

# Effect of Osteoarthritis of Knee Rehabilitation on Pain & Function on Quality of Life

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**Abstract:** ***Purpose:** Patients with knee osteoarthritis tend to increase their physical limitations, pain and functional restriction with disease progression. Thus, these individuals suffer from progressive increased impact on their activities of daily living, which leads to losses in labor relations, leisure, social life, and sleeping quality, leading also to important decrease in their quality of life.<sup>(5,6)</sup> So the need arise to measure important aspects of patients' mental, social and emotional health. Health-related quality of life is encompasses emotional, physical, social, and subjective feelings of well-being that reflect an individual's subjective evaluation and reaction to his/her illness. So purpose of the study was to see the effect of osteoarthritis of knee rehabilitation on pain &function on quality of life. Most patients with OA are assessed and treated within primary care settings. We can create the awareness in the different aspect of life and specify the way of treatment. **Methodology:** 30 subjects(15 in each group) were assessed as per the criteria. Group A - rehabilitation - Conventional physiotherapy was given in the physiotherapy clinic for 4 wks. Group B -Non rehabilitation(advice). Sf-36 and WOMAC - Outcome measures were evaluated. **Analysis:** pre and post data was analyzed by wilcoxon signed ranks test and between group analysis by mann whitney test. **Result:** There was a significant difference in Pain and Function in Non-rehabilitation group womac score where  $p<0.001$ ; and quality of life in physical component and mental component where  $p<0.001$ , **Conclusion:** The knee rehabilitation reduces the pain and improves the function and quality of life in subjects having OA knee.*

**Keywords:** Osteoarthritis knee QOL, Pain,PCS (physical componenet summary) , MCS (Mental componenet summary)

## 1. Introduction

Osteoarthritis (OA) is one of the most common causes of pain and disability in the adult population. Several studies have documented discordance between general practioners (GP) practice and management recommendations, but there is limited published information about patient reported experience of quality of care.<sup>(1)</sup> Some risk factors contribute to the appearance of the disease, such as gender, age, trauma, overuse and genetic conditions. The main tissues affected by osteoarthritis is the synovium, bone and hyaline cartilage.<sup>(2)</sup> It is a joint disease that begins with cartilage degeneration and gradually affects periarticular soft tissues and the subchondral bone, producing chronic inflammation with synovitis, osteophytosis, loss of joint space, bone remodelling and ultimately, it progresses to severe and irreversible joint destruction.<sup>(3,4)</sup>

Patients with knee osteoarthritis tend to increase their physical limitations, pain and functionality restriction with disease progression. Thus, these individuals suffer from progressive increased impact on their activities of daily living, which leads to losses in labor relations, leisure, social life, and sleeping quality, leading also to important decrease in their quality of life.<sup>(5,6)</sup>

In addition to pharmacological and surgical therapies, nonpharmacological therapies, including, referral to a physical therapist, aerobic, muscle strengthening and water-based exercises,weight reduction, walking aids, knee braces, footwear and insoles, thermal modalities, and transcutaneous electrical nerve stimulation or acupuncture, are of primary importance in the management of osteoarthritis.<sup>(7)</sup>

Thus, an important outcome to be evaluated in patients with knee osteoarthritis is the quality of life of these individuals. Normally, quality of life is evaluated as the impact the disease causes to the subject.

According to the World Health Organization, "quality of life" is described as an individual's perception of his/ her position in life in the context of the culture and value systems in which he lives and in relation to his goals, expectations, standards and concerns.<sup>(8)</sup>

## 2. Aim

To find the effect of rehabilitation on pain & function on quality of life in subjects with knee osteoarthritis.

## 3. Objectives

- To see the effect of rehabilitation on pain & function on quality of life in subjects with knee osteoarthritis
- To see the effect of non- rehabilitation on pain & function on quality of life in subjects with knee osteoarthritis
- To compare the QOL of rehabilitation and non rehabilitation on subjects having O.A. knee joint

## 4. Need of Study

Need arise to measure important aspects of patients' mental, social and emotional health. Health-related quality of life is encompasses emotional, physical, social, and subjective feelings of well-being that reflect an individual's subjective evaluation and reaction to his/her illness. So purpose of the study was to see the effect of osteoarthritis of knee rehabilitation on pain &function on quality of life. With the help of this, health-related quality of life measures we can create the awareness in the different aspect of life and as per that we can specify the way of treatment.

