Assessment of Quality of life among patients with hip osteoarthritis

*Usman Iftikhar, ** Farooq islam, *** Faisal Shahbaz, ** Gulraiz Enderyas, ** Asim Raza, * Sobia azam

* University Institute of Physical Therapy, University of Lahore, Punjab, Pakistan
** Department of Rehabilitation Sciences, Allied Health Sciences University of Chenab, Gujrat , Punjab, Pakistan.
***Medical officer,Tehsil Head Quarter (THQ) Daska, Sialkot, Punjab, Pakistan.

ABSTRACT

This study's major goal was to evaluate the quality of life (QOL) of people with hip osteoarthritis. 196 hip osteoarthritic volunteers, ranging in age from 45 to 80, participated in an observational cross-sectional research. Between May and August 2022, participants were chosen using convenient sampling from the District headquarters in Gujranwala, the Medical Care Hospital in Gujranwala, and the Civil Hospital in Wazirabad. SF-36 questionnaire was used for the assessment of QOL' in this 0 indicates the poor whereas 100 indicates higher quality of life. All information were put and analyzed by SPSS Version 24. Out of 196 patients, 159(81.10%) were female. Segmentsof QOL, physical functioning (31.13±9.73),role limitations due to physical health (29.33±8.98), pain (28.59±10.25), general health (17.47±7.35), social functioning (18.09±9.86), emotional well-being (37.75±14.28), energy (39.51±14.55) and role limitations due to emotional problem (22.60±9.31) was observed respectively. Findings of this study was concluded that energy, emotional well-being and physical functioning noted high score as compare to other segments of quality of life however in segments; general health and social functioning were very compromised and poor quality of life with lower score .

Index Terms: Quality of life, SF-36 questionnaire, cross sectional study, hip osteoarthritis.

INTRODUCTION

An all-encompassing level of happiness or quality of life that includes both objective and subjective descriptions of one's physical, material, social, and emotional well-being as well as the extent of one's own personal development and productive activity, all of which are weighed in accordance with one's own set of values.(1) Osteoarthritis, a degenerative joint disease, eventually destroys articular cartilage and related components. The hip is the joint that is most often affected after the knee, and around 11% (2.46 million) of people in England suffer from hip issues.(2)

Normal cartilage is a complex substance made mostly of collagen and proteoglycan in a solid matrix that contains water. Its makeup changes throughout time. When the cartilage's

natural structure and equilibrium are harmed, osteoarthritis results. Osteoarthritis is caused by a complex interplay of biochemical and biomechanical variables that coexist and sustain deteriorative change. It has been proven that periarticular tissues as well as articular cartilage are affected by the progressive pathologic change of osteoarthritis. Despite the fact that mechanical and biochemical changes do occur, it is unclear exactly how they contribute to the etiopathogenesis of osteoarthritis. There are possibly several etiologies with comparable pathways of physical and chemical disruption.(3)

Radiographic hip OA was found in 14.4% of women and 18.4% of men in the baseline sample, respectively. The frequency in the fourth survey was 16.0% and 10.7%. Between the fourth survey and the baseline survey, the prevalence of radiographic hip OA among individuals aged 40 to 69 years fell considerably. However, compared to the fourth survey, radiographic hip OA was much less prevalent among older men (aged 70 to 79) at the baseline survey. The prevalence of radiographic hip OA was significantly lower between the fourth survey and the baseline survey, according to the results of the logistic regression analysis (odds ratio: 0.55, 95% confidence interval).(4)

Oa causes greater difficulty walking and ascending stairs than any other illness because to its high prevalence and the frequent impairment brought on by disease in vital joints like the knee and hip.(5) Pain, stiffness, and restricted movement are the three primary indications and symptoms of OA. Crepitus, joint subluxation, joint deformity brought on by bone remodelling, severe osteophytosis, or joint edoema are further symptoms. In a middle-aged or older individual, these symptoms often start in one or more joints.(6)

Due to the progressive and chronic character of OA, enormous societal expenditures are incurred, and it is expected that these demands will only rise as the population ages. Pharmacologic therapy is the most well-liked conservative treatment for oa (nsaids, cyclooxygenase inhibitors). Due to the progressive and chronic character of oa, enormous societal expenditures are incurred, and it is expected that these demands will only rise as the population ages. Pharmacologic therapy is the most well-liked conservative treatment for oa (nsaids, cyclooxygenase inhibitors).(7)

In primary care, exercise is a cost-benefit analysis therapy for hip osteoarthritis. The hip and knee joints are particularly painful and dysfunctional due to the most frequent kind of joint disease (OA). Women are more likely than males to develop hip OA after the age of 55. Hip discomfort and incapacity, for instance due to weakened lower limb muscles, are the most common signs of hip OA.(8)

The study's objective was to ascertain the association between eight SF-36 subscales, including physical health restrictions, emotional constraints, and physical functional

constraints, and the impact of osteoarthritis on quality of living. Energy and exhaustion are related to emotional issues, social difficulties, general health, and discomfort. Many individuals are unaware of the sickness they have acquired, and my research will eventually give information about this disease.

