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Original Article

Assessment of Quality of Life in Patients with Knee Osteoarthritis

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ABSTRACT

Background: Knee osteoarthritis (OA) is a prevalent degenerative musculoskeletal disorder that significantly impairs the quality of life (QoL) of affected individuals, primarily impacting their physical capabilities and emotional well-being. Understanding the factors contributing to the quality of life in knee OA patients is crucial for developing effective management strategies.

Objective: This study aims to ascertain the quality of life in patients suffering from knee osteoarthritis, emphasizing the role of demographic factors, physical limitations, and educational levels in influencing patient outcomes.

Methods: A cross-sectional survey was conducted among 100 patients diagnosed with knee osteoarthritis, recruited from the Pakistan Society for the Rehabilitation of the Disabled (PSRD) over a four-month period. Participants were selected using a convenient sampling technique, with inclusion criteria set for individuals aged between 40 and 70 years who had a medical diagnosis of knee OA and were willing to sign the consent form. Data were collected through the AIMS-2 SF questionnaire and analyzed using SPSS version 25.0, focusing on demographic details, physical abilities and limitations, and overall quality of life scores.

Results: The study population comprised 84% females and 16% males, with a significant portion having an intermediate level of education (35%). The quality of life scores indicated a poor to fair level of QoL among participants, with mean scores slightly below the borderline for being considered 'fair.' Physical limitations were significant, with 44% of participants experiencing difficulty in performing heavy physical activities daily and 36% facing challenges in walking or climbing stairs. Educational level emerged as a crucial factor, with lower educational attainment associated with poorer functional performance and quality of life.

Conclusion: The findings highlight a predominantly poor to fair quality of life among knee OA patients, influenced significantly by gender, physical limitations, and educational levels. The study underscores the need for targeted interventions focusing on awareness, lifestyle modifications, and patient education to improve the quality of life in this population.

Keywords: Knee osteoarthritis, Quality of life, Physical limitations, Educational level, Cross-sectional survey, Pakistan.

INTRODUCTION

Degenerative disorders of the musculoskeletal system represent a significant health burden in our rapidly aging society, with knee osteoarthritis (OA) standing out as a particularly prevalent condition. This age-related disorder is characterized by a progressive loss of articular cartilage, leading to increased functional impairments, pain, disability, and a consequent decrease in the quality of life (QoL) of affected individuals (2). It is estimated that approximately 10% of the population over the age of 60 years suffers from this condition (3), and projections suggest that the prevalence of knee OA is expected to increase by 40% by the year 2025 (4). Several factors contribute to the progression of knee OA, including the age of the individual, sex, injury, repetitive use, and genetic predisposition. The synovial membrane is among the major structures affected by the degenerative processes of OA, which typically begins with the deterioration of the articular cartilage and gradually impacts other joint-related structures, leading to chronic inflammation, synovial membrane inflammation, bony spur formation, decreased joint space, and bone remodeling (6).

The impact of OA on individuals extends beyond physical health, affecting activities of daily living (ADLs), relationships, leisure time, and quality of sleep, thereby significantly diminishing their QoL (7). Given the insidious nature of knee OA, which often remains

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asymptomatic in many patients, diagnosing the condition can be challenging, with radiographic imaging showing low sensitivity (8). The classification of OA severity by Ahlback, which divides the condition into mild and moderate (grades 1, 2, and 3) and severe (grades 4 and 5), helps guide the management approach, indicating conservative management for the former and non-conservative strategies for the latter (9). The World Health Organization defines QoL as an individual's perception of their position in life, in the context of the culture and value systems in which they live, in relation to their goals, expectations, standards, and concerns (11). This broad concept encompasses various domains, including health and wellness, functioning and physical, psychological, mental, social, and sexual performance (12).

The relevance of QoL assessments in patients with knee OA cannot be overstated, as it serves as a crucial endpoint in disease management, especially in palliative care settings or when dealing with severely ill patients. The aim of treatment in such contexts is not only to alleviate symptoms but also to enhance overall QoL (13). Patients with knee OA, particularly those with additional risk factors such as a history of cancer, cardiovascular disease, diabetes, or walking impairments, exhibit a higher mortality rate compared to the general population (14). The significance of QoL extends across various fields, including international development, healthcare, politics, and employment, reflecting the comprehensive impact of degenerative diseases on modern society. With the aging population, there is an increasing focus on maintaining strength, autonomy, and the ability to participate in daily activities among the elderly, underscoring the importance of QoL in this demographic (16).

