Patient Knowledge and Disease Activity in Rheumatoid Arthritis: Associations, Determinants, and Implications for Treat-to-Target Care

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Abstract

Background: Rheumatoid arthritis (RA) is a chronic, immune-mediated inflammatory disease characterized by persistent synovitis, progressive joint destruction, and significant functional impairment. Despite major therapeutic advances and the widespread adoption of treat-to-target (T2T) strategies, a substantial proportion of patients fail to achieve sustained remission or low disease activity. Growing evidence suggests that patient-related factors, particularly disease-related knowledge and health literacy, play a critical role in shaping disease outcomes. Patient knowledge influences symptom recognition, medication adherence, engagement in shared decision-making, and participation in non-pharmacological and rehabilitation interventions, all of which are central to effective RA management.

Aim: This review aims to critically examine the relationship between patient knowledge and disease activity in rheumatoid arthritis, explore determinants of patient knowledge, and discuss the clinical and rehabilitation implications of integrating structured educational strategies within T2T frameworks. Available evidence demonstrates that higher levels of RA-specific knowledge are consistently associated with better medication adherence, improved self-management behaviors, reduced disease activity scores, and enhanced functional outcomes. Determinants of patient knowledge include educational level, disease duration, access to multidisciplinary care, quality of patient–physician communication, and exposure to formal educational programs. Conversely, low disease knowledge is associated with delayed treatment escalation, poor adherence to disease-modifying antirheumatic drugs (DMARDs), increased disease activity, and greater disability. Importantly, educational interventions—particularly those delivered through multidisciplinary and rehabilitation-based models—have shown beneficial effects on patient-reported outcomes, disease activity measures, and quality of life, although heterogeneity in intervention design and outcome assessment remains a challenge.

Conclusion: Patient knowledge represents a modifiable and underutilized determinant of disease activity in rheumatoid arthritis. Integrating structured, evidence-based educational strategies into routine RA care has the potential to enhance T2T success, improve adherence, and optimize functional and rehabilitation outcomes. Future research should focus on standardized knowledge assessment tools, longitudinal evaluation of education-driven outcomes, and the integration of personalized education within multidisciplinary RA management models.

Keywords: *Patient Knowledge, Disease Activity, Rheumatoid Arthritis*

Introduction

Rheumatoid arthritis (RA) is a chronic systemic autoimmune disease characterized by persistent synovial inflammation, progressive joint damage, and a wide spectrum of extra-articular manifestations that collectively contribute to pain, fatigue, functional limitation, and reduced quality of life. Despite substantial advances in early diagnosis and the availability of effective disease-modifying antirheumatic drugs (DMARDs), RA continues to represent a major cause of long-term disability worldwide, particularly when disease control is suboptimal [1].

The implementation of treat-to-target (T2T) strategies has fundamentally reshaped RA management by emphasizing predefined therapeutic goals, most commonly sustained remission or low disease activity, supported by regular clinical assessment and timely treatment adjustment. While pharmacological therapy is the cornerstone of this approach, successful T2T implementation relies heavily on patient engagement, adherence, and understanding of treatment objectives. Patients who lack insight into the chronic and progressive nature of RA may underestimate disease activity and delay seeking care during flares, thereby compromising treatment outcomes [2].

Patient knowledge in RA extends beyond basic awareness of diagnosis and medication use to include understanding of disease mechanisms, recognition of active inflammation, appreciation of long-term treatment benefits, and awareness of the role of lifestyle modification and rehabilitation. Inadequate knowledge has been associated with medication non-adherence, fear of adverse drug effects, poor self-management behaviors, and misalignment between patient expectations and clinical targets, all of which may contribute to persistently elevated disease activity [3].

From a rheumatology and rehabilitation perspective, disease activity is closely linked to physical function, participation in daily activities, and work productivity. Ongoing inflammation contributes not only to structural joint damage but also to pain amplification, muscle weakness, fatigue, and psychosocial distress. Patients with limited disease-related knowledge may underutilize non-pharmacological strategies such as therapeutic exercise, joint protection, and energy conservation, thereby exacerbating disability even in the presence of partial inflammatory control [4].

