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Research Article

# Physiotherapy Practice Patterns in the Management of Patients with Knee Osteoarthritis in Khyber Pakhtunkhwa, Pakistan: A Cross-Sectional Survey

**Manzoor[1]*, Ali Rahman[2], Arif Shah[3], Ijaz Ul Haq[3]**

[1]Islamabad Club, Islamabad, Pakistan.
[2]Khyber Medical University, Islamabad, Pakistan.
[3]Paraplegic Center, Peshawar, Pakistan.
***Correspondence:** manzoorayaz68@gmail.com



## Abstract

Knee osteoarthritis (OA) is one of the leading disabilities throughout the world. With a prevalence of 365 million, the knee is the most frequently affected joint, followed by the hip and the hand. It is characterized by functional restriction and reduced quality of life. Physiotherapists play an important role in preventing them. This study aimed to find out the management preferences used by the Physical Therapists in Khyber Pakhtunkhwa for knee OA treatment. The study was ethically approved by the Khyber Medical University, Institute of Physical Medical and Rehabilitation, Peshawar. This descriptive cross-sectional study surveyed clinical physiotherapists in Khyber Pakhtunkhwa to explore their management preferences for knee OA treatment. Physiotherapists were sampled using purposive sampling. A questionnaire adapted from (Ayanniyi, Egwu, and Adeniyi 2017) was utilized. Frequencies and percentages were calculated for responses. A total of 300 physiotherapists were included in the study. Based on clinical investigation, a majority of physiotherapists (88.8%) demanded an x-ray as a part of the diagnostic process for knee OA, while (11.2%) depended on physical/clinical examination. Therapeutic exercise was the most common protocol approach used by 86.2% of Physical Therapists for knee OA management. The second most common protocol was education on weight reduction (80%). Manual therapy was the choice of treatment for 75.8% of Physical Therapists followed by Transcutaneous Electrical Nerve Stimulation (TENS) (57%), ice/heat (50%), and bed rest advice (39.3). We concluded from this investigation that most Physical Therapists used therapeutic exercise and weight loss as their priorities.

**Keyword:** Knee Osteoarthritis, Physiotherapy, Transcutaneous Electrical Nerve Stimulation (TENS)

## 1. Introduction

Knee pain affects nearly 25% of adults. Knee osteoarthritis (OA) is one of the most common causes of knee pain in people older than 50 years (Cruz-Almeida et al. 2014). Knee OA accounts for 83% of the total OA burden (Vos et al. 2012). Knee OA is a disorder of the joint that results in progressive loss of function, followed by pain and stiffness (Roddy et al. 2005). Knee OA is a prevalent and the leading cause of pain and disability all over the world (Duivenvoorden et al. 2015). This disease will impose new challenges on the health system in the coming decades. The various risk factors associated with Knee OA are; older age, female gender, obesity, history of knee injury, valgus/varus disorder, hypertension, high level of glucose, quadriceps muscle strength, and physical workload (Riboh et al. 2016, JH, JS, and BIER 1963, Adegoke et al. 2019).

Effectively managing pain and associated symptoms in knee OA necessitates a comprehensive, multidisciplinary approach. This approach encompasses a combination of

pharmacological and non-pharmacological treatment modalities (Carnes et al. 2008, Bannuru et al. 2019). In the context of knee OA treatment, non-pharmacological interventions, including exercise, weight management, and patient education, are recognized as the primary strategies. As key members of the healthcare team, physiotherapists contribute significantly to the holistic management of knee OA, focusing on enhancing patient outcomes through tailored exercise regimens, weight management strategies, and educational interventions. Their contribution is vital in the comprehensive care continuum for individuals with knee OA (Duivenvoorden et al. 2015, Kolasinski et al. 2020, Ayanniyi, Egwu, and Adeniyi 2017).

