modifiable target, interventions like cognitive-behavioral therapy, graded exposure, and education hold promise; TSK integration enables early detection. Amid holistic, patient-centered paradigms, psychological integration is vital, yet evidence remains fragmented across fracture types and settings.

This narrative review synthesizes contemporary data to elucidate kinesiophobia's predictive role in fracture rehabilitation, addressing:

- Prevalence and determinants in fracture cohorts;
- Links to functional and rehabilitative outcomes;
- Biopsychosocial mechanisms; and
- Implications for physiotherapy and research.

2. Conceptual Basis of Kinesiophibia in Fracture Rehabilitation

Kinesiophobia during fracture rehab makes sense when viewed through proven behavioral theories that link how we process pain to activity levels and healing. The fear-avoidance model stands out here. It argues that injury pain does not automatically cause long-term problems instead, our take on that pain shapes the path forward. View it as a threat, and fear kicks in, sparking avoidance of movement and less daily activity. Over time, this leads to weakening and real functional setbacks.

This plays out vividly in fracture cases, where sharp pain, bracing or casts, and doubts about bone strength fuel the cycle. Studies show fear-driven dodging cuts rehab involvement and physical gains. For example, in upper limb fracture recovery, kinesiophobia strongly predicted ongoing pain, disability, and quality-of-life drops ($p < 0.001$), marking it as a standalone shaper of results.

Zoom out, and the biopsychosocial model captures how physical, mental, and social pieces interact in fracture healing. Matching fractures don't yield matching recoveries—psych factors like movement fear, pain exaggeration, and shaky confidence tweak how we move and stick to exercises. Social elements count too: thin support networks or low education ramp up fear intensity. Elderly patients with weaker resilience and backup, for instance, score higher on fear scales and lag in regaining independence.

Numbers back the evolving picture. Tracking over time reveals fear easing TSK scores often slide from about 46 right after surgery to roughly 26 by 12 weeks but some folks stay high or bounce around. This points to kinesiophobia as more than a short blip; it can linger and steer lasting outcomes. Overall, these frameworks position kinesiophobia as the bridge from pain to limitation. Far from just a mindset, it directly curbs rehab buy-in, performance, and the whole recovery arc post-fracture.

3. Epidemiology and Prevalence of Kinesiophobia in Fracture Populations

Kinesiophobia is increasingly viewed as a common psychological reaction following musculoskeletal injury, particularly in individuals recovering from fractures across different age groups and anatomical sites. Observational and longitudinal studies suggest that fear of movement is far from rare; instead, it appears as a frequent and clinically meaningful component of post-fracture recovery trajectories.

In older adults with hip and femoral neck fractures, the proportion of patients exhibiting clinically significant kinesiophobia reaches around 60%, based on established cut-offs of the Tampa Scale for Kinesiophobia (TSK). This high prevalence reflects the combined effects of postoperative pain, fear of falling, and reduced confidence in weight-bearing capacity, all of which are highly relevant in the early post-fracture phase. Similar patterns have been described in intertrochanteric fracture cohorts, where elevated TSK scores were associated with lower levels of functional independence during the initial weeks of rehabilitation.

In younger populations, kinesiophobia also emerges as a notable concern. For example, studies of pediatric patients following fracture surgery have reported prevalence rates of approximately 59–60%, indicating that fear of movement is not confined to older

adults but extends to younger, non-geriatric groups. In these samples, pain intensity, parental anxiety, and postoperative activity restrictions appear to shape the degree of fear, further supporting the idea that kinesiophobia is a cross-demographic phenomenon rather than an age-specific reaction.

Upper limb fractures, particularly distal radius fractures, also show a substantial burden of kinesiophobia. Patients commonly report apprehension during wrist mobilization and functional use of the affected hand, which may delay the recovery of grip strength, fine motor control, and overall upper-limb function. Quantitative analyses in these populations have demonstrated that higher TSK scores are significantly associated with greater disability and poorer patient-reported outcomes, reinforcing the clinical relevance of fear of movement in upper-extremity rehabilitation.

Longitudinal data indicate that kinesiophobia is not a fixed trait but rather a dynamic construct that evolves across the rehabilitation course. In the early postoperative period, mean TSK scores often range around 40–45 points, corresponding to moderate to severe fear of movement. Over time, these values typically decline, with many patients reporting scores in the 25–30-point range by 10–12 weeks of rehabilitation. Nevertheless, a subset of individuals continues to display persistently elevated fear levels, which has been linked with slower functional improvement and prolonged dependence on assistance.