Although patient education is widely recognized as a core component of chronic disease management, its integration into routine RA care remains inconsistent. Educational efforts are often informal, unstructured, and not systematically aligned with disease activity targets or rehabilitation goals. Furthermore, while disease activity is routinely assessed in clinical practice, patient knowledge is rarely evaluated or addressed in a standardized manner, representing a critical gap in comprehensive treat-to-target care [5].

Aim   and   Research   Gap:
The aim of this review is to examine the association between patient knowledge and disease activity in rheumatoid arthritis, identify determinants influencing patient understanding of the disease, and explore the implications for treat-to-target strategies and rehabilitation outcomes. By synthesizing available evidence and highlighting gaps in clinical implementation, this review seeks to support the integration of structured, evidence-based patient education into holistic RA management [6].

Patient Knowledge in Rheumatoid Arthritis: Concept, Scope, and Clinical Relevance

Patient knowledge in rheumatoid arthritis (RA) refers to the individual's understanding of the disease as a chronic inflammatory condition, its potential consequences if inadequately treated, and the rationale behind long-term therapeutic strategies. This knowledge forms the cognitive foundation upon which patients interpret symptoms, perceive disease severity, and engage with healthcare recommendations. In chronic inflammatory diseases such as RA, where symptom fluctuation is common, insufficient understanding may lead patients to equate symptom improvement with disease remission, resulting in premature discontinuation of therapy and increased risk of disease reactivation [7].

The clinical relevance of patient knowledge lies in its direct influence on self-management behaviors that

are critical for disease control. Patients who understand the immunological basis of RA and the concept of cumulative inflammatory burden are more likely to adhere to continuous DMARD therapy, even during periods of low symptom intensity. Conversely, misconceptions regarding medication safety, dependency, or long-term toxicity can foster intentional non-adherence, which has been consistently associated with higher disease activity and increased rates of flare and radiographic progression [8].

From a treat-to-target perspective, patient knowledge plays a central role in facilitating shared decision-making and timely therapeutic adjustment. Achieving predefined disease activity targets requires close collaboration between clinicians and patients, particularly in recognizing early signs of inadequate disease control. Patients with greater disease insight are more likely to report persistent symptoms, morning stiffness, and functional decline accurately, allowing clinicians to escalate therapy appropriately. In contrast, limited understanding may result in underreporting of disease activity and delayed treatment modification, undermining T2T success [9].

Within rehabilitation-oriented care, patient knowledge extends to awareness of the role of non-pharmacological interventions in maintaining function and preventing disability. Understanding the benefits of therapeutic exercise, joint protection, and energy conservation enables patients to actively participate in rehabilitation programs and integrate these strategies into daily life. Lack of awareness in this domain may contribute to physical deconditioning, increased pain sensitivity, and loss of functional independence, even when inflammatory activity is partially controlled [10].

Although patient knowledge is increasingly recognized as a modifiable determinant of RA outcomes, it remains insufficiently addressed in routine clinical practice. Educational efforts are often reactive rather than proactive and may not be tailored to individual disease stage or functional status. This gap underscores the need to conceptualize patient knowledge as a core component of RA management, with implications that extend beyond patient satisfaction to tangible effects on disease activity, function, and long-term prognosis [11].

Determinants of Patient Knowledge in Rheumatoid Arthritis

Sociodemographic factors play a significant role in shaping patient knowledge in rheumatoid arthritis (RA). Educational attainment has consistently been identified as a key determinant, with higher levels of formal education associated with better understanding of disease mechanisms, treatment goals, and long-term prognosis. Patients with limited educational backgrounds may face challenges in interpreting medical information, particularly complex concepts such as immune-mediated inflammation and the need for sustained disease control, which can negatively influence engagement with care and disease outcomes [12].

Disease-related factors also influence patient knowledge acquisition over time. Longer disease duration is often associated with increased familiarity with RA, its treatments, and symptom patterns, largely due to repeated clinical encounters and lived experience. However, prolonged disease duration does not uniformly translate into adequate knowledge, particularly when early disease education is insufficient or inconsistent. Patients with longstanding RA may continue to harbor misconceptions regarding disease progression or treatment safety, underscoring the importance of structured education across all disease stages [13].