A literature review by Marcio Massao Kawano and colleagues in 2015 highlighted the disparities in QoL among patients with knee OA, noting a significant difference between active and retired individuals, with a majority of the study subjects being retirees (17). This study also confirmed the higher prevalence of knee OA among women, a finding consistent with other research, although it did not find a significant difference in QoL outcomes between genders (18). Most patients diagnosed with knee OA were over 60 years of age, and the disease adversely affected their efficiency, work rate, and treatment costs (13). A critical outcome of this research was the identification of statistically significant differences in QoL domains, such as participation capacity, pain, and functional restrictions, providing evidence of OA's negative impact on patients' lives (19). Low educational levels were strongly associated with disability and reduced QoL, suggesting that education could be an independent factor influencing physical performance in this patient population (5, 17).

Given the high prevalence of osteoarthritis among the Pakistani population and the scarcity of medical services, there is a pressing need to improve the QoL of patients suffering from this condition. Physical therapy and other treatments can significantly enhance QoL, highlighting the importance of conducting further research in this area to develop national guidelines for osteoarthritis management. Despite the global burden of knee OA, there has been limited research on this issue in Pakistan, indicating a gap in knowledge that needs to be addressed to better understand and improve the QoL of patients with osteoarthritis. This study aims to ascertain the QoL in patients with knee OA, providing a foundation for future investigations and interventions in this field.

MATERIAL AND METHODS

In the investigation aimed at assessing the quality of life in patients afflicted with knee osteoarthritis, a cross-sectional survey methodology was employed, focusing on participants recruited from the Pakistan Society for the Rehabilitation of the Disabled (PSRD). The study spanned a period of four months, during which data were meticulously gathered and analyzed to gain insights into the impact of knee osteoarthritis on the quality of life among the targeted demographic.

The selection of participants was carried out using a convenient sampling technique, which aimed to include a total of 100 individuals diagnosed with knee osteoarthritis. The study's target population comprised patients between the ages of 40 and 70 who had been medically diagnosed with knee osteoarthritis and who expressed their consent to participate by signing the consent form. The inclusion criteria were specifically designed to ensure a homogeneous study group that would provide relevant and reliable data pertinent to the research objectives.

However, certain exclusion criteria were established to maintain the integrity of the study results. These criteria included patients who had any cognitive or mental impairments, individuals with a history of knee surgery or those recommended for such surgery, and patients suffering from other diseases of the osteoarticular system (such as rheumatoid arthritis, metabolic bone diseases, or other degenerative disorders) that could potentially confound the impact on the quality of life assessments.

Data collection was conducted using the AIMS-2 SF questionnaire, a validated tool for assessing the quality of life in patients with musculoskeletal conditions. The questionnaires were distributed as handouts at the selected hospital, ensuring that each participant had the opportunity to provide their input in a structured and consistent manner.

Ethical considerations were paramount throughout the study, with all procedures being conducted in accordance with the Declaration of Helsinki. Prior to commencement, the study received approval from the institutional review board (IRB) of the PSRD,

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guaranteeing that all ethical guidelines, including informed consent and the right to withdraw from the study at any point, were strictly adhered to.

The analysis of the collected data was performed using SPSS version 25.0, enabling a comprehensive statistical examination of the responses. This analytical approach facilitated the identification of patterns and correlations between knee osteoarthritis and quality of life metrics, thereby contributing valuable insights into the extent of the disease's impact on affected individuals.

RESULTS

In this study assessing knee osteoarthritis's impact on quality of life, a significant gender disparity was observed with a female majority of 84% compared to 16% male participants (Table 1). Educational backgrounds varied, with 35% having intermediate education, 29% graduation, and a small fraction, 1%, reaching post-graduation levels.

Physical limitations due to osteoarthritis were notable. Transportation use varied, with 39% managing on most days and 55% on some days, indicating significant mobility challenges (Table 2). Daily activities such as sitting or lying were less affected, yet 44% experienced daily difficulties with heavy physical activities, and 36% reported daily challenges in walking or climbing stairs.

The disease's impact on quality of life was profound. Intense arthritis pain was reported daily by 43% of participants, and morning stiffness affected 59% on most days (Table 3). Sleep disturbances due to pain were reported by 43%, underlining the pain's extensive effect on life quality. Emotional well-being was also impacted, with 46% feeling highly irritated or tensed every day, showcasing the broad scope of osteoarthritis's effects on daily life and well-being.

