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HEALTH-RELATED QUALITY OF LIFE AND THERAPEUTIC MANAGEMENT IN OSTEOARTHRITIS: A SYSTEMATIC REVIEW OF PATIENT OUTCOMES, ADHERENCE AND INTERVENTIONAL STRATEGIES

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Abstract:
Osteoarthritis (OA) is a degenerative joint disease that has a significant global impact on physical mobility and patient well-being. Historically, joint failure was managed based on radiographic severity; however, modern clinical practice emphasises patient-reported outcome metrics to reflect the day-to-day impact. This comprehensive review combines clinical evidence from 30 landmark and recent research to investigate the clinical factors of health-related quality of life (HRQoL) and real-world therapeutic management options in OA populations. A thorough literature search was conducted until 2026 using PubMed, Embase, Scopus, and Cochrane databases. A dual-reviewer consensus technique was used to screen studies based on tight inclusion criteria, including adult populations, a verified OA diagnosis, and the use of validated generic or disease-specific HRQoL indicators. The synthesised data show that anatomical location specificity (including the knee, hip, hand, ankle, and temporomandibular joints) and clinical symptom severity have a significant impact on HRQoL. Furthermore, systemic variables such as growing chronic comorbidities, advanced obesity classes, and secondary mental health problems like anxiety and depression serve as clinical amplifiers, drastically lowering patient-reported health ratings. In terms of therapeutic management, broad medication nonadherence jeopardises oral treatments, prompting interest in enhanced topical drug delivery systems that maximise localised anti-inflammatory penetration. Furthermore, planned primary care self-management programs and prompt total knee arthroplasty result in significant, long-term improvements in physical function, assuming that pre-operative psychosocial and metabolic comorbidities are effectively addressed. Finally, frequently incorporating validated HRQoL tools into clinical practice is critical for closing the gap between clinical efficacy and real-world results, resulting in optimal, multidisciplinary care.
***Keywords**: Osteoarthritis; Health-Related Quality of Life; Patient-Reported Outcome Measures; Medication Adherence; Topical Drug Delivery; Total Knee Arthroplasty.*

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1. INTRODUCTION:

Osteoarthritis (OA) is the primary cause of chronic pain, structural joint failure, and long-term physical disability among the world's ageing population [3, 17]. OA, which is pathologically defined by progressive articular cartilage degradation, subchondral bone remodeling, osteophyte formation, and secondary low-grade synovitis, has a massive physical, psychological, and economic impact on both individuals and healthcare systems [28, 30]. Historically, clinical evaluation and therapy success in rheumatology were almost entirely based on objective structural criteria, such as radiographic joint space narrowing quantified using the Kellgren-Lawrence grading system. However, modern clinical practice recognizes a significant mismatch: radiographic severity does not always correspond to a patient's functional impairment, daily pain intensity, or subjective suffering [24, 25]. As a result, subjective patient-reported outcome measures (PROMs) with an emphasis on health-related quality of life (HRQoL) have become more prevalent in contemporary clinical care [25]. Clinicians can assess how localized joint degeneration affects systemic physical functioning, emotional stability, mental health, and social independence using a standardised approach by evaluating HRQoL.

HRQoL in OA populations is highly varied and influenced by a complicated network of clinical and non-clinical factors, despite its obvious clinical usefulness. Variations in anatomical sites, patient demographics, socioeconomic status, metabolic factors, and therapy compliance are some of these. In order to critically analyse the key clinical drivers of HRQoL and assess the practical efficacy of modern pharmacological, non-pharmacological, and surgical therapies, this thorough study synthesises data from thirty carefully chosen medical publications.

2. LITERATURE SEARCH STRATEGY

This systematic review was carried out in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines, using a comprehensive electronic search across PubMed/MEDLINE, Embase, Scopus, and the Cochrane Library to capture relevant peer-reviewed publications through early 2026. The search strategy was a combination of Medical Subject Headings (MeSH) terms and free-text keywords, specifically: Osteoarthritis AND ("Quality of Life" OR "health-related quality of life" OR "HRQoL" OR "PROMs") AND ("Medication Adherence" OR "adherence" OR "topical drug delivery" OR "Arthroplasty").To be eligible for inclusion, studies had to be peer-reviewed randomized controlled trials (RCTs), prospective/retrospective cohorts, or cross-sectional studies evaluating adult populations (≥ 18 years) with a clinical diagnosis of osteoarthritis, while explicitly using validated generic or disease-specific HRQoL metrics (such as the SF-36, WOMAC, EQ-5D, or NHP). Studies were omitted if they were narrative reviews, case reports, animal models, or did not include health-related quality of life as a primary or secondary endpoint. Following a thorough title, abstract, and full-text screening process that used a dual-reviewer consensus technique to eliminate duplicates and non-compliant data, 30 authoritative papers were chosen for final synthesis in this review.