METHODS

Study design, duration and setting

196 hip osteoarthritic volunteers, ranging in age from 45 to 80, participated in an observational cross-sectional research. Between May and August 2022, data from a subset of participants were gathered from the District Headquarters in Gujranwala, the Med Care Hospital in Gujranwala, and the Civil Hospital in Wazirabad.

Sampling technique and sample size calculation

Non-probability convenient sampling technique was applied to select the participants. Sample size n=196 was calculated using below mentioned formula and WHO recommended calculator

$$\mathbf{n = (Z_{1-\alpha/2})^2(p)(1-p)/(d)^2}$$

$Z_{1-\alpha/2}$ = 1.96, It is standard normal variate at 95% confidence interval, p = 0.50, which is expected proportion, and d = Expected precision or effect size was used 7%.

$$n = (1.96)^2(0.50)\ (1-0.50)\ /\ (0.07)^2 = \mathbf{196}$$

Participants

Participants in the research with hip osteoarthritis who did not have secondary osteoarthritis ranged in age from 45 to 80. The research excluded those with hearing or speech impairment, mental incompetence, and osteoarthritis caused by trauma.

Ethical approval and Consent

The Institutional Review Board (IRB) at the University of Lahore in Punjab, Pakistan, provided ethical clearance. Before collecting data, participants were asked for their signed and informed permission. made sure that the information will only be utilised for research.

Data collection procedure and outcome measures

196 individuals who met the inclusion and exclusion criteria had their data gathered. First, demographic information was gathered and recorded. Second, the participants' quality of life was evaluated using the SF-36 questionnaire, which had reliability coefficient and Cronbach's alpha values of 0.75 and 0.85, respectively. The SF-36 questionnaire was divided into eight components, comprising 36 questions on physical functioning, role constraints brought on by physical health, role restrictions brought on by emotional difficulties, pain, general health, energy, and social functioning.

Statistical analysis

Through SPSS Version 24, all participant data was input and evaluated. In descriptive analysis, frequencies and percentages were determined for categorical variables while means and standard deviations were calculated for numerical data. Every piece of data was computed with a 95% confidence level.

RESULTS

Male participants made up 159 (81%) of the total n=196, and 183 (93%) of them were married, with the average participant age as given in **table 1**.

196 participants total, Physical functioning saw 19 (9.7%) very poor, 152 (77.6%) poor, and 25 (12.8%) good. 19 (9.7%) were very poor , while 152 (77.6%)were poor in role restrictions brought on by physical health. Role limitations brought on by emotional concerns were present in 83 (42.3%)(very poor), 110 (56.1%)(poor), and 3 (1.5%) cases (good). In Energy/Fatigue, 86 (43.9%) were (poor) , while 4 (2.0%) were (very poor). (5.1%) were (very good) and 93 (47.4%) were (good), whereas just 3 (1.5%) were (excellent). In terms of emotional well-being,74 (37.8%) were poor, and 93 (47.4%) were (good),23(11.7%) were (Very poor)and 6(3.1%) were (very good). In terms of social functioning, 139 people (70.9%) scored "Very Poor," 45 people (23.0%), "Poor," and 12 people (6.1%)(good). In pain, 141 (71.9%) were (poor), while 32 (16.3%) were (Good) and 23(11.7%) were (Very poor) . in general health 128 people (65.3%) had very poor general health and 68 people (34.7%) had poor general health that is shown in **table 2**.

Table 1: Socio-demographic details

Variables		n(%)
Age of participants in years	45-60	68(34.7)
	61-70	75(38.3)
	71-80	53(27)
Gender	Male	37(19)
	Female	159(81)
Marital Status	Single	13(7)
	Married	183(93)
Occupation of participants	House Wife	151(77)
	Worker	2(1)
	Government Job	6(3.1)
	Private Job	12(6.1)
	Businessman	6(3.1)
	Others	19(9.7)
Total		**196(100)**

