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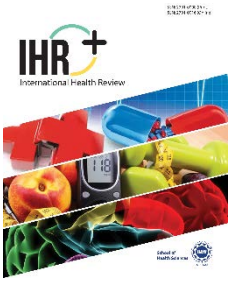

Title: **Comparison of Functional Disability in Patients of Knee Osteoarthritis (KOA), among Rural and Urban KOA Patients**

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Comparison of Functional Disability in Patients of Knee Osteoarthritis (KOA), among Rural and Urban KOA Patients

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ABSTRACT

Osteoarthritis (OA) is a chronic multifactorial disease that leads to progressive functional disability. The objective of the current research was to compare the functional disability in patients of Knee Osteoarthritis (KOA), among rural and urban KOA patients. A total of n=104 participants were recruited through non-probability convenient sampling technique from different rural and urban areas of Lahore, Pakistan. Participants with diagnosed osteoarthritis of both genders with age range 40-55 were included in the study. Those who had medical issues other than KOA or recent history of trauma or any fracture were excluded from this study. Knee Injury and Osteoarthritis Outcome Score (KOOS) was used as data collection tool. The data was analysed by using SPSS. 22. The mean age of participants was 47±3.45 years And 3.45. In the current study, 24% participants were male and 76% were females. The study showed 2.23±1.07 in difficulty of life in rural areas and 2.28±.99 in urban areas. The rate of KOA in urban populations was determined to be higher. They showed significantly more symptom severity as compared to rural patients with KOA. Symptom severity tends to affect their activities, such as sports, daily living activities, and also compromises the quality of life significantly more than the rural targeted population.

Keywords: activities of daily living (ADLs), chronic multifactorial disease, knee osteoarthritis (KOA), quality of life (QoL)

Introduction

Osteoarthritis (OA) is a chronic multifactorial disease that leads to progressive functional disability. The pain related to osteoarthritis of the

knee not only contributes to functional limitations and reduced quality of life, however, it is also the leading cause of impairment of mobility [1].

OA is a degenerative joint disease that occurs due to loss of cartilage, bone hypertrophy, and formation of osteophytes. These degenerative changes contribute as severe pain, soft tissue tenderness, effusion, crepitus, and activity limitation [2]. The medial side of knee joint is more prone for degenerative changes, because of increased transtibial loading along medial side during movement. The most common risk factors for osteoarthritis include female gender, older population, any previous injury of joint, and decreased muscle strength [3].

The two main prognostic features of OA are chronic pain and joint activity limitation. OA is pragmatically constructed as a disease of functional decline and joint instability [4]. Patients with OA have history of swelling and pain in anterior compartment of knee and limited flexion of joint. The researchers believe that anterior surface of knee joint is more involved during any kind of activity [5].

Knee joint loading continuously vary in ascending and descending stairs. Patients with knee osteoarthritis (KOA) experience the restricted external flexion of knee during stair ascending. On the other hand, it may be analysed that transtibial loading in the medial knee compartment with ascending or descending increases. It is a primary risk factor for progression of OA [6, 7].

It is not much clear that the act of walking protects the functional decline among OA patients or not. However, the current study concluded that there is significant association among walking and functional status of OA patients. Walking and functional activities protect from the functional limitations or functional decline [8, 9].

Knee pain is a basic symptom of OA. Patients with OA experience severe knee pain during gait cycle. Furthermore, this study explained that patients with OA have moderate to severe level of knee pain, especially in mid stance phase of gait cycle and flexion of knee. Knee pain worsens with increasing malalignment with respect to increasing chronicity of disease [10].

Recent research highlighted the importance of proprioception in knee OA cases. There was a significant relation among the impaired proprioception,

activity limitation, and knee pain [11]. The exact mechanism of proprioception is still source of controversy [12, 13].

It would help the therapist and caregiver to maintain functional disability, recreation, sports, and daily activities. It would also help to improve the QoL in patients with KOA. The purpose of the current study was to compare functional disability in patients of knee osteoarthritis (KOA), among rural and urban KOA patients.

Material and Methods

A comparative cross sectional design was used in the current study to collect the data from target population. The patients were recruited on the basis of inclusion and exclusion criteria.

Duration of Study

This study was completed in approximately four months after getting approval from Azra Naheed Medical College advanced research committee.

Sample Size

The data was collected from 104 patients of OA out of total estimated population with knee osteoarthritis 20000 by using PASS software.

Sampling Technique

Non-probability convenience sampling technique was used in the data collection procedure.

Inclusion and Exclusion Criteria

Patients diagnosed with knee osteoarthritis (KOA), from the age 40 to 55, males and females along with those who voluntarily participated were included in the current study, while those who had disorders other than KOA (regional pain syndrome, accident, fracture, muscular atrophy and psychological disorders).

Data Collection Procedure

The data was collected by a survey using different variable for regression logic. The data collecting tools comprised consent form and KOOS knee survey .