3. CLINICAL DETERMINANTS OF HEALTH-RELATED QUALITY OF LIFE

3.1 Joint site specificity and functional assessment

The unique anatomical location of osteoarthritis determines the precise type of a patient's functional limits and everyday constraints. To capture these nuances, clinical trials use a combination of generic health questionnaires such as the Short Form-36 (SF-36), Nottingham Health Profile (NHP), or EuroQol 5-Dimension (EQ-5D) and disease-specific instruments such as the Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) [21, 26, 28].

- Knee and hip osteoarthritis: As weight-bearing joints, the knee and hip are specifically connected to substantial limits in gross motor mobility. Cross-sectional and descriptive studies show that knee OA severely impairs basic ambulatory

functions such as walking long distances, climbing stairs, and maintaining balance during position transitions, resulting in consistently lower physical component summary scores for HRQoL metrics [1, 23, 24].

- Hand OA:Unlike weight-bearing joints, hand OA impairs fine motor skills, manual dexterity, and grip strength. This localized functional deterioration significantly limits a patient's ability to conduct complex daily activities such as writing, dressing, using utensils, and opening containers, necessitating disease-specific assessment scales [10, 12, 18].
- Ankle osteoarthritis (OA) causes deficiencies in hindfoot stability, ankle dorsiflexion, and gait mechanics, despite not being commonly identified in large-scale epidemiological investigations. Case-control studies demonstrate that ankle joint degeneration results in a significant fall in HRQoL scores when compared to age-matched healthy controls, with physical limitations that match or exceed those of knee OA [15].
- Temporomandibular Joint (TMJ) OA: A unique subtype, TMJ cartilage degeneration causes excruciating localized pain that directly limits quality of life connected to oral health. According to systematic evaluations, these individuals have particular functional constraints, such as changed speaking patterns, poor mastication, and significant emotional suffering associated with persistent facial discomfort [14].

Persistent clinical pain and systemic physical exhaustion continue to be the main causes of deteriorating HRQoL ratings across all anatomical presentations [7]. In addition to causing sleep architecture disruption and physical weariness, chronic nociceptive and neuropathic pain pathways are strongly correlated with worse scores on both generic and disease-specific evaluation scales [7, 28].

3.2 Patient Demographics and Socio-Cultural Influences

Gender disparities and sociocultural origins have a significant impact on the clinical presentation of OA and the therapeutic solutions that follow. There are notable gender differences in the patterns of pharmaceutical use, according to pharmacoepidemiological study. For instance, compared to men, older women with osteoarthritis exhibit different prescription and over-the-counter usage patterns for nonsteroidal anti-inflammatory drugs (NSAIDs), frequently reporting higher rates of gastrointestinal and renal adverse events, which directly affects their overall treatment satisfaction and quality of life scores [6].

Furthermore, the perceived significance of particular HRQoL dimensions varies considerably across various socio-cultural contexts, according to qualitative systematic evaluations [21, 26]. Patients in various cultural contexts place varying values on emotional resilience, community inclusion, family support, and physical independence.This variation highlights the possibility that a general strategy for treating OA might not be able to meet the unique requirements and expectations of various patient groups.

3.3 Comorbidities and Psychological Factors

Osteoarthritis rarely exists as an isolated medical condition; it is frequently part of a complex multi-comorbidity profile in older adults. Long-term prospective data spanning a 10-year period demonstrate that the gradual accumulation of chronic comorbidities (such as cardiovascular disease, type 2 diabetes, chronic kidney disease, and chronic obstructive pulmonary disease) causes a progressive, compounding decline in both the physical and mental domains of HRQoL compared to individuals without OA [29, 30].