Table 2. Outcomes of patients quality of life in percentages

Domains		n(%)
Physical Functioning	< 20=(Very poor)	19(9.7)
	21-40(poor)	152(77.6)
	41-60(good)	25(12.8)
Role limitations due to physical health	< 20=(Very poor)	19(9.7)
	21-40(poor)	152(77.6)
	41-60(good)	25(12.8)
Role limitations due to emotional problems	< 20=(Very poor)	83(42.3)
	21-40(poor)	110(56.1)
	41-60(good)	3(1.5)
Energy/Fatigue	< 20=(Very poor)	4(2.0)
	21-40(poor)	86(43.9)
	41-60(good)	93(47.4)
	61-80 (very good)	10(5.1)
	81-100 (excellent)	3(1.5)
Emotional well-being	< 20=(Very poor)	23(11.7)
	21-40(poor)	74(37.8)
	41-60(good)	93(47.4)
	61-80 (very good)	6(3.1)
Social functioning	< 20=(Very poor)	139(70.9)
	21-40(poor)	45(23.0)
	41-60(good)	12(6.1)
Pain	< 20=(Very poor)	23(11.7)
	21-40(poor)	141(71.9)
	41-60(good)	32(16.3)
General health	< 20=(Very poor)	128(65.3)
	21-40(poor)	68(34.7)
Total		**196(100)**

Table 3 shows average score out of 100 for each segment of SF-36 for the assessment of QOL, in this 0 indicates the poor quality of life whereas 100 indicates higher quality of life, physical functioning (31.13±9.73), Role limitations due to physical health (29.33±8.98), pain (28.59±10.25), general health (17.47±7.35), Energy (39.51±14.55), social functioning (18.09±9.86), Role limitations due to emotional problems (22.60±9.31) and Emotional well-being (54.49±9.78) was observed

Table 3: Quality of Life in patients with hip osteoarthritis

Segments	Mean±S.D
Physical Functioning	31.13±9.73
Role limitations due to physical health	29.33±8.98
Role limitations due to emotional problems	22.60±9.31
Energy	39.51±14.55
Emotional well-being	54.49±9.78
Social Functioning	18.09±9.86
Pain	28.59±10.25
General Health	17.47±7.35

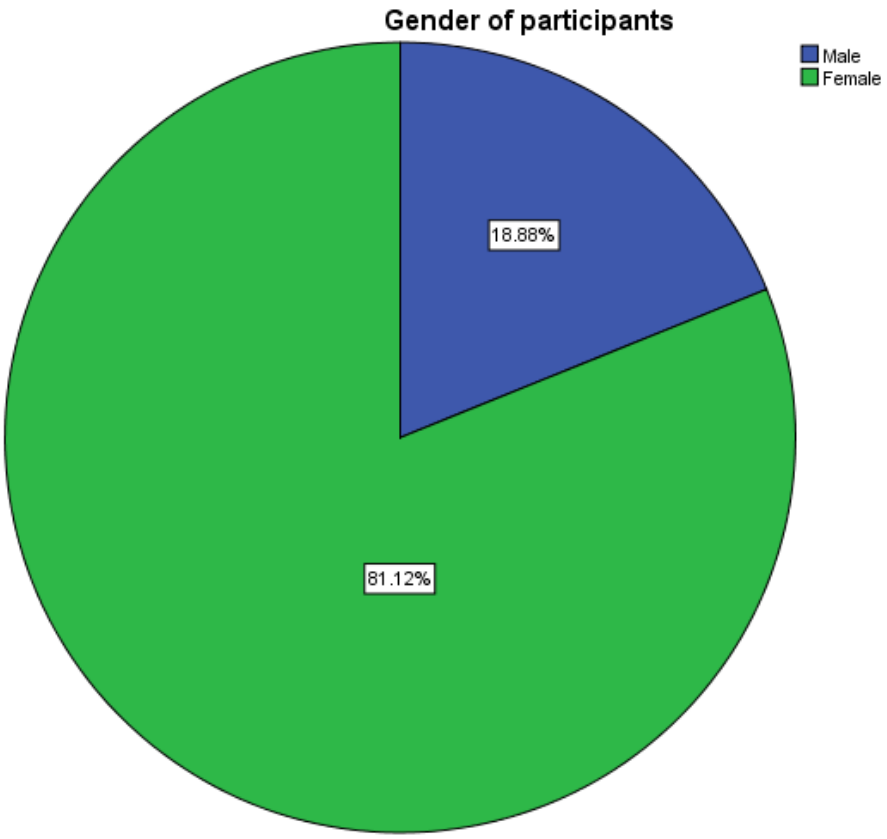

Figure 1. Gender distribution of study participants

DISCUSSION

A cross-sectional observational research to evaluate how well persons with hip osteoarthritis are living. 196 patients with a minimum age of 45 were included in the research from the District headquarters hospital in Gujranwala, the Med Care Hospital in Gujranwala, and the Civil Hospital in Wazirabad. 196 respondents' information was gathered using the SF-36 and a questionnaire. Thirteen individuals out of 196—159 female patients and 37 male patients—were single, compared to 183 married patients. Physical functioning, role constraints brought on by physical health, role restrictions brought on by emotional issues, energy/fatigue, emotional well-being, social functioning, pain, and overall health are the eight factors that make up the quality of life questionnaire. SPSS software was used to encode the values and responses from the questionnaire and Performa, and the specifics of the data analysis were given.

