

Original Research Article

HEALTH RELATED QUALITY OF LIFE OF OSTEOARTHRITIS PATIENTS ON DRUG THERAPY IN A TERTIARY CARE HOSPITAL - A PROSPECTIVE OBSERVATIONAL QUESTIONNAIRE BASED STUDY

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ABSTRACT

Background: Osteoarthritis (OA) is the most common chronic degenerative joint disorder and a leading cause of pain, disability, and impaired quality of life worldwide. Pharmacotherapy is the cornerstone of symptomatic management; however, its impact on the health-related quality of life (HRQoL) of patients requires continued evaluation in routine clinical practice. The objective is to evaluate the health-related quality of life of patients with osteoarthritis receiving pharmacotherapy in a tertiary care hospital using the Short Form-36 (SF-36) questionnaire.

Materials and Methods: A prospective observational study was conducted over a period of 12 months in the Department of Orthopaedics, in collaboration with the Department of Pharmacology, at a tertiary care teaching hospital. A total of 187 patients diagnosed with osteoarthritis and fulfilling the inclusion criteria were enrolled after obtaining written informed consent. HRQoL was assessed at baseline and follow-up using the SF-36 questionnaire, which evaluates eight domains: physical functioning, role limitation due to physical health, bodily pain, general health, vitality, social functioning, role limitation due to emotional problems, and mental health. Internal consistency of the questionnaire was evaluated using Cronbach's alpha coefficient. Statistical analysis was performed to compare baseline and follow-up scores, with $p < 0.05$ considered statistically significant.

Results: Among the 187 participants, females constituted 66% of the study population, and the majority (58%) belonged to the 46–60-year age group. Knee osteoarthritis was the predominant presentation (81%). NSAIDs were the most frequently prescribed medications, with diclofenac being the commonest agent. The SF-36 questionnaire demonstrated good internal consistency (Cronbach's $\alpha = 0.80$). Following pharmacotherapy, statistically significant improvements were observed in all eight SF-36 domains, with follow-up scores significantly higher than baseline scores ($p < 0.001$), indicating a marked improvement in health-related quality of life.

Conclusion: Pharmacotherapy was associated with significant improvement in the health-related quality of life of patients with osteoarthritis. Appropriate pharmacological management effectively reduced symptom burden and improved physical, emotional, and social well-being, highlighting its important role in the comprehensive management of osteoarthritis.

Keywords: Osteoarthritis; Health-related quality of life; SF-36; Pharmacotherapy; Non-steroidal anti-inflammatory drugs; Prospective observational study.

INTRODUCTION

Osteoarthritis (OA) is the most common chronic degenerative joint disease and a leading cause of pain, disability, and reduced quality of life worldwide. It is characterized by progressive degeneration of articular cartilage, subchondral bone remodeling, and synovial inflammation, resulting in pain, stiffness, and impaired joint function¹. The prevalence of OA is increasing due to population ageing, obesity, and sedentary lifestyles, making it a significant public health concern.

The primary goals of OA management are to relieve pain, improve joint function, and enhance patients' health-related quality of life (HRQoL). Pharmacological therapy, including non-steroidal anti-inflammatory drugs (NSAIDs), paracetamol, corticosteroids, and symptomatic slow-acting drugs for osteoarthritis (SYSADOA), plays a central role in symptom management. As OA is a chronic condition, evaluating treatment outcomes should extend beyond symptom relief to include the patient's overall physical, emotional, and social well-being.^[2]

Health-related quality of life has emerged as an important patient-reported outcome in the management of chronic diseases.^[3] The Short Form-36 (SF-36) questionnaire is a widely validated instrument that assesses eight domains of health, including physical functioning, bodily pain, general health, vitality, social functioning, role limitations due to physical and emotional problems, and mental health. It provides a comprehensive assessment of the impact of disease and treatment on patients' daily lives.^[4]

Although several studies have demonstrated the effectiveness of pharmacotherapy in reducing pain and improving function in osteoarthritis, evidence regarding its impact on HRQoL in routine clinical practice, particularly in the Indian population, remains limited. Therefore, assessing quality of life among patients receiving pharmacotherapy can provide valuable insights into treatment effectiveness and support patient-centred care.

Hence, the present prospective observational study was undertaken to evaluate the health-related quality of life of patients with osteoarthritis receiving pharmacotherapy in a tertiary care hospital using the SF-36 questionnaire.

MATERIALS AND METHODS

Study Design and Setting: A prospective observational study was conducted in the Department of Orthopaedics in collaboration with the Department of Pharmacology at Vijayanagar Institute of Medical Sciences (VIMS), Ballari, Karnataka, India, over a period of 12 months from October 2021 to October 2022.