The quality of patient–physician communication is a critical and potentially modifiable determinant of patient knowledge. Clear explanations, empathetic dialogue, and opportunities for patients to ask questions facilitate understanding and retention of information related to disease activity and management strategies. Conversely, time constraints, use of technical language, and lack of confirmation of patient understanding may limit effective knowledge transfer, particularly in busy clinical settings. Strong therapeutic alliances have been associated with improved disease understanding and greater patient engagement in treatment decisions [14].

Access to multidisciplinary care significantly influences patient knowledge in RA. Patients managed within comprehensive care models that include rheumatologists, rehabilitation physicians, nurses, physiotherapists, and occupational therapists are more likely to receive consistent and reinforced education regarding disease management. Rehabilitation professionals, in particular, contribute to patient

understanding of functional consequences of disease activity and the role of non-pharmacological strategies in preserving joint integrity and physical performance [15].

Psychological and cognitive factors further modulate patient knowledge and its application. Anxiety, depression, and cognitive fatigue—common comorbidities in RA—may impair information processing and recall, limiting the effectiveness of educational efforts. Patients experiencing high levels of psychological distress may prioritize symptom relief over long-term disease control, diminishing the perceived relevance of education related to disease activity targets and rehabilitation strategies [16].

Health system–related factors, including continuity of care and access to educational resources, also shape patient knowledge. Fragmented care, frequent provider changes, and limited consultation time can disrupt consistent messaging regarding disease activity and treatment goals. In contrast, structured follow-up and availability of reliable educational materials support cumulative learning and reinforce key concepts essential for effective treat-to-target implementation [17].

Disease Activity in Rheumatoid Arthritis: Clinical Meaning and Functional Consequences

Disease activity in rheumatoid arthritis (RA) reflects the degree of ongoing inflammatory burden and is a central determinant of both short-term symptoms and long-term structural damage. Persistent synovial inflammation drives cartilage degradation and bone erosion, ultimately leading to irreversible joint destruction and deformity. High disease activity is therefore not only a marker of current disease severity but also a predictor of future disability, emphasizing the importance of sustained inflammatory control in RA management [18].

Clinically, elevated disease activity is associated with increased pain, prolonged morning stiffness, joint swelling, and systemic symptoms such as fatigue. These manifestations directly impair physical function and limit the ability to perform activities of daily living. From a rehabilitation perspective, uncontrolled inflammation accelerates muscle wasting, reduces aerobic capacity, and contributes to physical deconditioning, creating a cycle in which functional impairment further exacerbates disease impact and reduces overall quality of life [19].

The relationship between disease activity and functional status is particularly relevant in the context of work participation and social roles. Patients with persistently active RA experience higher rates of work disability, absenteeism, and reduced productivity. These outcomes are influenced not only by joint damage but also by pain perception, fatigue, and psychosocial factors, all of which are amplified in the presence of active inflammation. Effective disease activity control is therefore a prerequisite for successful vocational and social rehabilitation [20].

Beyond musculoskeletal consequences, sustained disease activity contributes to systemic complications, including cardiovascular disease, osteoporosis, and increased mortality. Chronic inflammation promotes endothelial dysfunction and accelerates atherosclerosis, while reduced mobility and inflammatory cytokine activity contribute to bone loss. These systemic effects further underscore the need for comprehensive disease control strategies that integrate pharmacological treatment with lifestyle modification and rehabilitation interventions [21].

From a patient-centered perspective, disease activity strongly influences illness perception and coping behaviors. Individuals experiencing frequent flares or persistent symptoms may develop maladaptive coping strategies, including activity avoidance and fear of movement, which can worsen functional outcomes. Inadequate understanding of the relationship between inflammation, symptoms, and long-term damage may reinforce these behaviors, highlighting the interplay between disease activity and patient knowledge in shaping clinical outcomes [22].

Despite advances in therapeutic options, real-world data indicate that a substantial proportion of patients remain in moderate or high disease activity states. Barriers to optimal disease control include delayed treatment escalation, suboptimal adherence, and insufficient patient engagement in treat-to-target strategies. These challenges highlight the need to address modifiable factors, such as patient knowledge, that influence disease activity trajectories and rehabilitation success [23].

Association Between Patient Knowledge and Disease Activity in Rheumatoid Arthritis

A growing body of evidence indicates a meaningful association between patient knowledge and disease

activity in rheumatoid arthritis (RA). Patients with a clearer understanding of the inflammatory nature of RA and the importance of continuous disease control tend to exhibit lower levels of disease activity over time. This association is thought to be mediated through improved adherence to pharmacological therapy, earlier recognition of disease flares, and more proactive engagement with healthcare providers, all of which contribute to tighter inflammatory control [24].

