



Assessing the Impact of Knee Osteoarthritis on Elderly Women's Daily Activities in Peshawar, Pakistan: A Cross-Sectional Study

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A B S T R A C T

Background: Osteoarthritis is the most common source of pain in aging population, affecting 43% of individuals aged 65 and older, with women accounting for 62% of those affected.

Objective: To assess the impact of knee osteoarthritis (OA) pain on the ability of elderly women in Peshawar to perform daily activities.

Methodology: The study was carried out in a tertiary care hospital. A total of 250 women were selected for this study using a non-probability consecutive sampling method. The study involved women aged 65 or older who had been diagnosed with knee OA for at least one year. Exclusion criteria comprised serious or functionally impairing health conditions other than knee OA, such as carcinoma, heart disorder, or COPD. Data was collected through the Katz scale, an interview questionnaire, and the Visual Analog Scale (VAS).

Results: The results show that 59.4% of the aged women had been experiencing knee joint issues for less than five years. 30.4% of elderly women who have knee pain described the pain as moderate, and 69.6% reported severe pain. Additionally, when it came to dressing, 71.5% of the participants required supervision. The impact of knee OA was widespread, with all participants (100%) reporting impaired physical activity, over 91.4% experiencing fatigue, and 72.1% reporting anxiety and 71.1% faced limited social engagement.

Conclusion: Knee OA pain in elderly women significantly affects their social, psychological, and physical well-being.

Keywords: Knee Osteoarthritis, Social, Psychological, Physical

Introduction

The most prevalent form of pain associated with aging is osteoarthritis (OA), affecting 88% of adults over the age of 45 and 43% of those aged 65 or above. The highest incidence of knee OA occurs in the 55-64 age range each year, with the average is below 65 years. Women have a higher incidence rate of OA than men, comprising 62% of those with the condition, though men are more prone to develop OA than women before the age of 45.¹⁻³ Knee OA can be classified as either primary or secondary, depending on the underlying cause. The breakdown of articular cartilage, which

is often associated with age and normal wear and tear, is caused by unknown factors that result in primary knee OA. Secondary knee OA, on the other hand, results from cartilage degeneration due to known causes.⁴⁻⁶

Modifiable risk factors for knee OA comprise joint injury, profession, sustained standing, recurrent knee winding, muscle weakness, body weight, and disorders like metabolic syndrome. Non-modifiable factors include ethnicity, age, gender (with a higher prevalence in females), and genetics.⁷⁻⁹ Secondary knee OA can result from a variety of factors, such as post-trauma injuries, post-surgical alterations, genetic or

abnormal extremities, misalignments (varus/valgus), rickets etc.⁴⁻⁶

The clinical symptoms of knee OA typically include progressively worsening knee pain that is exacerbated by prolonged activity, repeated knee bending, or climbing stairs. This discomfort usually improves with rest, ice, or anti-inflammatory medications but it tends to worsen with reduced mobility, which might have a negative impact on the patient's psychological health, potentially leading to anxiety and depression.^{8,10} Common signs of OA include pain, joint rigidity & dysfunction, crepitus, changed gait, variability, and limited range of motion. Persistent knee pain is frequently the initial and most common indication of OA.¹¹⁻¹³

The justification for this study was centered on the conception that knee (OA) pain expressively affects the day-to-day activities of aged women. Previous to this study, there was no concept of in what way knee OA pain predisposed the functional ability and quality of life of aged women in this Peshawar. The aim of this study is to assess the impact of knee osteoarthritis (OA) pain on the ability of elderly women in Peshawar to perform daily activities.

Methodology

After getting approval from Ethical Review Board of the university under **Ref. No: (KMU/PMR/RB/23/105)**, this cross-sectional study was carried out at a tertiary care hospital Peshawar from February 2025 to July 2025. The sampling technique used in this study was non-probability, with 250 applicants meeting the inclusion standard. The study comprised persons aged 65 or older who had been diagnosed with knee OA for at least one year. Exclusion criteria included cognitive impairment and life-threatening or functionally limiting health conditions other than OA, such as cancer, heart disease, or COPD. The Kellgren-Lawrence grading scale, the Visual Analogue Scale (VAS) for pain evaluation, and an interview-based questionnaire about medical history were all used as data collection tools.