Study Population: Patients diagnosed with osteoarthritis who attended the Orthopaedics outpatient department during the study period and

fulfilled the inclusion and exclusion criteria were enrolled after obtaining written informed consent. A total of 187 patients completed the study.

Inclusion Criteria

- Patients aged ≥ 35 years with clinically diagnosed osteoarthritis.
- Patients receiving pharmacotherapy for osteoarthritis.
- Patients willing to provide written informed consent and participate in follow-up.

Exclusion Criteria

- Patients with inflammatory arthritis (e.g., rheumatoid arthritis), gout, or septic arthritis.
- Patients with severe psychiatric illness or cognitive impairment affecting questionnaire completion.
- Patients unwilling to participate or lost to follow-up.

Data Collection: Demographic details, clinical characteristics, affected joints, and prescribed medications were recorded using a predesigned case record form. The prescribed pharmacotherapy was documented for each participant.

Assessment of Health-Related Quality of Life: Health-related quality of life was assessed using the Medical Outcomes Study 36-Item Short Form Health Survey (SF-36). The questionnaire evaluates eight domains: physical functioning, role limitations due to physical health, bodily pain, general health, vitality, social functioning, role limitations due to emotional problems, and mental health. Each domain score ranges from 0 to 100, with higher scores indicating better health-related quality of life. The questionnaire was administered at baseline and during follow-up in the participants' vernacular language.

Reliability Assessment: The internal consistency of the SF-36 questionnaire was assessed using Cronbach's alpha coefficient. A value of ≥ 0.70 was considered indicative of acceptable reliability.

Statistical Analysis: The collected data were entered into Microsoft Excel and analyzed using appropriate statistical software. Continuous variables were expressed as mean $\pm$ standard deviation, while categorical variables were presented as frequencies and percentages. Baseline and follow-up SF-36 scores were compared to assess changes in health-related quality of life. A p-value of < 0.05 was considered statistically significant.

Ethical Considerations: The study was conducted after obtaining approval from the Institutional Ethics Committee of Vijayanagar Institute of Medical Sciences, Ballari. Written informed consent was obtained from all participants prior to enrolment, and confidentiality of patient information was maintained throughout the study.

RESULTS

A total of 187 patients with osteoarthritis completed the study. Females constituted the majority of the study population (66%), and the highest proportion of

patients belonged to the 46–60 years age group (58%). The knee joint was the most commonly affected site (81%). NSAIDs were the most frequently prescribed medications, with diclofenac being the most commonly prescribed individual drug.

The SF-36 questionnaire demonstrated good internal consistency (Cronbach's $\alpha = 0.80$). Comparison of baseline and follow-up SF-36 scores showed statistically significant improvement in all eight domains following pharmacotherapy ($p < 0.001$).

Table 1: Demographic characteristics of the study population (n = 187)

Demographic data	No: of patients (n=187) in %
Gender	
Male	64 (34%)
Female	123 (66%)
Age	
35–45	11 (6%)
46–60	108 (58%)
61–75	63 (34%)
>75	5 (2.4%)
Joint involved	
Knee	151 (81%)
Polyarticular	15(8%)
Hand	13 (7%)
Spine	8 (4%)
Duration of the disease	
< 1year	60 (32%)
1–3years	87 (47%)
>3years	40 (21%)

The demographic characteristics of the 187 patients are summarized in the table 1. Females constituted the majority of the study population (123; 66%), while males accounted for 64 (34%) patients. The most common age group was 46–60 years (108; 58%), followed by 61–75 years (63; 34%). Patients aged 35–45 years constituted 11 (6%), while only 5 (2.4%) patients were aged >75 years.

Regarding the joint involvement, the knee was the most commonly affected joint (151; 81%), followed

by polyarticular involvement (15; 8%), hand involvement (13; 7%), and spine involvement (8; 4%).

With respect to the duration of disease, nearly half of the patients had been diagnosed for 1–3 years (87; 47%). This was followed by patients with a disease duration of less than 1 year (60; 32%), while 40 (21%) patients had disease duration of more than 3 years.

Table 2: Pharmacotherapy prescribed to patients

Drug/Class	Number (n)	Percentage (%)
NSAIDs	185	55.9
Paracetamol	74	22.3
Opioids	38	12.0
Corticosteroids	34	10.0

Table 3: Details of drugs prescribed

Drug name	No of prescriptions	Percentage(%)
Diclofenac	97	51.9
Paracetamol	74	39.6
Acetoclofenac	60	32.1
Ibuprofen	8	4.3
Piroxicam	11	5.9
Nimesulide	5	2.7
Rofecoxib	4	2.1
Tramadol	38	20.3
Prednisolone	29	15.5
Deflazacort	5	2.7

[Table 2] shows that NSAIDs were the most frequently prescribed drug class, accounting for 185 prescriptions (55.9%). Paracetamol was the next most commonly prescribed medication, with 74 prescriptions (22.3%), followed by opioids in 38 patients (12.0%). Corticosteroids were prescribed to 34 patients (10.0%). Thus, the prescribing pattern was predominantly focused on NSAIDs for the pharmacological management of osteoarthritis.