Osteoarthritis (OA) is a chronic condition characterised by different levels of local inflammation, crepitus, effusions, and joint stiffness, pain, and movement limitations. Although the disease primarily affects the articular cartilage, it also affects ligaments, the capsule, the synovial membrane, and the periarticular muscles.(9) Osteoarthritis is a degenerative joint ailment that is mostly caused by the progressive degradation of joint cartilage. Although it may affect any

joint, the most often afflicted joints are the knees, hips, spine, and hands. The prevalence of hip and knee osteoarthritis has a major detrimental impact. (10)

OA was formerly thought to be only a "wear and tear" disease. Chronic loading and poor biomechanics on the joint were thought to be the root causes of the loss of articular cartilage in the joint and the ensuing inflammation. Stiffness, edoema, and impaired movement were the results. Today, it is recognised that OA is a much more intricate process made up of metabolic and inflammatory elements. The part of the body that manifests OA most obviously is the cartilage in the joints, which degrades significantly throughout the course of the disease. Articular cartilage is the term for the smooth cartilage that may be found within intervertebral discs and at the ends of long bones. It can move heavy loads and provides an articulating surface with less friction. even if the collagen's half-life in cartilage.(11)

The research found that in every Sf-36 questionnaire dimension, those with arthritis who received a doctor's diagnosis had considerably worse HRQOL than people without arthritis. In our research, we discovered that arthritis lowers quality of life since it interferes with everyday activities and places many restrictions on a person's way of life. People with arthritis exhibited poorer HRQOL than those without the illness, according to a previous research.(12)

Out of all the SF-36 groupings in this research, Physical functioning, role restriction due to physical health, role limitation due to emotional difficulties, and energy and tiredness were the aspects of this condition that were most significantly affected (arthritis). All of the SF-36 domains were dramatically worsened, according to a prior research. The SF-36 subgroups of role constraint, role affective, vitality, and social functioning were most negatively impacted. The SF-36 scores of women were lower than those of men. Low socioeconomic status and little educational attainment were substantially associated with lower SF-36 scores.(13)

385 participants in this research were watched for a mental health evaluation. A question on emotional issues was included for this reason, and the results showed a mean of 10.64. This demonstrates how mental health issues are a fundamental and connected cause of illness, with poor poverty having an impact on physical health. Another research found that the emotional problems were the main factors influencing the mental wellbeing component, which was more impacted than the physical wellbeing component (22.7 percent). Income and the physical component were positively correlated. While the mental aspect showed a bad correlation with the severity of the illness. The physical aspect was positively correlated with the severity of the illness.(14)

In a study including 3664 people, twelve common musculoskeletal diseases were assessed. The results showed that persons without any musculoskeletal problems (n=1888; results) had a higher quality of life than those with musculoskeletal diseases (n=1776). Lower scores were seen for every SF-36 component. Again, across all SF-36 questionnaire categories, fibromyalgia, hip

osteoporosis, osteoporosis, and rheumatoid arthritis were shown to have the lowest scores. Additionally, on the EQ-5D dimensions, those with musculoskeletal conditions reported more health problems than people without such conditions.(15)

CONCLUSION

The study's results show that people with hip osteoarthritis have considerably worse quality of life. The most impacted SF-36 categories were physical functioning, role limits based on physical health, role restrictions based on emotional difficulties, pain, and general health. In order to ensure a better recovery, reintegration into society, and restoration of a better QOL, research recommends that practitioners should take into account all of these factors throughout the treatment process, when developing the rehabilitation programme, and after the discharge of these patients. There should be more research done on recovery strategies. The participants in the research must have hip osteoarthritis.

Conflict of interest: There was no any conflict of interest.

Funding disclosure: No any type of funding, it was a project research thesis of doctor of physical therapy.

Data Availability: Data will be provided on the demand by corresponding author.