Interview Questionnaire: Developed by the researcher,¹⁴ this tool focuses on collecting data on the medical history of knee osteoarthritis in participants. Its main objective was to evaluate the existing medical history of knee OA in the study population

Katz Scale: Based on the original work by Katz et al.¹⁵ this scale was used to assess the independence of elderly women with knee osteoarthritis in performing Activities of Daily Living (ADL). It addressed six key areas: bathing, dressing, toileting, mobility, continence, and feeding.

Scoring System: The Katz Scale assigns a global score out of 6, where each of the six items is rated on two levels: 1 for independence without the need for supervision, guidance, or

personal assistance, and 0 for requiring supervision, guidance, personal assistance, or complete care. The resulting total scores are then categorized into functional levels: a score of 6 indicates full function, a score of 4 to 5 represents moderate impairment, and a score of 3 or less signifies severe functional impairment.

Visual Analog Scale (VAS): Adapted from Hawker et al.¹⁶ this scale was used to measure the intensity of pain. It is composed of 10-cm (100-mm) line anchor like 'No pain (0)' on the far left and 'Worst pain imaginable (10)' on the far right.

Interpretation of Scores: 0mm/ 0cm⇒ No pain, 30mm/3cm⇒ Mild pain, 50mm/5cm⇒ Moderate pain, 80-100mm/10cm⇒ Severe pain.

Data was analyzed using IBM SPSS (version 23.0). Quantitative data were presented as frequencies and percentages, while continuous data were expressed as means with standard deviations.

Results

The data on knee joint pain among older women shows that 10.5% have experienced pain for less than a year, while 9.8% have experienced it for exactly one year. A significant 39.4% have endured pain for 2 to 5 years, while the majority of 40.3% have suffered for more than 5 years. This indicates that knee pain is often chronic, with nearly 80% of elderly women experiencing it for over two years Figure 1.

According to **Figure 2**, 30.4% of elderly women who have knee pain described the pain as moderate, while a significant 69.6% suffers from severe pain. According to this, majority of elderly women experience high levels of pain.

As shown in **Figure 3**, a high percentage of older women can sustain independence in their daily activities: 93.4% can shower independently, 91.3% manage toilet use, 90.1% control output, 89.9% handle nutrition, and 89.6% are mobile. However, a percentage of just 71.5% required supervision for dressing. This suggests that elderly women may require more assistance in getting dressed, even though they may maintain autonomy in other daily tasks.

Table 1 highlights the challenges elderly women face in different areas of well-being. For physiological well-being, 100% report impaired physical activity, 91.4% experience fatigue, 61.7% struggle with insomnia, and 41.2% have restlessness. In terms of psychological well-being, 72.1% of individuals suffer from anxiety, and 43.1% have depression. Regarding social well-being, 71.1% face limitations in social engagements and 45.1% experience feelings of guilt. This indicates variety of physical, psychological, and social challenges among elderly women.