[Table 3] provides the distribution of individual drugs prescribed. Diclofenac was the most frequently

prescribed drug, with 97 prescriptions (51.9%), followed by paracetamol with 74 prescriptions (39.6%) and acetoclofenac with 60 prescriptions (32.1%). Among the other NSAIDs, piroxicam was prescribed in 11 cases (5.9%), ibuprofen in 8 (4.3%), nimesulide in 5 (2.7%), and rofecoxib in 4 (2.1%). Tramadol was the opioid prescribed, accounting for 38 prescriptions (20.3%). Among corticosteroids, prednisolone was prescribed more frequently (29; 15.5%) than deflazacort (5; 2.7%).

Table 4: Adjunctive medication in Osteoarthritis

Class of drug	No of prescriptions	Percentage(%)
Gastroprotectives	98	43.7
Vitamin D	41	18.3
Calcium	34	15.1
Skeletal Muscle Relaxant	30	13.3
SYSADOA	21	9.3

[Table 4] shows the pattern of adjunctive medications prescribed in patients with osteoarthritis. Gastroprotective agents were the most frequently prescribed adjunctive medications, accounting for 98 prescriptions (43.7%). This was followed by vitamin D supplements, prescribed in 41 cases (18.3%), and

calcium supplements, prescribed in 34 cases (15.1%). Skeletal muscle relaxants were prescribed in 30 cases (13.3%), while SYSADOA (Symptomatic Slow-Acting Drugs for Osteoarthritis) were prescribed in 21 cases (9.3%), making them the least frequently prescribed adjunctive medication in the study.

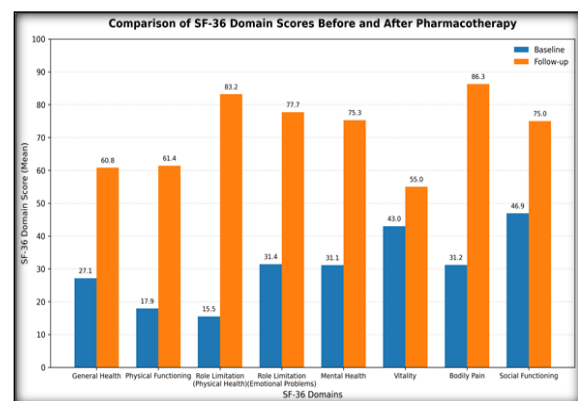
Table 5: Reliability of SF-36 questionnaire

Parameter	Value
Cronbach's alpha	0.80
Interpretation	Good internal consistency

Table 6: Comparison of SF-36 domain scores before and after pharmacotherapy

SF-36 Domain	Baseline (Mean $\pm$ SD)	Follow-up (Mean $\pm$ SD)	p-value
General Health	27.1 $\pm$ 6.2	60.8 $\pm$ 6.05	<0.001
Physical Functioning	17.9 $\pm$ 5.77	61.4 $\pm$ 12.65	<0.001
Role Limitation due to Physical Health	15.5	83.2 $\pm$ 11.75	<0.001
Role Limitation due to Emotional Problems	31.4 $\pm$ 24.8	77.7 $\pm$ 15.59	<0.001
Mental Health (Emotional Well-being)	31.1 $\pm$ 4.16	75.3 $\pm$ 1.49	<0.001
Vitality (Energy)	43.0 $\pm$ 5.69	55.0	<0.001
Bodily Pain	31.2 $\pm$ 11.26	86.3 $\pm$ 8.39	<0.001
Social Functioning	46.9 $\pm$ 13.88	75.0	<0.001

Interpretation: Significant improvement was observed in all eight domains of the SF-36 questionnaire following pharmacotherapy ($p < 0.001$), indicating a marked enhancement in health-related quality of life among patients with osteoarthritis.

**Figure 1: Comparison of SF-36 Domain Scores Before and After Pharmacotherapy**

Interpretation: All eight SF-36 domains showed a statistically significant improvement following pharmacotherapy ($p < 0.001$), indicating improved health-related quality of life among patients with osteoarthritis.