REFERENCE

1. Karimi M, Brazier J. Health, health-related quality of life, and quality of life: what is the difference? Pharmacoeconomics. 2016;34(7):645-9.
2. Aresti N, Kassam J, Nicholas N, Achan P. Hip osteoarthritis. BMj. 2016;354.
3. Johnston SA. Osteoarthritis: joint anatomy, physiology, and pathobiology. Veterinary Clinics of North America: Small Animal Practice. 1997;27(4):699-723.
4. Iidaka T, Horii C, Muraki S, Oka H, Kawaguchi H, Nakamura K, et al. Trends in prevalence of hip osteoarthritis over a 10-year period in Japan: The ROAD study 2005–2015. Osteoarthritis and Cartilage Open. 2022;4(3):100285.
5. Zhang Y, Jordan JM. Epidemiology of osteoarthritis. Clinics in geriatric medicine. 2010;26(3):355-69.
6. Abhishek A, Doherty M. Diagnosis and clinical presentation of osteoarthritis. Rheumatic Disease Clinics. 2013;39(1):45-66.
7. Zampogna B, Papalia R, Papalia GF, Campi S, Vasta S, Vorini F, et al. The role of physical activity as conservative treatment for hip and knee osteoarthritis in older people: a systematic review and meta-analysis. Journal of clinical medicine. 2020;9(4):1167.
8. Tan SS, Teirlinck CH, Dekker J, Goossens LM, Bohnen AM, Verhaar JA, et al. Cost-utility of exercise therapy in patients with hip osteoarthritis in primary care. Osteoarthritis and cartilage. 2016;24(4):581-8.
9. Bartels EM, Juhl CB, Christensen R, Hagen KB, Danneskiold-Samsøe B, Dagfinrud H, et al. Aquatic exercise for the treatment of knee and hip osteoarthritis. Cochrane Database of Systematic Reviews. 2016(3).

10. Regnaux JP, Lefevre-Colau MM, Trinquart L, Nguyen C, Boutron I, Brosseau L, et al. High-intensity versus low-intensity physical activity or exercise in people with hip or knee osteoarthritis. Cochrane Database of Systematic Reviews. 2015(10).
11. Abramoff B, Caldera FE. Osteoarthritis: pathology, diagnosis, and treatment options. Medical Clinics. 2020;104(2):293-311.
12. Furner SE, Hootman JM, Helmick CG, Bolen J, Zack MM. Health-related quality of life of US adults with arthritis: analysis of data from the behavioral risk factor surveillance system, 2003, 2005, and 2007. Arthritis care & research. 2011;63(6):788-99.
13. Ibn Yacoub Y, Amine B, Laatiris A, Hajjaj-Hassouni N. Health-related quality of life in Moroccan patients with rheumatoid arthritis. Clinical rheumatology. 2012;31(10):1471-7.
14. Alrushud AS, El-Sobkey SB, Hafez AR, Al-Ahaideb A. Impact of knee osteoarthritis on the quality of life among Saudi elders: A comparative study. Saudi Journal of Sports Medicine. 2013;13(1):10.
15. Beaudart C, Biver E, Bruyère O, Cooper C, Al-Daghri N, Reginster J-Y, et al. Quality of life assessment in musculo-skeletal health. Aging clinical and experimental research. 2018;30(5):413-8.

AUTHORS

First Author: Usman Iftikhar *, DPT, University Institute of Physical Therapy, University of Lahore, Punjab, Pakistan. usmaniftikhar786000@gmail.com, https://orcid.org/0000-0003-0250-8898

Second Author: Farooq Islam, PhD (Scholar), HOD/Assistant Professor, Department ofRehabilitation Sciences, University of Chenab, Gujrat, Punjab, Pakistan. farooq.islam@uipt.uol.edu.pk

Third Author: Faisal Shahbaz, Medical officer,Tehsil Head Quarter (THQ) Daska,Email:faisalsian143@gmail.com

Fourth Author: Gulraiz Enderyas , Clinical Lecturer ,Department of Physical Therapy, University of Chenab,Gujrat, Email:gulraizpt@gmail.com

Fifth Author: Asim Raza, PhD (Scholar Public Health), M.Phil. (Epidemiology and PublicHealth), M.Sc. (Biostatistics), Assistant Professor (Epidemiology and Biostatistics), Allied Health Sciences, University of Chenab, Gujrat , Punjab, Pakistan. asimrazathakur@gmail.com, http://orcid.org/0000-0002-7667-1869

Sixth Author: Sobia Azam, DPT, University Institute of Physical Therapy, University ofLahore, Punjab, Pakistan.Email: sobiaazam50@gmail.com

[1]**Corresponding Authors:** Usman Iftikhar, usmaniftikhar786000@gmail.com +92-312-4189958.

Running Title: QOL in patients with hip osteoarthritis