Table 1: Demographic and Educational Background

Variable	Frequency	Percent (%)
Gender		
Male	16	16.0
Female	84	84.0
Level of Education		
Matric or Below	27	27.0
Intermediate	35	35.0
Graduation	29	29.0
Post-Graduation	1	1.0
PhD or Higher	8	8.0

Table 2: Physical Abilities and Limitations

Ability/Limitation	Most Days (%)	Some Days (%)	Few Days (%)	No Days (%)	All Days (%)
Ability to Use Transport	39	55	3	3	-
Being in Sitting or Lying Position	46	51	1	-	2
Difficulty in Performing Heavy Physical Activities	45	8	3	-	44
Difficulty in Walking or Climbing Stairs	23	39	2	-	36
Inability to Walk Without Assistance	-	48	41	3	-
Difficulty in Writing	41	48	11	-	-
Buttoning a Shirt	39	47	14	-	-
Turning Key in a Lock	-	41	59	-	-
Combing or Brushing Hair	48	48	4	-	-
Reaching Shelves Above Head	36	48	16	-	-
Need Help in Dressing	16	43	41	-	-
Getting Out of Bed	13	47	40	-	-

Table 3: Quality of Life Indicators

Indicator	Most Days (%)	Some Days (%)	Few Days (%)	No Days (%)	All Days (%)
Intense Pain from Arthritis	51	6	-	-	43
Morning Stiffness > 1 Hour	59	32	9	-	-
Difficulty in Falling Asleep Due to Pain	38	14	5	-	43

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Indicator	Most Days (%)	Some Days (%)	Few Days (%)	No Days (%)	All Days (%)
Feeling Highly Irritated or Tensed	40	7	7	-	46
Getting Irritated or Nervous	37	37	-	-	26
Feeling Down Spirited	34	41	-	-	25
Feeling of Joy	-	42	56	2	-
Feeling of Burden to Others	18	23	27	16	16
Engaging with Friends or Family	13	22	29	19	17
Participation in Group Meeting	16	17	32	15	20
Sensitivity Towards Personal Necessity	28	23	20	19	10
Inability to Do Paid Work	35	32	33	-	-
Ability to Work for Shorter Day	33	32	35	-	-

Table 4: General Quality of Life Scores

Indicator	Mean	Std. Deviation
Age	56.37	7.079
Total Score of QoL Scale for OA	70.48	6.116
Percentage of QoL in OA Patients	54.23	4.712

Overall, the mean age of participants was 56.37 years, with quality of life scores averaging at 70.48 on the osteoarthritis scale, translating to a 54.23% quality of life percentage among patients (Table 4). These findings highlight the profound impact of knee osteoarthritis on physical abilities, emotional state, and overall quality of life in the studied population.

DISCUSSION

In this study, the gender disparity observed, with a predominant female representation (84%) compared to males (16%), presents an intriguing contrast to the majority of worldwide studies where the ratio is either reversed or at least equal. This deviation may stem from a potential bias introduced during the data collection phase, facilitated by female investigators, which might have inadvertently influenced the higher representation of female participants. The quality of life (QoL) scores reported were notably below the midpoint of the total maximum score, indicating a poor quality of life among the patients. However, given the scores' proximity to the borderline, a cautious interpretation could suggest that patients hover on the edge of a fair QoL. Despite this, the scores remained unsatisfactory, marking a significant finding when compared to other studies where the reported QoL was higher, albeit still characterized as deteriorated.

The linkage between educational levels and the functional performance of patients emerged as a notable predictor, echoing the findings of prior research (5, 17). The association between lower educational attainment and a higher prevalence of knee osteoarthritis has been well-documented, with studies such as Alkan et al. demonstrating that approximately 70% of subjects with low education levels experience a poor quality of life (7). This correlation is further exacerbated by the demographic characteristic of the study population, predominantly aged above 60 years, where symptoms significantly impact efficiency, work rate, and treatment costs (13).

The study's critical insights into the domains of QoL, including participation capacity, pain, and functional restrictions, underscore the profound negative impact of osteoarthritis on patients' lives. The lack of comprehensive knowledge on the prevention and treatment of osteoarthritis, alongside the potential risk posed by work-related activities, suggests an urgent need for targeted interventions (19). Despite the cross-sectional nature of this study limiting the comparison of other potential risk factors such as BMI, occupation, and physical activity levels, the findings highlight the significant role of educational level in managing the disease's progression and mitigating its impact on quality of life (22).

The study concludes with a recognition of the generally poor to fair quality of life among osteoarthritis patients, primarily female, with mean scores just below the threshold for a 'fair' designation. Given these outcomes, the study advances several recommendations aimed at improving the quality of life for individuals with osteoarthritis. These include the initiation of awareness campaigns targeting middle-aged populations on preventive strategies, leveraging social and electronic media to promote healthy lifestyles, incorporating healthcare issues into higher education syllabuses as a preparatory measure for age-related disabilities, and emphasizing patient education on lifestyle adjustments to enhance quality of life despite disabilities.

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CONCLUSION

This study acknowledges several limitations, including challenges in conveying the study's objectives to patients, difficulties in navigating bureaucratic approvals for patient engagement, and the homogeneity of the socioeconomic status among participants. These factors suggest the need for further research encompassing a broader demographic to fully understand osteoarthritis's impact on quality of life and to validate the study's findings and recommendations.

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