Physiotherapy plays a crucial role in the healthcare framework of Khyber Pakhtunkhwa, Pakistan, and is readily accessible in both government and private healthcare institutions. This vital healthcare service is available for patients dealing with knee OA. Despite the widespread prevalence of knee OA and the availability of treatment options, there is a noticeable dearth of literature outlining the specific methodologies employed by physiotherapists in Khyber Pakhtunkhwa, Pakistan for managing knee OA. This study endeavored to bridge this information gap by investigating and elucidating the treatment approaches adopted by physical therapists in Khyber Pakhtunkhwa, Pakistan, in addressing knee OA. Through a comprehensive examination of these therapeutic practices, the study aimed to contribute valuable insights to the existing body of knowledge, fostering a better understanding of the strategies employed in the management of knee OA within the Khyber Pakhtunkhwa healthcare context.

## 2. Materials and Methods

This was a descriptive cross-sectional study of clinical physiotherapists working in the public & private, secondary, and tertiary care hospitals in Khyber Pakhtunkhwa. The study duration was six months (June 2023 to November 2023). The study was ethically approved by Khyber Medical University Peshawar (IPMR/GC/001). The total number of physiotherapists working in private and public sectors in Khyber Pakhtunkhwa hospitals was 310. The purposive sampling technique was used in this study to recruit participants. All physiotherapists, both male and female, working for at least one year in private and government hospitals were included in our study. The inclusion criteria required that participants be actively engaged in clinical practice, providing direct patient care. Physiotherapists working in outpatient clinics, rehabilitation centers, and specialized orthopedic units were also included. We excluded physiotherapists who were primarily involved in academic roles, such as teaching or research positions, to focus on those with hands-on clinical experience. Additionally, physiotherapists currently on extended leave, those with less than one year of clinical experience, and those working exclusively in non-clinical administrative roles were not included in the study. This ensured that our sample accurately represented practitioners actively managing patients with knee OA in a clinical setting. The questionnaire used in this study was taken from a previous study. The questionnaire was divided into two sections; sections A and B. Section A asked about age, gender, years of experience, practice setting, and patient load. Section B was related to the diagnostic process and treatment preferences. The questionnaire was distributed among physiotherapists through WhatsApp, Facebook, and e-mails on 15 July 2023. A consent form was also attached to each questionnaire. All 310 physiotherapists responded to the questionnaire after three months of continuous reminders. The study was primarily descriptive. SPSS version 22 was used for data analysis. Means and standard deviations were calculated for the physiotherapists' age. Frequencies and

**Table 1: Demographic information of the Physiotherapists.**

| Variables | Numbers | Percentage |
|---|---|---|
| Age | | |
| 21-30 years | 121 | 40.2% |
| 31-40 years | 105 | 35% |
| 41-50 years | 66 | 22% |
| 51-60 years | 6 | 2% |
| Above 60 years | 2 | 0.6% |
| Age (Mean ± SD) | 34.64±7.37 | |
| Gender | | |
| Male | 160 | 60% |
| Female | 140 | 40% |
| Years of experience | | |
| 1-5 years | 126 | 42% |
| 6-10 years | 75 | 25% |
| 11-15 years | 41 | 13.6% |
| 16-20 years | 36 | 12% |
| 21-25 years | 12 | 4% |
| 26-30 years | 8 | 2.6% |
| Above 30 years | 2 | 0.6% |

percentages were calculated to outline the responses compared to variables of concern.

## 3. Results

This study drew its findings from clinical scenarios that depicted individuals experiencing knee OA. Among the 310 physical therapists initially considered, 300 met the specified inclusion criteria and were subsequently included in the study. The average age of the physiotherapists was 34.64 years with a standard deviation of 7.37. Among the participants, 60% were male, while 40% were female physiotherapists. The demographic characteristics are mentioned in Table 1. The diagnostic approach for knee OA among physical therapists was predominantly centered on an X-ray, with 88.8% favoring this method, while 11.2% relied on physical or clinical examination.

In the management of knee OA, therapeutic exercise emerged as the primary protocol, employed by 86.2% of physical therapists. This approach was commonly combined with ice/heat (63.6%), manual therapy (58.8%), and transcutaneous electrical nerve stimulation (TENS) (27.3%). Notably, 12% of therapists reported using therapeutic exercise as a standalone intervention. The second most prevalent treatment protocol involved educating patients on weight reduction (80%). Manual therapy was the preferred treatment modality for 75.8% of therapists, followed by TENS (57%), ice/heat (50%), and bed rest advice (39.3%). All therapists recommended home-based management (Figure 1).