Variability in reported prevalence can be partly explained by differences in fracture type, timing of assessment, and methodological choices. Studies conducted in the acute postoperative phase generally report higher rates of kinesiophobia than those carried out during later stages of recovery, suggesting a temporal decline in fear intensity as confidence and physical capacity improve. Pain severity, prior injury experience, and psychological resilience also appear to influence observed rates, with greater pain and lower resilience associated with higher kinesiophobia scores.

Taken together, the available evidence suggests that more than half of patients recovering from fractures experience clinically relevant kinesiophobia at some point during rehabilitation. Its widespread occurrence across geriatric and non-geriatric populations, proximal and distal fracture sites, and varying time points underscores the need to integrate routine psychological assessment such as TSK screening into standard fracture rehabilitation practice. Recognizing the epidemiological burden of kinesiophobia is therefore essential for appreciating its potential role as a predictor of functional outcomes and for designing targeted, individualized interventions.

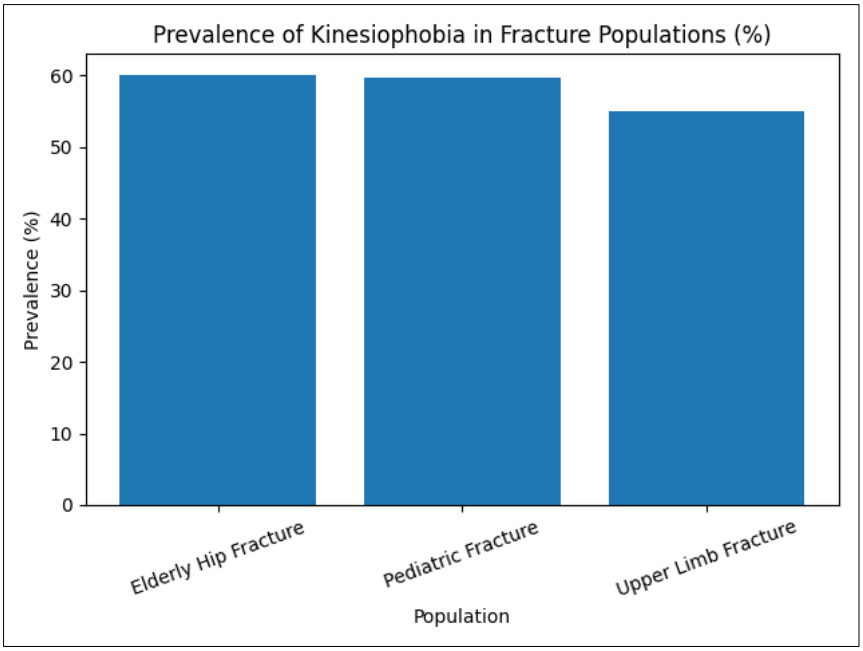

Figure 1: Prevalence of kinesiophobia across different fracture populations, indicating a consistently high burden (>50%) irrespective of age group

4. Association Between Kinesiophobia and Functional Outcomes

A steadily expanding evidence base supports a robust link between kinesiophobia and poorer functional recovery after fractures. Across diverse clinical settings, patients with higher levels of fear of movement tend to show weaker physical performance, reduced independence in daily activities, and longer delays in returning to pre-injury functioning.

Quantitative studies consistently report moderate to strong negative correlations between

kinesiophobia and functional measures. In fracture populations, correlation coefficients between Tampa Scale for Kinesiophobia (TSK) scores and functional assessment tools such as the Harris Hip Score, Disability of the Arm, Shoulder and Hand (DASH), and Functional Independence Measure (FIM) typically range from $r \approx -0.40$ to -0.77. These values indicate that as fear of movement increases, objective and self-reported functional capacity tends to decrease in a clinically meaningful way.

In patients recovering from hip and intertrochanteric fractures, higher TSK scores are associated with lower mobility scores and greater difficulty performing activities of daily living. Individuals with elevated kinesiophobia often demonstrate slower gait speed, reduced tolerance for weight-bearing, and greater dependence on walking aids or caregiver assistance. Similarly, in upper limb fractures (for example, distal radius fractures), increased fear of movement has been linked with higher disability ratings, weaker grip strength, and limitations in task-specific hand functions such as grasping, lifting, and manipulating objects.