Table 1. Clinical Variables Affecting HRQoL in Osteoarthritis patients

Clinical Variable	Direct Pathophysiological &Psychological Impact on HRQoL
Comorbid Chronic Conditions	Over a 10-year period, systemic physical and mental scores gradually decline, complicating therapy choices
Mental Health Disorders	High levels of anxiety and depression exacerbate somatic pain perception and reduce coping abilities
Obesity and Body Mass Index	Obesity and Body Mass Index increase mechanical stress on cartilage and activate systemic, low-grade inflammatory cytokines

Additionally, there is a strong reciprocal association between mental health and physical impairment in OA. Adults with OA have remarkably high rates of diagnosed anxiety and depression, according to national population-based research [2]. This psychological distress serves as a clinical amplifier: mental health disorders independently predict low self-reported quality of life scores, lower pain thresholds, and limit a patient's ability to participate in physical rehabilitation. Metabolic factors, especially obesity, further compound this burden. Increased mechanical pressure on joint surfaces and the systemic release of pro-inflammatory adipokines

from adipose tissue are two different ways that being overweight speeds up the development of OA. As body mass grows, gait measures and physical health scores directly diminish in a dose-dependent manner, according to clinical tests across various obesity classes [11].A consistent decrease in functional outcomes and long-term HRQoL is correlated with changes in body composition over time, particularly an increase in fat mass relative to lean muscle mass, according to longitudinal evidence [19].

4. THERAPEUTIC MANAGEMENT STRATEGIES

4.1Pharmacological Interventions and Adherence Challenges

Using a variety of pharmacological options, such as paracetamol, oral NSAIDs, selective cyclooxygenase-2 (COX-2) inhibitors, and intra-articular corticosteroid or hyaluronic acid injections, the immediate medical therapy of osteoarthritis predominantly focuses on symptomatic pain alleviation [18]. Although these drugs show strong performance in well monitored clinical trial settings, widespread medication nonadherence frequently undermines their therapeutic efficacy in the real world.

A thorough analysis of medication compliance in OA populations reveals a complicated web of variables that contribute to nonadherence [31]

- Patient-centered factors include cognitive deterioration in older populations, anxiety of drug reliance, and misconceptions about how chronic diseases progress.
- Complex dosage schedules, a delayed beginning of therapeutic benefits, and actual or perceived adverse medication reactions are examples of therapy-related factors.
- Factors related to the healthcare system include inadequate patient counselling, subpar follow-up interfaces, and financial obstacles to pharmaceutical access.

Nonadherence has serious clinical repercussions, including poor pain management, quick functional decline, frequent primary care visits, and a general loss in HRQoL. Formulation scientists have concentrated on improving localized substitutes to lessen the gastrointestinal, cardiovascular, and renal toxicities linked to long-term systemic oral NSAIDs. Lipid nanoparticles, nanoemulsions, liposomes, and specialised polymeric hydrogels are examples of advanced topical drug delivery methods that represent a significant technological advancement [16]. These delivery systems improve anti-inflammatory chemicals' ability to pass through the skin's hydrophobic stratum corneum barrier. This prevents adverse drug events and enhances patient adherence by ensuring high, sustained therapeutic drug concentrations inside the localized joint capsule and synovial fluid while maintaining low systemic plasma levels.

4.2 Non-Pharmacological and Primary Care Interventions

Since osteoarthritis is a persistent condition, non-pharmacological treatments are always advised as the mainstay of care. Joint function can be effectively preserved by structured physical exercise regimens that combine low-impact aerobic conditioning, localized resistance training, and flexibility exercises [4]. Frequent exercise improves joint stability, strengthens the surrounding skeletal muscle architecture, and increases the production of endogenous anti-inflammatory cytokines inside the synovium, all of which helps to alleviate joint discomfort. However, coordinated, systematic clinical support is necessary for exercise regimens to be implemented properly. Large-scale primary care projects that provide important insights into the planning and implementation of organized primary care interventions include the PraxArt project (a cluster randomized controlled trial) [20].

Regular, standardised counselling and coordinated care management in general practice clinics result in long-lasting gains in patient self-management and long-term quality of life, according to study results. Additionally, men and women who engage in structured, multi-week self-management education programs report sustained increases in daily physical activity and increased confidence in managing their chronic symptoms, according to prospective observational studies [22].

4.3 Surgical Management

Surgery is required for severe, end-stage knee or hip osteoarthritis when conservative pharmaceutical treatments and non-pharmacological therapy are unable to control symptoms. The standard and final treatment for these patients is total knee arthroplasty (TKA). However, a significant clinical difficulty is managing these patients prior to surgery. Owing to large backlogs in healthcare, patients often have to wait a long time for surgery, during which time their physical function, physical activity, and overall HRQoL gradually deteriorate [9].

The clinical outlook is significantly altered after surgery. TKA provides significant, long-lasting benefits in systemic mobility, physical function, and overall quality of life, according to long-term follow-up studies that extend several years [8]. However, not every patient will have a clinically significant improvement. The final surgical result is significantly influenced by a number of pre-operative parameters, according to multivariate analysis [5]. Significantly lower rates of functional recovery are seen in patients with very low baseline physical status, high body mass index

classifications, or unmanaged psychosocial comorbidities (such as severe sadness or anxiety). This fact emphasizes how important it is for orthopaedic and clinical pharmacy practices to have thorough pre-operative optimization methods.