Medication adherence represents a key pathway linking patient knowledge to disease activity. Patients who understand the rationale for long-term DMARD therapy and the consequences of uncontrolled inflammation are more likely to adhere consistently to prescribed regimens. In contrast, limited knowledge or misconceptions regarding medication safety and efficacy may lead to dose omission or discontinuation, resulting in increased disease activity and higher flare rates. Poor adherence has been repeatedly associated with failure to achieve remission and increased need for treatment escalation [25].

Patient knowledge also influences disease activity through its impact on symptom interpretation and health-seeking behavior. Individuals who recognize early signs of active inflammation, such as persistent joint swelling or prolonged morning stiffness, are more likely to report symptoms promptly and seek timely medical review. This facilitates earlier therapeutic adjustment and reduces the duration of uncontrolled inflammation. Conversely, patients with inadequate understanding may normalize symptoms or attribute them to non-inflammatory causes, delaying intervention and allowing disease activity to persist [26].

From a treat-to-target perspective, informed patients are better positioned to participate in shared decision-making and align personal expectations with clinical goals. Understanding the concept of remission or low disease activity as a therapeutic target enhances acceptance of treatment intensification when needed. Patients with limited knowledge may resist therapy escalation due to fear of adverse effects or misunderstanding of disease severity, which can hinder achievement of disease activity targets [27].

The association between patient knowledge and disease activity extends beyond pharmacological management to include engagement with rehabilitation and lifestyle interventions. Patients who appreciate the role of physical activity, joint protection, and energy conservation in modulating symptoms and preserving function are more likely to incorporate these strategies into daily life. Such behaviors can indirectly influence disease activity by reducing pain sensitization, improving physical resilience, and enhancing overall disease coping capacity [28].

Despite evidence supporting the link between patient knowledge and disease activity, causality remains complex and bidirectional. Lower disease activity may facilitate learning and engagement by reducing pain and fatigue, while higher disease activity may impair cognitive processing and limit educational uptake. This dynamic relationship highlights the need for ongoing, adaptive educational approaches that respond to changes in disease activity and functional status throughout the disease course [29].

Impact of Patient Knowledge on Treat-to-Target Implementation in Rheumatoid Arthritis

Treat-to-target (T2T) strategies in rheumatoid arthritis (RA) rely on a dynamic process of regular disease activity assessment, timely therapeutic adjustments, and sustained collaboration between clinicians and patients. Patient knowledge is central to this process, as understanding the rationale behind predefined treatment targets enhances acceptance of frequent monitoring and treatment modification. Patients who comprehend that remission or low disease activity is achievable and desirable are more likely to engage actively in follow-up visits and comply with recommended treatment changes [30].

One of the major challenges in T2T implementation is resistance to treatment escalation, particularly when patients experience partial symptom improvement. Limited understanding of the disconnect between symptomatic relief and ongoing subclinical inflammation may lead patients to decline intensification of therapy despite persistent disease activity. In contrast, informed patients are better able to appreciate the long-term risks of sustained inflammation, including joint damage and disability, and are therefore more receptive to proactive treatment strategies aligned with T2T principles [31].

Patient knowledge also influences the accuracy and reliability of disease activity monitoring. T2T approaches depend on patient-reported symptoms, such as pain, stiffness, and fatigue, which complement clinical and laboratory assessments. Patients with a clearer understanding of disease activity are more

likely to report symptoms consistently and distinguish inflammatory symptoms from mechanical or non-inflammatory pain. This improves clinical decision-making and reduces the risk of both overtreatment and undertreatment [32].

From a rehabilitation perspective, patient knowledge supports the integration of functional goals within T2T frameworks. While T2T traditionally emphasizes inflammatory control, contemporary RA management increasingly recognizes the importance of parallel functional targets. Educated patients are more likely to understand how disease activity control facilitates participation in rehabilitation programs and how functional improvement reinforces overall treatment success. This alignment enhances adherence to both pharmacological and non-pharmacological components of T2T care [33].