**Hypothesis**

- H0: No statistical difference between non-rehabilitation and rehabilitation group on pain and function on QOL in o.a. knee
- H1: There is statistical difference between non-rehabilitation and rehabilitation group on pain and function on QOL in o.a. knee

**5. Methodology**

- **Data:** 30 subjects
- **Study Type:** comparative
- **Sampling:** Simple random sampling

**Inclusion Criteria**

- Age between 45 - 65 years.
- More than grade 2 radiographic severity according to the Kellgren/Lawrence scale.<sup>(9,10,11,13)</sup>
- Diagnosis of moderate bilateral knee OA according to the American College of Rheumatology criteria.<sup>(9)</sup>
- BMI less than 30

**Exclusion Criteria**

- Non comprehend persons
- Any other inflammatory knee disorders, previous intra-joint injection,
- Metabolic bone disease,
- History of knee trauma since last 6month, previous knee surgery,

**Procedure**

Study was done in two groups.

Group A: Non-Rehabilitation (15 subjects) and

Group B: Rehabilitation (15 subjects)

As per the following criteria

Group A: Non-Rehabilitation received Ergonomic advice/HWF and

Group B: Rehabilitation received Conventional exercise protocole.<sup>(12)</sup>

**Group-A**

- Given eargonomic advice to patient
- Advice for hot water formantation.

**Group-B**

- TENS(15min) for 10days<sup>(14,15)</sup>
- QUADRICEPS EXERCISES(SQE,VMO,SLR(10repi)
- STRETCHING EXERCISES
- Hamstrings,quadriceps,calf(10 repi)

**Outcome Measures**

- SF-36<sup>(16,17)</sup>
- WOMAC<sup>(18,19)</sup>

**6. Result**

Within and between group Analysis was done by using spss16

**Table 1:** Within Group Analysis of Non-Rehabilitation Group

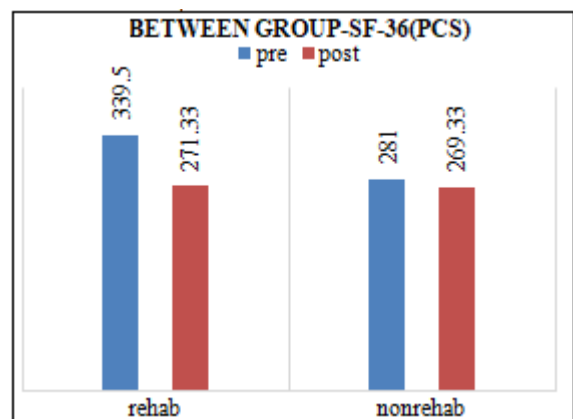
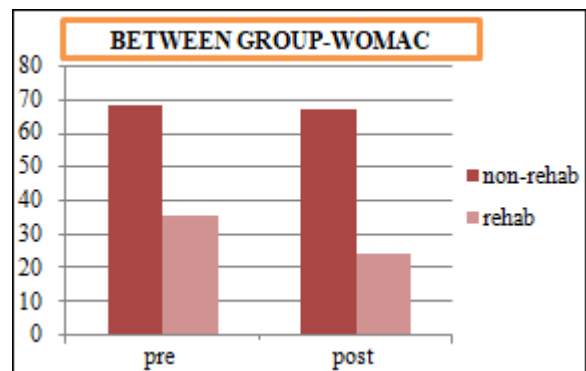
Wilcoxon Test	NON-Rehabilitation					
	WOMAC		SF-36 (PCS)		SF-36 (MCS)	
	Pre	Post	Pre	Post	Pre	Post
MEAN	68.06	67	281	269.33	269.33	229.95
SD	6.18	6.25	38.78512	39.99046	41.20362	42.50009
Z	-2.859		-2.14		0.000	
P	0.004		0.032		1.00	