DISCUSSION

The present prospective observational study evaluated the effect of pharmacotherapy on the

health-related quality of life (HRQoL) of patients with osteoarthritis using the SF-36 questionnaire. The findings demonstrated a statistically significant improvement in all eight domains of the SF-36 following pharmacotherapy, indicating that appropriate pharmacological management contributes substantially to improving the physical, emotional, and social well-being of patients with osteoarthritis.

In the present study, females constituted 66% of the study population, while the majority of patients belonged to the 46–60-year age group. These findings are consistent with previous studies done by Ullal et al,^[5] and Bishnoi et al,^[6] reporting a higher prevalence of osteoarthritis among women, particularly after menopause, owing to hormonal changes, increased life expectancy, obesity, and reduced bone and muscle mass. The predominance of middle-aged and elderly patients is also in agreement with the established age-related increase in the prevalence of osteoarthritis.

The knee was the most frequently affected joint (81%), consistent with findings from Indian and international studies. The high frequency of knee involvement is attributable to its weight-bearing function and continuous mechanical stress, making it particularly susceptible to degenerative changes.^[7] Analysis of prescribing patterns showed that NSAIDs were the most commonly prescribed class of drugs, with diclofenac being the predominant agent similar to study done by Babu et al.^[9] This prescribing trend aligns with current clinical practice guidelines, which recommend NSAIDs as first-line pharmacological

therapy for symptomatic relief in osteoarthritis. The frequent use of gastroprotective agents, particularly pantoprazole, reflects an awareness of the gastrointestinal adverse effects associated with prolonged NSAID therapy.

The SF-36 questionnaire demonstrated good internal consistency, with a Cronbach's alpha coefficient of 0.80, confirming its reliability for assessing HRQoL in patients with osteoarthritis. This finding is comparable with previous validation studies that have reported satisfactory reliability of the SF-36 across different populations.

A major finding of the present study was the significant improvement observed in all eight domains of the SF-36 after pharmacotherapy. The greatest improvements were seen in physical functioning, bodily pain, role limitation due to physical health, and role limitation due to emotional problems. Reduction in pain likely contributed to improved mobility and performance of daily activities, which in turn enhanced social participation, vitality, and emotional well-being. These findings suggest that effective pharmacotherapy positively influences both physical and psychological aspects of quality of life.

The observed improvement in HRQoL is comparable with findings reported by previous studies done by Subramanian et al,^[9] and Jadhav et al,^[10] which have shown that adequate pain control and appropriate pharmacological management improve functional capacity and patient-reported quality of life. Although pharmacotherapy does not reverse the structural progression of osteoarthritis, effective symptom control enables patients to maintain functional independence and improve overall well-being.

The findings of this study have important clinical implications. Routine assessment of HRQoL using validated instruments such as the SF-36 can complement clinical evaluation and provide valuable patient-centred information regarding treatment outcomes. Such assessments may assist clinicians in optimizing pharmacotherapy, improving treatment adherence, and identifying patients who require additional interventions such as physiotherapy, weight management, or psychosocial support.

The present study has certain limitations. Being a single-centre observational study, the findings may not be generalizable to the broader population. The absence of a comparison group limits causal inference regarding treatment effects. In addition, the follow-up duration was relatively short, and long-term changes in HRQoL could not be evaluated. Future multicentre studies with larger sample sizes and longer follow-up are recommended to validate these findings.

Strengths

- Prospective observational study design.
- Adequate sample size (n = 187).
- Assessment of health-related quality of life using the validated SF-36 questionnaire.

- Good internal consistency of the questionnaire (Cronbach's $\alpha = 0.80$).
- Evaluation of all eight HRQoL domains before and after pharmacotherapy.
- Real-world data from a tertiary care teaching hospital, enhancing the clinical relevance of the findings.

Limitations

1. Single-centre study, limiting the generalizability of the findings.
2. Lack of a control or comparator group.
3. Relatively short follow-up period.
4. Potential influence of confounding factors such as disease severity, comorbidities, and treatment adherence.
5. Patient-reported outcomes may be subject to recall and response bias.

CONCLUSION

The present prospective observational study demonstrated that pharmacotherapy was associated with significant improvement in the health-related quality of life of patients with osteoarthritis. Statistically significant improvements were observed in all eight domains of the SF-36 questionnaire following treatment, indicating enhanced physical functioning, pain relief, general health, vitality, emotional well-being, and social functioning. NSAIDs remained the most commonly prescribed pharmacological agents, reflecting their central role in the symptomatic management of osteoarthritis. The findings highlight the importance of appropriate pharmacotherapy in improving patient-centred outcomes and support the routine assessment of health-related quality of life using validated instruments such as the SF-36 questionnaire in clinical practice. Further multicentre studies with larger sample sizes and longer follow-up are warranted to evaluate the long-term impact of pharmacotherapy on quality of life in patients with osteoarthritis.

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