Regression analyses further underscore the independent contribution of kinesiophobia to functional outcomes. Multiple studies have identified fear of movement as a predictor of rehabilitation performance even after adjusting for confounders such as age, pain intensity, fracture type, and comorbidity burden ($p < 0.05$). This suggests that kinesiophobia does not merely mirror the extent of physical damage but exerts an additional, distinct influence on how well patients recover.

Longitudinal data strengthen this interpretation by showing that early kinesiophobia can shape later functional trajectories. Patients who present with high fear scores in the initial weeks of rehabilitation are more likely to experience persistent functional limitations at follow-up assessments. This temporal pattern supports the idea that kinesiophobia is not only statistically associated with poor outcomes but may actively contribute to delayed or incomplete recovery.

Notably, some variability exists across studies. A few reports have found weaker or non-significant associations in the very early postoperative period, when immobilization rules, surgical restrictions, and intense pain may dominate the clinical picture and temporarily mask psychological influences. However, as patients progress into the subacute and chronic phases of rehabilitation, the relationship between kinesiophobia and function tends to become stronger, likely because behavioral choices and participation in therapy gain greater influence over recovery.

Beyond direct functional scores, kinesiophobia also affects behavioral and secondary outcomes that indirectly impair function. Higher fear levels are associated with lower adherence to physiotherapy programs, reduced exercise intensity, and less overall physical activity. These patterns promote muscle atrophy, joint stiffness, and cardiovascular deconditioning, all of which can perpetuate a cycle of functional decline.

In summary, the current literature indicates that kinesiophobia is a significant and relatively independent determinant of functional outcome after fracture rehabilitation. Its consistent association with reduced mobility, greater disability, and slower recovery trajectories underlines its value as both a clinical assessment domain and a potential target for psychological and rehabilitative interventions.

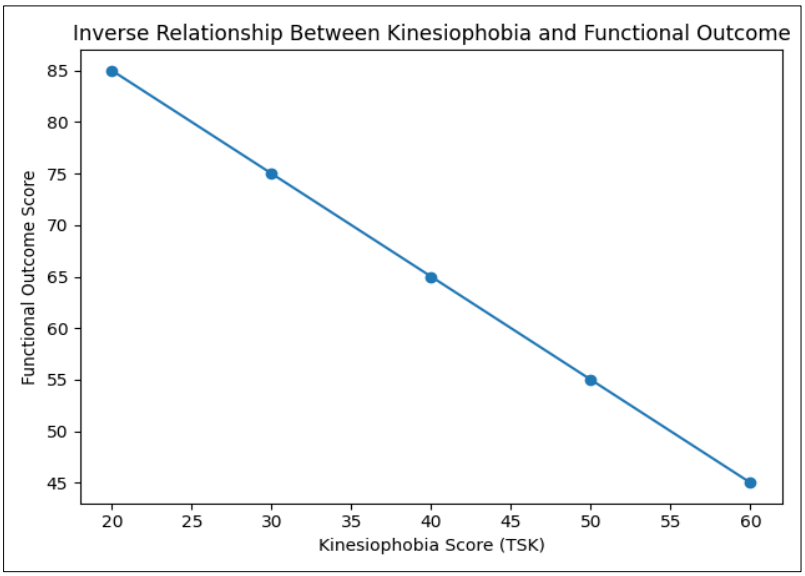

Figure 2: Inverse relationship between kinesiophobia (TSK scores) and functional outcome, demonstrating reduced function with increasing fear of movement

5. Mechanisms Linking Kinesiophobia to Impaired Functional Recovery

Kinesiophobia appears to undermine functional recovery after fracture rehabilitation through a network of interacting behavioral, neuromuscular, and psychological mechanisms. These processes operate in parallel, often accelerating functional decline even when bone healing itself is adequate.

A central pathway is movement avoidance. Patients with pronounced fear of movement tend to restrict use of the injured limb, especially during weight-bearing or demanding tasks. This voluntary reduction in activity limits mechanical loading, which is essential for regaining muscle strength, joint range of motion, and motor control. Over time, persistent underuse can lead to muscle atrophy, reduced endurance, and impaired coordination, all of which constrain functional capacity.

Beyond simple avoidance, kinesiophobia also distorts normal movement patterns. Fear-related arousal can alter neuromuscular activation, leading to protective or guarded behavior such as stiffness, bracing, and reduced joint excursion. These compensatory strategies are often biomechanically inefficient and may increase joint stiffness while decreasing flexibility. For example, patients may adopt asymmetrical weight-bearing, limited limb excursion, or reliance on the unaffected side, patterns that can persist even after the fracture has healed and thus limit long-term functional performance.