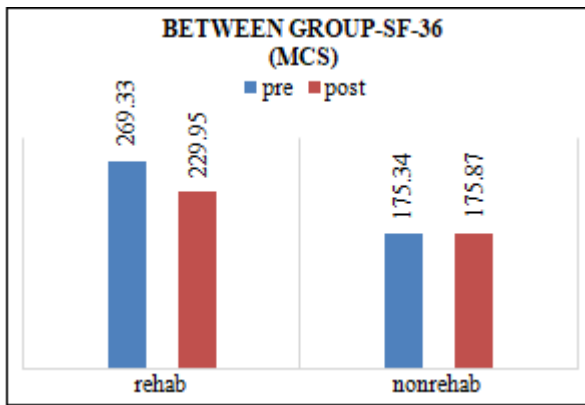
**Table 2:** Within Group Analysis of Rehabilitation Group

	Rehabilitation					
	WOMAC		SF-36 (PCS)		SF-36 (MCS)	
	PRE	POST	PRE	POST	PRE	POST
MEAN	35.26	23.86	339.5	271.33	269.33	229.95
SD	4.46	5.85	26.89596	24.97975	27.88095	35.12262
Z	-3.42		-3.41		-3.124	
P	0.001		0.001		0.002	

**Table 3:** Between Group Analysis of Non-Rehabilitation Group

	Between Group					
	WOMAC		SF-36 (PCS)		SF-36 (MCS)	
	Non Rehab	Rehab	Non Rehab	Rehab	Non Rehab	Rehab
Mean	1.06	11.4	15	65	2.8	43.12
SD	0.92	3.18	16.36634	0	6.823803	24.67339
U	0.001		4		2	
P	0.001		0.001		0.001	





## 7. Discussion

As per result within group analysis done by using wilcoxon signed ranks test in non-rehabilitation group womac score showed significant value and in SF-36 physical component summary(PCS) showed significant value and mental component summary(MCS) showed non-significant value.

In rehabilitation within group womac score showed significant value and in sf-36 physical component summary(PCS) and mental component summary(MCS) showed significant value. In between group analysis it showed significant difference between non-rehab and rehab group and it shows rehabilitation group mean was more so it is effective.

Several earlier studied that prove that physiotherapy intervention may increase the blood flow.<sup>(8)</sup> In group –A ,due to ergonomic advice patient reduces the level of joint stress HWF reduces pain due to circulatory effect.<sup>(20)</sup>

**Aglamis,B.,Toraman,** N in 2009 in journal of back and musculoskeletal rehabilitation did a study on Change of quality of life due to exercise training in knee osteoarthritis, and conclude that physical performance and general health scores increased between mid-training and post-training period; physical function, body pain, mental health, vitality, and general health scores increased between baseline and post-training period ( $p < 0.004$ ).

High-quality evidence that exercise therapy increases the summary score, physical functioning score, and role-physical score of knee osteoarthritis sufferers. Physical exercises have beneficial effects on pain and physical function

Amr Almaz Abdel-aziem<sup>1</sup> J. Phys (2018). Ther all patients with moderate knee OA with different grades of pain can benefit from a physiotherapy rehabilitation program, Hence, the effects of physiotherapy treatment programs might be optimised by identifying the grade of pain and subgroups of patients.<sup>(13)</sup>

Ryo Tanaka, Junya ozawa<sup>1</sup> in J. Phys. Ther. Sci. 27: 3309–3314, 2015, in meta-analysis also provides moderate-quality evidence that the physical component summary and mental component summary scores were improved to a greater extent by exercise therapy than by control interventions.<sup>(21,22)</sup>

The best treatment for osteoarthritis of the knee is prevention.<sup>(23)</sup> Exercise therapy can improve health-related QOL, as assessed by the SF-36, of knee osteoarthritis sufferers. So, hypothesis –H1 is accepted and Ho is rejected.

## 8. Conclusion

The knee rehabilitation reduces the pain and improves the function and quality of life of physical health as well as mental health in subjects having OA knee. So all the component of life are must to improve all over quality.

## 9. Limitation

Small sample size

## 10. Future Study

Different component of sf-36 statistical analysis will consider.

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