5. CONCLUSION AND COMPLICATIONS

An important, patient-centered foundation for assessing and treating osteoarthritis is provided by measuring health-related quality of life. This systematic analysis highlights that joint site specificity, patient demographics, socioeconomic factors, obesity, and psychological well-being all actively influence HRQoL, which is not just a reflection of structural cartilage deterioration.

These results emphasize a number of practical issues for primary care physicians, rheumatologists, and clinical chemists:

- Regular Clinical Screening: To correctly monitor disease development and evaluate therapy efficacy, it is crucial to incorporate validated, site-specific PROMs (such the WOMAC or SF-36) into frequent clinical check-ups.
- Adherence & Education Frameworks: In order to reduce systemic side effects, healthcare providers must move toward sophisticated topical administration methods while actively addressing the behavioural and financial causes of prescription nonadherence through structured counselling.
- Multidisciplinary Primary Care: To maintain functional mobility and postpone the need for surgery, it is essential to increase access to organized, primary care-based self-management and exercise programs.
- Pre-operative Optimisation: To optimise the outcome of total joint arthroplasties, patients with end-stage disease must undergo thorough pre-operative screening to control body composition and mental health comorbidities.

  Finally, moving away from a primarily radiographic view of osteoarthritis and toward an integrated, quality-of-life-driven care paradigm is required to improve long-term clinical outcomes and patients' daily lives

REFERENCES:

1. Abimiku AC, Pitmang SL, Agaba P. Health-Related Quality of Life in Patients with Osteoarthritis of the Knee attending two Outpatient Clinics in Jos, Nigeria: A Cross-Sectional Descriptive Study. West Afr J Med. 2023;40(40):689-696.
2. Alwhaibi M, Alhawassi TM. Mental health and health-related quality of life among adults with osteoarthritis: A national population-based study. PLoS One. 2025;20(6):e0325780.
3. Barnett R. Osteoarthritis. Lancet. 2018;391(10134):1985.
4. Chen L, Yu Y. Exercise and Osteoarthritis. Adv Exp Med Biol. 2020;1228:219-231.
5. Clement ND, Radha S, Afzal I, Gurung B, Asopa V, Caplan N, Kader D. Factors associated with a clinically significant improvement in health-related quality of life after total knee arthroplasty. Eur J Orthop Surg Traumatol. 2023;33(6):2505-2514.
6. Dominick KL, Ahern FM, Gold CH, Heller DA. Gender differences in NSAID use among older adults with osteoarthritis. Ann Pharmacother. 2003;37(11):1566-1571.
7. Evelley J, Mikula P, Timkova V, Vicen M, Kundratova L, Polan P, Sanderman R, Nagyova I. Association of pain and fatigue with health related quality of life in people with osteoarthritis. Psychol Health Med. 2025;30(9):1886-1903.
8. González-Sáenz-de-Tejada M, Quintana JM, Arenaza JC, Azcarate-Garitano JR, Esnaola-Guisasola PM, García-Sánchez I, Baguer-Antonio A, Bilbao-González A. Long-term health related quality of life in total knee arthroplasty. BMC Musculoskelet Disord. 2023;24(1):327.
9. Ho KW, Pong G, Poon WC, Chung KY, Kwok YY, Chiu KH. Progression of health-related quality of life of patients waiting for total knee arthroplasty. J Eval Clin Pract. 2021;27(1):69-74.
10. Loef M, Damman W, de Mutsert R, Rosendaal FR, Kloppenburg M. Health-related Quality of Life in Patients with Hand Osteoarthritis from the General Population and the Outpatient Clinic. J Rheumatol. 2020;47(9):1409-1415.
11. Messier SP, Gill ME, Mihalko SL, Beavers DP, Queen K, Miller GD, Losina E, Katz JN, Loeser RF, DeVita P, Hunter DJ, Quandt SA, Lyles MF, Hudson D, Callahan LF. Clinical, Health-Related Quality of Life, and Gait Differences Among Obesity Classes in Adults With Knee Osteoarthritis. Arthritis Care Res (Hoboken). 2024;76(4):503-510.
12. Michon M, Maheu E, Berenbaum F. Assessing health-related quality of life in hand osteoarthritis: a literature review. Ann Rheum Dis. 2011;70(6):921-928.
13. Nakata K, Tsuji T, Vietri J, Jaffe DH. Work impairment, osteoarthritis, and health-related quality of life among employees in Japan. Health Qual Life Outcomes. 2018;16(1):64.
14. Ning W, Schmalz G, Li P, Huang S. Oral health-related quality of life in patients with osteoarthritis of the temporomandibular joint-Results of a systematic review. J Oral Rehabil. 2022;49(11):1106-1114.