Psychological mechanisms are equally important. Kinesiophobia is closely linked to pain catastrophizing, anxiety, and low self-efficacy, each of which can intensify the perception of pain and discomfort during movement. When patients interpret even mild sensations as threatening, they are more likely to avoid activity, reinforcing the fear–avoidance cycle. Individuals who lack confidence in their physical abilities are also less likely to fully engage in prescribed exercises, which slows gains in strength, balance, and functional independence.

Reduced adherence to rehabilitation protocols further amplifies the negative impact. Fear of pain or re-injury often leads to partial or inconsistent participation in physiotherapy sessions and home exercise programs. Studies report that patients with higher TSK scores tend to show lower compliance with therapeutic exercises and reduced training intensity, which translates into smaller functional improvements over time.

Neurophysiological changes may also contribute. Persistent fear and repeated pain signals can promote central sensitization, a state in which the central nervous system becomes hyper-responsive to stimuli. In such cases, pain may persist or be amplified even when tissue damage has resolved, leading patients to further restrict movement and physical activity. This neurobiological shift can thus prolong disability and delay the transition to independent functioning.

Finally, kinesiophobia does not operate in isolation; it interacts with social and environmental factors. Limited social support, unclear instructions from clinicians, or unsupportive home environments can heighten uncertainty and fear during movement, discouraging activity and exploration of new tasks. Conversely, strong support and structured guidance can help patients challenge fear-driven limitations and gradually re-engage with functionally meaningful activities.

Taken together, these mechanisms illustrate that kinesiophobia is not simply an emotional reaction but a multidimensional barrier to recovery. By promoting avoidance, distorting movement strategies, diminishing self-confidence, and reducing rehabilitation adherence, it directly interferes with the restoration of function following fracture.

6. Clinical Implications and Physiotherapy Management

The high prevalence of kinesiophobia and its demonstrable impact on functional recovery argue strongly for its integration into routine fracture rehabilitation planning. While conventional physiotherapy rightly emphasizes tissue healing, strength, and mobility, these efforts may fall short if fear-driven barriers to movement are not explicitly addressed. A more holistic approach that combines physical rehabilitation with psychological insight is likely to yield better functional outcomes.

Early identification of kinesiophobia should be considered a core component of clinical assessment. The Tampa Scale for Kinesiophobia (TSK) is a practical tool that clinicians can use to screen for fear of movement at the start of rehabilitation. Patients with higher initial scores may benefit from closer monitoring, more frequent reassessment, and individualized strategies aimed at reducing fear-avoidance patterns before they become entrenched.

Patient education is a cornerstone of management. Providing clear, evidence-informed explanations about fracture healing timelines, the stability of fixation, and the safety of graded loading can correct common misconceptions that reinforce fear of reinjury. Helping patients understand the difference between pain and tissue damage particularly the concept that some pain during controlled movement is expected and not necessarily harmful can reduce catastrophizing and support more active participation in exercises.

One of the most effective non-pharmacological strategies is graded exposure to movement. This involves systematically reintroducing feared activities in a

controlled, stepwise manner, beginning with low-demand tasks and progressively advancing to more challenging ones. As patients repeatedly engage in previously avoided movements without the anticipated harm, their confidence grows and anxiety diminishes, leading to improved functional performance and greater independence.

Cognitive-behavioral techniques can be integrated naturally into physiotherapy practice to address underlying beliefs and enhance self-efficacy. Goal setting, positive reinforcement, and cognitive restructuring such as challenging thoughts like "this will break again" help patients reframe unhelpful narratives and view rehabilitation as manageable and beneficial rather than threatening. These strategies do not require formal psychotherapy training and can be embedded within regular treatment sessions in most clinical environments.

Exercise prescription should be adapted to individual fear levels. Starting with low-intensity, pain-limited activities and gradually progressing to higher-challenge tasks can improve adherence and reduce dropout. Task-oriented, functionally relevant exercises for example stepping, stair negotiation, or reaching and lifting help patients directly reconnect with real-world activities and build confidence in everyday movement.

In more complex or persistent cases, multidisciplinary collaboration is essential. When kinesiophobia is severe, long-standing, or associated with comorbid anxiety or depression, referral to a psychologist, pain specialist, or behavioral health professional may be warranted. Studies suggest that combining physiotherapy with structured psychological interventions such as cognitive behavioral therapy often leads to better functional and psychological outcomes than physical rehabilitation alone.