Results

Table 1. Males and Females Having KOA in Rural and Urban Areas

		Gender		
		Male	**Female**	**Total**
City	Rural	15	60	75
	Urban	9	20	29
Total		24	80	104

Researcher collected data from patient of KOA in which 24% were male and 76% were females.

Table 2. Comparison between Urban and Rural KOA Patients

		Rural	Urban	p-value
		Mean±SD	**Mean±SD**	
Symptoms	Swelling	3±.90	2.97±.77	.85
	Grinding	1.81±1.14	1.93±1.13	.63
	Catching	1.25±1.05	.93±.92	.15
	Straightening	2.44±1.14	1.93±1.30	.05
	Bending	2.12±1.27	1.83±1.51`	.32
Stiffness	Morning stiffness	2.01±.89	1.97±.77	.80
	After work	1.95±.91	1.90±.81	.79
Pain	Severity of pain	1.95±.99	2.21±1.08	.24
	Pain in twisting	1.61±.97	1.76±.73	.46
	Pain in straightening	1.92±1.05	1.83±1.10	.69
	Pain in bending	1.87±1.03	1.86±1.12	.98
	Pain in stairs	1.56±.88	1.52±.78`	.82
	Pain at night	.80±.83	.66±.67	.40
	Pain in sitting	.88±.82	.86±.74	.91
	Pain in standing	2.01±.87	1.69±.89	.09
	Pain in walking	1.08±.86	.90±.77	.32
Adls	Descending stairs	1.91±1.02	1.76±1.09	.51
	Ascending stairs	1.49±.90	1.10±.77	.04
	Rising from sitting	1.96±.87	1.93±.65	.87
	Standing	1.27±.99	1.17±1.03	.66

		Rural	Urban	p-value
		Mean±SD	Mean±SD	
	Bending to floor	1.09±.91	.97±.62	.49
	Walking	.60±.59	.45±.50	.22
	Car usage	.97±.61	1.00±.75	.85
	Shopping	2.37±.95	1.83±1.10	.01
	Putting socks	.72±.70	.66±.61	.66
	Bathing	1.37±.81	1.10±.72	.12
	Sitting	1.80±.71	1.69±.71	.48
	Toileting	2.03±.82	1.90±.93	.48
	House hold works	2.60±.91	1.83±1.10	.00
Recreation	squatting	1.60±.83	1.28±.75	.07
	Running	2.87±.97	2.24±.91	.00
	Jumping	2.96±1.04	2.41±.94	.01
	Twisting	2.56±.93	2.14±.95	.04
	kneeling	2.36±.93	2.17±1.00	.37
Quality of life	Awareness	2.23±1.07	1.93±.92	.19
	Modifications	1.45±1.03	1.45±.91	.98
	Lack of confidence	1.56±.94	1.48±.94	.71
	Difficulty level	2.23±1.07	2.28±.99	.83

The one sample T.test was used to analyse the data among the urban and rural patients with KOA.

Discussion

The current study was conducted to evaluate the functional status and quality of life in patients with KOA of rural and urban region comparatively.

Knee pain is a common complication in patients with KOA. The current study deducted that the patients of KOA complained about pain whether they belonged to rural or urban population [14, 15]. This study showed 1.96±.87 rising from sitting in urban areas and 1.93±.65 in rural areas.

It is worth knowing that the functional decline may result from knee pain. The current study analysed that the functional status in patients with KOA was badly affected and the rate was significantly higher in urban population [16, 17]. Moreover, the previous research also proved that the population with low physical activity level was more prone to KOA and bad quality of

life [14, 18]. The current study showed .72±.70 putting socks in rural areas and .66±.61 in urban areas.

This study determined that the QOL and functional status declined in the population with KOA [19, 20]. Previous studies conducted on the patients with KOA focused on the symptom severity and outcome measurement with respect to age, gender, and injury [16, 21]. This was the only comparative study conducted among the rural and urban population [22]. This study showed 2.23±1.07 in difficulty of life in rural areas and 2.28±.99 in urban areas.

It was also examined that the level of recreational, daily living, and sports activities was higher among the urban population. The results also showed that the urban population has low physical activity level and another study proved that low physical activity is a primary factor for KOA [12, 23]. The results revealed squatting 1.60±.83 in rural areas and 1.28±.75 in urban areas.

It was concluded that the condition of knee joint was significantly correlated with functional status. The bad knee joint showed functional decline and this was also proved from previous study conducted by Yi Chung et al. This was also justified that position and condition of knee worsen with respect to age [16, 24, 25]. The current study showed 1.37±.81 in bathing in rural areas, while 1.10±.72 in urban areas.

This study deducted that functional decline was associated with pain severity. A previous study justified that slow worsening of pain occurs with activity limitation with the passage of time [5].

Conclusion

The severity of KOA in urban population was determined to be higher. They showed significantly more symptom severity as compared to rural patients with KOA. Symptom severity affect their activities, such as sports, daily living activities, and also compromised the quality of life, significantly more than rural targeted population.

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