Health literacy and disease-specific knowledge further affect patients' ability to navigate complex treatment regimens often required to achieve T2T goals. Combination DMARD therapy, biologic agents, and targeted synthetic therapies necessitate an understanding of dosing schedules, monitoring requirements, and safety considerations. Patients with higher levels of knowledge are better equipped to manage these complexities, reducing the likelihood of medication errors and treatment interruptions that can compromise disease activity control [34].

Despite its importance, patient knowledge is not routinely addressed as a formal component of T2T implementation. Clinical encounters often prioritize disease activity measurement and pharmacological decision-making, with limited time devoted to reinforcing educational messages. This gap may partially explain why T2T outcomes in real-world settings frequently fall short of those observed in clinical trials, underscoring the need to embed structured educational strategies within T2T care pathways [35].

Patient Knowledge, Adherence, and Self-Management Behaviors in Rheumatoid Arthritis

Medication adherence is a cornerstone of effective rheumatoid arthritis (RA) management and represents one of the most direct pathways through which patient knowledge influences disease activity. Patients who understand the chronic inflammatory nature of RA and the preventive role of DMARDs in limiting joint damage are more likely to adhere consistently to prescribed therapies. In contrast, inadequate knowledge may lead to intentional non-adherence driven by fears of long-term toxicity or misinterpretation of symptom improvement as disease resolution, resulting in increased disease activity and poorer outcomes [36].

Self-management behaviors in RA extend beyond medication use and encompass symptom monitoring, lifestyle modification, and engagement with healthcare services. Knowledgeable patients are more likely to recognize early signs of disease flare and seek timely medical advice, facilitating prompt treatment adjustment and minimizing periods of uncontrolled inflammation. This proactive approach contrasts with passive coping behaviors often observed in patients with limited disease understanding, who may delay care until symptoms become severe [37].

Patient knowledge also plays a critical role in adherence to non-pharmacological interventions that support disease control and functional preservation. Understanding the benefits of regular physical activity, joint protection strategies, and fatigue management encourages sustained participation in rehabilitation programs. Such behaviors contribute to improved muscle strength, reduced pain sensitivity, and enhanced functional capacity, indirectly supporting disease activity control and overall well-being [38].

Psychological factors intersect with patient knowledge to influence adherence and self-management. Patients with greater insight into their disease are more likely to develop adaptive coping strategies and a sense of self-efficacy, which supports long-term engagement with treatment plans. Conversely, limited understanding may exacerbate anxiety, catastrophizing, and feelings of helplessness, all of which have been associated with poor adherence and higher disease activity [39].

The complexity of RA treatment regimens further underscores the importance of patient knowledge in supporting adherence. The use of combination DMARD therapy, biologic agents, and targeted synthetic therapies requires patients to understand dosing schedules, monitoring requirements, and safety precautions. Inadequate comprehension of these aspects increases the risk of missed doses, incorrect administration, and unplanned treatment interruptions, potentially compromising disease control [40].

Despite clear links between patient knowledge, adherence, and self-management behaviors, these domains

are not consistently addressed in routine clinical practice. Educational efforts often focus on initial diagnosis or medication initiation, with limited reinforcement over time. This approach fails to account for evolving patient needs and changing disease activity, highlighting the necessity for ongoing education as an integral component of comprehensive RA care [41].

Role of Patient Education Interventions in Modulating Disease Activity

Patient education interventions have increasingly been recognized as an essential component of comprehensive rheumatoid arthritis (RA) management, with growing evidence supporting their role in modulating disease activity. Educational strategies aim to enhance patient understanding of disease mechanisms, treatment goals, and self-management principles, thereby addressing modifiable factors that contribute to persistent inflammation. When effectively delivered, education can complement pharmacological therapy by improving adherence, facilitating timely treatment adjustment, and supporting sustained disease control [42].

Educational interventions have demonstrated beneficial effects on disease activity particularly when they emphasize the chronic nature of RA and the importance of maintaining treatment even during periods of symptom improvement. Patients who receive structured education are more likely to appreciate the concept of cumulative inflammatory damage and the need for continuous disease suppression. This understanding supports adherence to long-term therapy and reduces the likelihood of treatment discontinuation, which is a known contributor to increased disease activity and flare occurrence [43].