Supportive social and environmental factors also play an important role. Encouragement and involvement from family, caregivers, and clinicians can increase motivation and decrease fear-driven inactivity. Structured follow-ups, regular performance feedback, and visible progress tracking help reinforce confidence and sustain engagement throughout the rehabilitation course.

In summary, addressing kinesiophobia calls for a shift from a purely biomechanical model of fracture rehabilitation toward a more integrative, person-centered approach. By combining psychological screening, education, graded exposure, and behavior-oriented strategies within physiotherapy practice, clinicians can meaningfully reduce the impact of fear of movement and enhance functional recovery, thereby decreasing the risk of long-term disability following fractures.

7. Research Gaps and Future Directions

Despite the growing recognition of kinesiophobia in fracture rehabilitation, the existing literature is still constrained by several important limitations. One major gap lies in the scarcity of fracture-specific longitudinal studies that systematically examine how kinesiophobia predicts outcomes across different phases of recovery. Most current evidence comes from cross-sectional or short-term observational designs, which makes it difficult to clarify whether fear of movement directly influences recovery or merely reflects other concurrent factors.

Methodological heterogeneity further complicates interpretation. Studies vary in fracture type, timing of assessment, and outcome measures, making comparisons challenging and limiting the generalizability of findings. In particular, the use of different functional assessment tools and inconsistent cut-off values for the Tampa Scale for Kinesiophobia leads to ambiguity in how clinically relevant fear levels are defined and interpreted.

Another important limitation is the uneven representation of fracture populations. While hip and upper limb fractures have been relatively well documented, evidence is sparse for other common fractures such as tibial, ankle, and vertebral injuries. Likewise, younger, and physically active individuals are underrepresented, despite the potential impact of kinesiophobia on return to sport, work, and high-level daily activities.

Intervention research in this area also remains limited. Cognitive-behavioral strategies and graded exposure are well supported in theory and in other musculoskeletal conditions, but high-quality randomized controlled trials focusing specifically on fracture rehabilitation are few. Future studies should aim to develop, standardize, and rigorously evaluate structured interventions that target kinesiophobia while tracking functional, psychological, and quality-of-life outcomes over time.

The integration of psychological assessment into routine orthopedic and rehabilitation practice is still far from universal. More research is needed on feasible, low-burden screening protocols and on how such assessments influence clinical decisions and care pathways. Identifying optimal time points for early kinesiophobia screening could help clinicians intervene earlier and potentially prevent the development of chronic fear-avoidance patterns.

Future work should also leverage emerging modalities such as digital health platforms, tele-rehabilitation, and virtual reality-based exposure therapy. These approaches may provide scalable, accessible, and engaging ways to address fear of movement across diverse fracture populations and

healthcare settings. Investigating their feasibility, acceptability, and effectiveness will be essential for translating psychological insights into practical clinical tools.

Addressing these knowledge gaps will be crucial for establishing kinesiophobia as a clinically meaningful and actionable predictor of recovery. Doing so can refine fracture rehabilitation protocols, improve patient outcomes, and support a more integrated, person-centered model of care.

8. CONCLUSION

Kinesiophobia emerges as a highly prevalent and clinically relevant factor that meaningfully shapes functional recovery after fracture rehabilitation. A growing body of evidence indicates that greater fear of movement is consistently linked to poorer functional performance, reduced participation in rehabilitation, and longer delays in returning to everyday activities. Far from being a mere emotional reaction, kinesiophobia functions as a key intermediary between pain experience and functional limitation, influencing both behavior and recovery trajectories.

The findings of this narrative review underscore that fracture rehabilitation cannot be optimized through biomechanical restoration alone. A more comprehensive, biopsychosocial approach one that integrates routine psychological screening and targeted interventionsis essential for achieving better outcomes. Early detection of kinesiophobia, followed by structured strategies such as patient education, graded exposure to movement, and cognitive-behavioral techniques, can help patients re-engage safely, rebuild confidence, and improve functional recovery.

Despite these advances, several questions remain. High-quality, fracture-specific studies are still needed to develop standardized assessment protocols, clarify optimal timing for intervention, and rigorously evaluate the effectiveness of psychosocial strategies across diverse fracture types and age groups. Embedding psychological assessment and fear-focused interventions into routine physiotherapy practice represents a critical move toward more person-centered and holistic rehabilitation.