15. Paget LDA, Tol JL, Kerkhoffs GMMJ, Reurink G. Health-Related Quality of Life in Ankle Osteoarthritis: A Case-Control Study. Cartilage. 2021;13(1_suppl):1438S-1444S.
16. Patil P, Nene S, Shah S, Singh SB, Srivastava S. Exploration of novel drug delivery systems in topical management of osteoarthritis. Drug Deliv Transl Res. 2023;13(2):531-546.
17. Pereira D, Ramos E, Branco J. Osteoarthritis. Acta Med Port. 2015;28(1):99-106.
18. Prescrire Int. Osteoarthritis of the knee. 2017;26(180):78.
19. Rat AC, Sellam J, Mazières B, Ngueyon Sime W, Fardellone P, Guillemin F. Body composition is associated with changes in health-related quality of life in patients with knee and/or hip osteoarthritis. RMD Open. 2025;11(1):e004733.
20. Rosemann T, Körner T, Wensing M, Gensichen J, Muth C, Joos S, Szecsenyi J. Rationale, design and conduct of a comprehensive evaluation of a primary care based intervention to improve the quality of life of osteoarthritis patients. The PraxArt-project: a cluster randomized controlled trial [ISRCTN87252339]. BMC Public Health. 2005;5:77.
21. Salaffi F, Carotti M, Grassi W. Health-related quality of life in patients with hip or knee osteoarthritis: comparison of generic and disease-specific instruments. Clin Rheumatol. 2005;24(1):29-37.
22. Sturesdotter Åkesson K, Beckman A, Stigmar K, Sundén A, Ekvall Hansson E. Physical activity and health-related quality of life in men and women with hip and/or knee osteoarthritis before and after a supported self-management programme - a prospective observational study. Disabil Rehabil. 2022;44(16):4275-4283.
23. Tekaya AB, Bouzid S, Kharrat L, Rouached L, Galelou J, Bouden S, Tekaya R, Saidane O, Mahmoud I, Abdelmoula L. Health-Related Quality of Life and Associated Factors Among Patients With Knee Osteoarthritis. Curr Rheumatol Rev. 2023;19(3):355-361.
24. Thabit Z, Al-Qazaz H. Health-related quality of life among patients with osteoarthritis: a cross-sectional study. Georgian Med News. 2023;(334):65-70.
25. Vitaloni M, Botto-van Bemden A, Sciortino Contreras RM, Scotton D, Bibas M, Quintero M, Monfort J, Carné X, de Abajo F, Oswald E, Cabot MR, Matucci M, du Souich P, Möller I, Eakin G, Verges J. Global management of patients with knee osteoarthritis begins with quality of life assessment: a systematic review. BMC Musculoskelet Disord. 2019;20(1):493.
26. Xie F, Li SC, Thumboo J. Do health-related quality-of-life domains and items in knee and hip osteoarthritis vary in importance across social-cultural contexts? A qualitative systematic literature review. Semin Arthritis Rheum. 2005;34(6):793-804.
27. Yan H, Guo J, Zhou W, Dong C, Liu J. Health-related quality of life in osteoarthritis patients: a systematic review and meta-analysis. Psychol Health Med. 2022;27(8):1859-1874.
28. Yildiz N, Topuz O, Gungen GO, Deniz S, Alkan H, Ardic F. Health-related quality of life (Nottingham Health Profile) in knee osteoarthritis: correlation with clinical variables and self-reported disability. Rheumatol Int. 2010;30(12):1595-1600.
29. Zhao T, Winzenberg T, Aitken D, Graaff B, Ahmad H, Jones G, Palmer AJ. The impact of comorbidities on health-related quality of life of people with osteoarthritis over 10 years. Rheumatology (Oxford). 2021;61(1):139-145.
30. Zhao T, Ahmad H, Winzenberg T, Aitken D, Graaff B, Jones G, Palmer AJ. Cross-sectional and temporal differences in health-related quality of life of people with and without osteoarthritis: a 10-year prospective study. Rheumatology (Oxford). 2021;60(7):3352-3359.
31. Zubair AJ, Hameed ASM, Santhosh ST, Jarjouma MA, Jyothish P, Kaczmarski M, Ille S. Medication nonadherence in osteoarthritis: Review of determinants, consequences and strategies. Wiad Lek. 2026;79(3):571-581