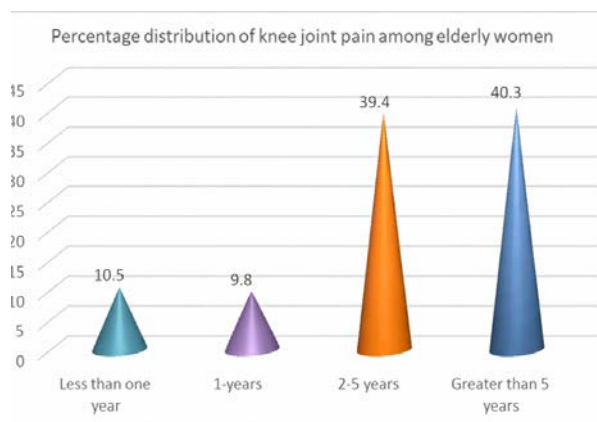


Figure 1: Percentage distribution of knee joint pain among elderly women

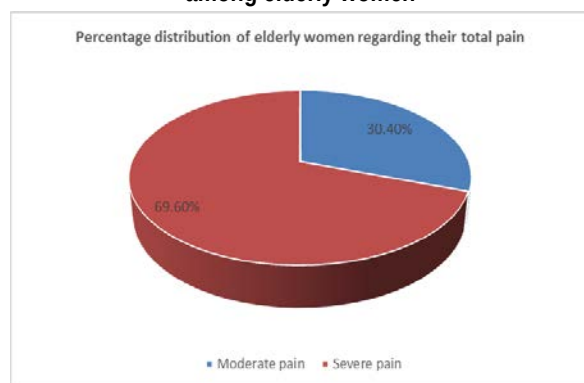


Figure 2: Percentage distribution of elderly women regarding their total pain

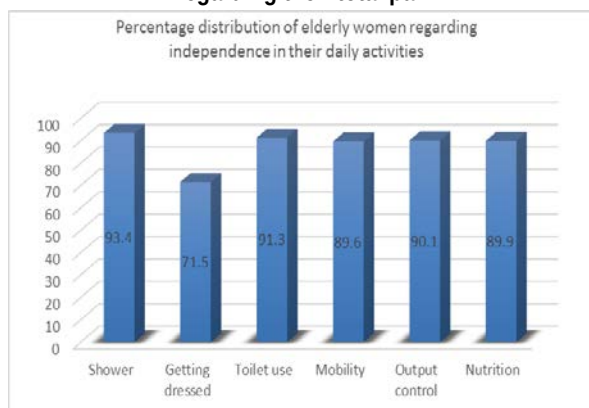


Figure 3: Percentage distribution of elderly women regarding independence in their daily activities

Table 1: Effects of women Osteoarthritis on their Physiological, Psychological, Social wellbeing		
	Variables	Percentage
Physiological wellbeing	Fatigue	91.4
	Insomnia	61.7
	Restlessness	41.2
	Impaired Physical Activity	100
Psychological wellbeing	Depression	43.1
	Anxiety	72.1
Social wellbeing	Feeling guilt	45.1
	Limit social participation	71.1

Discussion

The current study found that nearly half of the elderly women with osteoarthritis (OA) experienced moderate functional impairment, which hindered their independence in daily tasks. About half of the participants were able to dress without needing assistance or guidance. This may be due to traditional family structure in the region where social and cultural norms play an important role in shaping older women daily activities and response to disability. Fatigue, which can significantly affect daily activities and overall quality of life, is probably a major contributor to these results and an important element in chronic OA diseases. Fatigue in arthritis often results from a combination of the disease itself, psychological distress, and medication use.^{14, 15, 17}

The research also showed that most participants suffered from disabilities, lack of energy, and insomnia as a result of their OA, which had negative effects on their physical well-being. These outcomes may be related to the fact that OA, a chronic systemic inflammatory condition that predominantly targets synovial joints and cartilage degeneration, resulting in decreased functional capacity and impairment.¹⁴

These outcomes are reliable with former studies, such as by Mirzaei et al., who concluded that OA can impact numerous body organs, growing disease and mortality counts.¹⁸ Jeihooni et al. underlined that physical activity is vital for persons with OA, highlighting that OA strictly limits physical activities. They suggested that physical activities, a key involvement for OA.¹⁹

The study also exposed that maximum women suffered fatigue, which is naturally a physical outcome of OA. This may be described by the assumption that fatigue is caused by IL-6 initiation of the HPA axis in the nonappearance of adequate cortisol production.^{14, 19} Fatigue is mutual in all Rheumatic and Musculoskeletal Disorders (RMDs), conferring to Pope (2020), with 41-80% of individuals with OA presenting substantial fatigue.²⁰ Likewise, El-Sayed and Hassanein (2021) saw a high frequency of fatigue among women with OA, fibromyalgia, and axial spondyloarthritis, ranging from 40% to 76%. These outcomes support with the current work on the effect of OA and related conditions on fatigue and physical well-being.²¹