From a rehabilitation standpoint, education that integrates information about physical activity, joint protection, and energy conservation plays a critical role in optimizing outcomes. Patients who understand how controlled movement and exercise can reduce pain, improve joint stability, and enhance functional capacity are more likely to engage in rehabilitation programs. Such engagement may indirectly influence disease activity by reducing pain amplification, improving physical conditioning, and enhancing overall disease coping mechanisms [44].

The timing and continuity of education are important determinants of its effectiveness. Educational interventions delivered early in the disease course may have a particularly strong impact by shaping illness perceptions and self-management behaviors before maladaptive patterns develop. However, education remains relevant throughout the disease trajectory, as evolving treatment strategies and fluctuating disease activity require ongoing reinforcement and adaptation of knowledge to current clinical circumstances [45]. Multidisciplinary education programs appear especially effective in addressing the complex needs of patients with RA. Contributions from rheumatologists, rehabilitation physicians, nurses, and allied health professionals allow for consistent messaging and reinforce key concepts related to disease activity and functional preservation. This collaborative approach enhances patient understanding of how pharmacological and non-pharmacological strategies work synergistically to achieve treat-to-target goals [46].

Despite promising evidence, variability in educational content, delivery methods, and outcome assessment limits the generalizability of findings across studies. Many educational interventions are short-term and not formally integrated into routine clinical pathways, reducing their potential impact on long-term disease activity. These limitations highlight the need for standardized, evidence-based educational models that are embedded within treat-to-target frameworks and aligned with rehabilitation goals [47].

Rehabilitation-Oriented Perspectives on Patient Knowledge and Disease Activity in Rheumatoid Arthritis

From a rehabilitation-oriented perspective, patient knowledge is fundamental to the successful integration of pharmacological and non-pharmacological strategies in rheumatoid arthritis (RA) management. Rehabilitation aims not only to restore or maintain physical function but also to empower patients to manage symptoms, prevent disability, and sustain participation in daily activities. Adequate understanding of disease activity enables patients to appreciate the rationale for rehabilitation interventions and to adapt their activity levels appropriately during periods of flare and remission [48].

Disease activity has a direct and cumulative impact on physical function, muscle strength, and joint integrity, all of which are central targets of rehabilitation. Patients who understand the relationship between

active inflammation and functional decline are more likely to adhere to individualized exercise programs and joint protection strategies. This awareness supports consistent engagement in rehabilitation even when pain or fatigue fluctuates, reducing the risk of physical deconditioning and secondary disability [49].

Patient knowledge also influences attitudes toward physical activity in RA, a domain historically affected by fear of pain and joint damage. Misconceptions regarding exercise safety may lead patients to avoid movement during active disease, exacerbating stiffness, weakness, and fatigue. Educational input from rehabilitation professionals helps patients distinguish between inflammatory pain requiring medical attention and mechanical discomfort that may improve with appropriately prescribed exercise, thereby optimizing functional outcomes without compromising disease control [50].

Fatigue management represents another critical intersection between patient knowledge, disease activity, and rehabilitation. RA-related fatigue is multifactorial and closely linked to inflammatory burden, physical inactivity, and psychosocial factors. Patients who understand the contributors to fatigue are better equipped to apply energy conservation techniques, pacing strategies, and graded activity approaches, which can mitigate fatigue severity and improve participation in daily and vocational activities [51].

Occupational therapy interventions further highlight the role of patient knowledge in translating disease activity control into meaningful functional gains. Understanding joint protection principles and ergonomic adaptations allows patients to modify tasks in a way that minimizes joint stress during periods of active inflammation. Such strategies reduce pain and functional limitation while supporting continued engagement in work and self-care activities, even in the presence of fluctuating disease activity [52].

Despite the clear relevance of patient knowledge to rehabilitation outcomes, educational components are not always systematically incorporated into rehabilitation programs. Time constraints, variability in service availability, and lack of standardized educational frameworks may limit the depth and consistency of patient education. Addressing these barriers is essential to fully leverage rehabilitation as a means of translating disease activity control into sustained functional independence and improved quality of life [53].

Assessment Questionnaires Relevant to Patient Knowledge and Disease Activity in Rehabilitation-Oriented Rheumatoid Arthritis Care

Assessment of disease activity is fundamental for guiding both pharmacological and rehabilitation strategies in rheumatoid arthritis (RA). Composite indices such as the Disease Activity Score using 28 joints (DAS28) are widely applied to categorize inflammatory burden and monitor response to treatment within treat-to-target frameworks. From a rehabilitation standpoint, disease activity scores provide essential context for interpreting pain, stiffness, and functional limitations, as well as for determining appropriate exercise intensity and timing of rehabilitation interventions [54].