In summary, kinesiophobia should be regarded as a modifiable predictor of functional outcome, and its systematic management ought to be integrated into standard fracture rehabilitation protocols. By doing so, clinicians can help mitigate disability, reduce the risk of chronic limitations, and enhance overall quality of life for patients recovering from fractures.

REFERENCES

- Alpalhão VL. *Kinesiophobia, fear-avoidance and aging: A systematic integrative review on the state of the art* (Master's thesis, Universidade de Lisboa (Portugal)).
- Attarieh M. Kinesiophobia and Pain Catastrophizing in Total Hip Arthroplasty Patients, an integrative review.
- Baez SE. Injury-related Fear in Patients After Anterior Cruciate Ligament Reconstruction.
- Bello A, Kanebi L, Iyor F, Adegoke B. A survey of kinesiophobia as a correlate of lower limb function in patients with lower extremity fractures during inpatient post-operative rehabilitation. Health sciences investigations Journal. 2020 Dec 15;1(2):128-34.
- Bizheva T. The role of fear-avoidance beliefs and psychological factors in pain and functional disability after spinal surgery.
- Castanho B, Cordeiro N, Pinheira V. The influence of kinesiophobia on clinical practice in physical therapy: an integrative literature review. International Journal of Medical Research & Health Sciences. 2021;8(10):78-94.
- Ditton E, Johnson S, Hodyl N, Flynn T, Pollack M, Ribbons K, Walker FR, Nilsson M. Improving patient outcomes following total knee arthroplasty: identifying rehabilitation pathways based on modifiable psychological risk and resilience factors. Frontiers in Psychology. 2020 May 29;11:1061.
- Guo K, Zhou L, Zhang M, Hu X, Han Y, Hou J, Cheng J, Shen X, Wang Q, Zhang Q. Postoperative kinesiophobia in elderly patients with femoral neck fractures: a prospective study of psychological and social determinants. Frontiers in Psychology. 2025 Oct 31;16:1622585.
- Ildefonso K. Exploring the Perceived Psychosocial Experiences of Recreational Runners with Patellofemoral Pain: A Grounded Theory Approach. The University of Wisconsin-Milwaukee; 2023.
- Ildefonso K. Exploring the Perceived Psychosocial Experiences of Recreational Runners with Patellofemoral Pain: A Grounded Theory Approach. The University of Wisconsin-Milwaukee; 2023.
- Jiang ZL, Cai FY, Xiong Z, Fu SY, Li JL. Analysis of the trajectory and influencing factors of kinesiophobia in elderly patients during the rehabilitation phase of limb fractures. American Journal of Translational Research. 2024 Sep 15;16(9):4819.
- Lu J, Kobelsky E, Fung J, Sogomonian T, Edger-Lacoursière Z, Nedelec B. Rehabilitation interventions for fear-avoidance beliefs and behaviors in sudden onset musculoskeletal conditions: a scoping review. Journal of Burn Care & Research. 2025 May;46(3):620-41.
- Luque-Suarez A, Martinez-Calderon J, Falla D. Role of kinesiophobia on pain, disability and quality of life in people suffering from chronic musculoskeletal pain: a systematic review. British journal of sports medicine. 2019 May 1;53(9):554-9.
- Marok E, Soundy A. The effect of kinesiophobia on functional outcomes following anterior cruciate

ligament reconstruction surgery: an integrated literature review. Disability and rehabilitation. 2022 Nov 20;44(24):7378-89.

- Modarresi S. Chronic Pain Following Musculoskeletal Injuries: Where Do Familial Factors, Depression, and Distress Fit in?. The University of Western Ontario (Canada); 2021.
- Takáč P. Sports injury rehabilitation: A narrative review of emerging technologies and biopsychosocial approaches. Applied Sciences. 2025 Sep 6;15(17):9788.
- Vianin M. Dispositionalism in musculoskeletal care: Understanding and integrating unique characteristics of the clinical encounter to optimize patient care. Evolve Global Publishing; 2021 Oct 11.

Cite This Article: Rashtradeep, Raina Priyadarshini, Swami Prabhuranjan, Sujay Podder, Dwarikanath Rout (2026). Kinesiophobia as a Predictor of Functional Outcomes Following Fracture Rehabilitation: A Narrative Review of Biopsychosocial Mechanisms, Evidence Synthesis, and Clinical Implications. *East African Scholars J Med Sci, 9*(4), 205-212.