Sleep instabilities are regular in individuals with chronic disorders like (OA). This might be due to the strong

association between meager sleep quality and different factors like pain, mood variations, fatigue, stress, and disease. Obstructive sleep apnea, insomnia and restless legs syndrome are familiar sleep complaints in person with (OA).¹ Stlind et al. concluded that 72% of 100 OA patients underwent from sleep troubles, which back these outcomes.²² A current study by Abdelaleem et al. comprising 305 patients determined that insufficient OA treatment is related with low sleep quality, perhaps as a effect of pain-related arousals.²³

Osteoarthritis can also have important psychological consequences, as chronic pain and increasing impairments can lead to mood swings, depression, and anxiety. The present study establishes that the bulk of the women in the study faced a significantly negative result on their psychological health due to knee OA. This may be attributed to the involvement of multiple psychosocial elements, as well as the chronic and progressive nature of OA. Although there is no cure for OA, available treatments may help slow the progression of the disease.¹⁴

These findings align with those of Saffari et al., who found that many OA patients experience stress due to reduced mobility, increased disability, and loss of independence.²⁴ OA patients are especially vulnerable to social and relational issues, financial hardships, job loss, and depressive symptoms. Depression and sleep disturbances may be caused by pain and limitations of OA.¹⁹

Knee osteoarthritis can be diagnosed through physical examinations, X-rays, and lab tests. Although there is no cure for OA, symptomatic management involves treatments like increased physical activity, muscle-strengthening exercises, weight loss, medications, assistive devices like crutches or canes, and surgery when other treatments fail.²⁵

A considerably negative effect on the social position of bulk of the women was perceived in this study, proposing that it might disturb domestic dynamics, cultural prospects and gender characters, as well as limit social and trained input and make challenges in everyday life.¹⁴

These outcomes are constant with those of Srour and Saad, who exposed that knee OA had a damaging effect on the social measurement of the study people. They witnessed that depend on others for everyday responsibilities can result in a loss of individuality and self-support, which may generate feelings of guilt and awkwardness.²⁶ To define whether the

lessened participation and dependence on others headed to such emotions, investigators in the Netherlands associated persons with and without OA.²⁷

This study reports a serious knowledge breach in South Asian musculoskeletal epidemiology by centering on elderly women in Peshawar, Pakistan who are understated in OA research.

Furthermore, we did not control for common comorbidities such as diabetes and hypertension, which are highly prevalent in the Pakistani female population and can independently influence pain perception and functional capacity. Their potential confounding effect on our outcomes should be addressed in future studies.

We used the Katz Index to assess basic Activities of Daily Living. Future studies could employ disease-specific tools like the WOMAC (Western Ontario and McMaster Universities Osteoarthritis Index), which provides detailed sub-scores for pain, stiffness, and physical function, offering a more sensitive measure of OA-related disability.

Conclusion

The study concluded that a large number of aged women with knee OA often maintain independence in day-to-day activities despite significant pain. However, the pain they tolerated had a substantial effect on their whole well-being, heading to prominent challenges in their social interfaces, mental health, and physical abilities.

Conflict of Interest: None

Funding Sources: None

Data Availability Statement: The datasets generated and/or analysed during the current study are not publicly available due to ethical, legal, and participant confidentiality considerations but may be available from the corresponding author upon reasonable request, subject to institutional approval where applicable.

Disclaimer: We as authors want to declare that we used AI-assistant tools in this article for improving language. We authors are fully responsible for the accuracy, originality, integrity, and scientific validity of this article.

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Author's contribution: ¹⁻⁴ Substantial contributions to the conception or design of the work for the acquisition, analysis or interpretation of data for the work. ⁴⁻⁸ Drafting the work or reviewing it critically for important intellectual content, ¹⁻⁸Final approval of the version to be published, agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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