Functional status assessment represents a core element of rehabilitation-oriented RA care and serves as a bridge between disease activity control and real-life performance. The Health Assessment Questionnaire (HAQ) remains one of the most extensively used instruments for evaluating disability and activity limitation in RA. Its focus on daily activities such as dressing, walking, and gripping objects makes it particularly relevant for rehabilitation planning and outcome evaluation, as it reflects the functional consequences of both active inflammation and accumulated joint damage [55].

Pain and fatigue assessments are essential complements to disease activity and functional measures, particularly in rehabilitation settings where symptom burden directly influences participation and tolerance. Simple patient-reported scales for pain and fatigue are commonly used in both clinical practice and research and are sensitive to changes in inflammatory activity. These tools assist rehabilitation teams in adjusting exercise programs, pacing strategies, and energy conservation techniques in response to fluctuating disease activity [56].

Evaluation of patient knowledge has gained increasing attention as a means of understanding behavioral and cognitive factors influencing disease outcomes. The Patient Knowledge Questionnaire (PKQ) for rheumatoid arthritis has been widely used to assess patients' understanding of disease processes, treatment principles, and self-management concepts. Use of such tools has demonstrated that higher levels of

disease-related knowledge are associated with improved adherence and engagement in both pharmacological and rehabilitation interventions [57].

More recently, the Rheumatoid Arthritis Knowledge Assessment Scale (RAKAS-13) has been developed as a concise, disease-specific instrument designed to evaluate key domains of patient knowledge relevant to modern RA management. RAKAS-13 addresses understanding of disease mechanisms, medication use, and monitoring principles, making it particularly suitable for integration into routine clinical and rehabilitation settings. Its focused structure allows clinicians to identify specific knowledge gaps that may hinder effective self-management, adherence, and participation in rehabilitation programs [58].

Despite the availability of validated instruments to assess disease activity, function, and patient knowledge, their integration into rehabilitation pathways remains inconsistent. Questionnaires are often used for documentation or research purposes rather than as tools to guide individualized education and functional goal setting. Greater alignment between disease activity indices, functional assessments, and knowledge evaluation—such as through targeted use of RAKAS-13—could enhance personalized rehabilitation planning and support sustained functional independence in patients with RA [59].

Conclusion

Patient knowledge plays a pivotal yet often underrecognized role in shaping disease activity and long-term outcomes in rheumatoid arthritis. Beyond pharmacological advances, effective disease control depends on patients' understanding of the chronic inflammatory nature of RA, the rationale behind treat-to-target strategies, and the importance of sustained engagement in both medical and rehabilitation interventions. Adequate knowledge supports adherence, timely reporting of disease activity, and meaningful participation in shared decision-making, all of which are essential for achieving and maintaining remission or low disease activity.

From a rheumatology and rehabilitation perspective, the relationship between patient knowledge and disease activity extends beyond inflammation control to encompass functional independence, pain management, fatigue reduction, and quality of life. Informed patients are better equipped to integrate rehabilitation strategies into daily life, adapt activities during disease fluctuations, and align functional goals with therapeutic targets. This holistic engagement enables translation of disease activity control into tangible improvements in physical function and participation.

Despite its importance, patient knowledge is not consistently or systematically addressed in routine clinical care. Educational efforts are frequently fragmented, informal, and insufficiently aligned with disease activity monitoring and rehabilitation goals. Recognizing patient knowledge as a modifiable determinant of outcomes highlights the need for structured, ongoing educational approaches that evolve with disease stage, treatment complexity, and functional demands.

Integrating patient knowledge assessment and targeted education into treat-to-target frameworks offers an opportunity to enhance real-world outcomes in rheumatoid arthritis. Multidisciplinary collaboration, particularly involving rehabilitation professionals, is essential to reinforce educational messages and support sustained behavioral change. Future care models should prioritize patient knowledge as a core component of comprehensive RA management, ensuring that advances in therapy are matched by informed, empowered patients capable of achieving optimal disease control and functional well-being.

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