Regarding treatment decisions for knee OA based on clinical symptoms, physical therapists primarily relied on literature (85%), expertise (70%), protocol availability (51%), and imposed workload (13%) (Table 2). In terms of the treatment duration, 54% of physical therapists indicated they would offer 10 treatment sessions for knee OA management, while 46% required more than 10 visits, with an average of 2 visits per week.

## 4. Discussion

This is the first study in Khyber Pakhtunkhwa Pakistan that investigated management

**Table 2: This table shows the basis on which physical therapists make management decisions for knee OA.**

| Treatment Decision | Percentage |
|---|---|
| Literature | 85% |
| Own expertise | 70% |
| Protocol availability | 51% |
| Imposed workload | 13% |

preferences of Physical Therapists for knee OA. Physiotherapy seemed to be a male-dominated profession in Khyber Pakhtunkhwa Pakistan according to our results. This study also showed the presence of young Physical Therapists (40.2%) with less than 10 years of clinical experience. These findings were relevant to previous studies which showed a majority of male and young Physical Therapists present in this profession (Adeniyi 2013, Brand et al. 2009). Most Physical Therapists in our study used X-rays as a diagnostic tool for knee OA. They focused more on X-rays as compared to physical/clinical examinations. Our findings showed similarity with RACGP (Royal Australian College of General Practitioners) and (Adeniyi 2013, Fernandes et al. 2013, Ayanniyi, Egwu, and Adeniyi 2017) studies. However, this study showed divergence in guidelines used in Canada, the UK, and the USA (UK 2014, Peter et al. 2011).

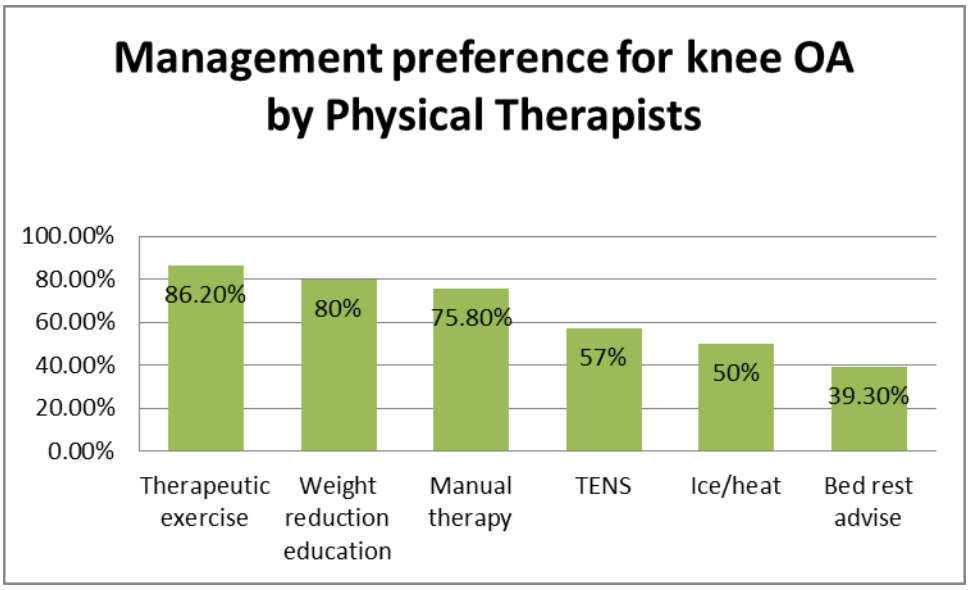
Therapeutic exercise was an important and core aspect of managing knee OA. Therapeutic exercise along with education was considered as a first line of physiotherapy protocol in knee OA management. Therapeutic exercise seemed to relieve pain, lessen disability, and improve knee ROM (Hauk 2014, Fernandes et al. 2013). A combination of therapeutic exercise with manual therapy was reported from various studies that strongly approved manual therapy as a non-pharmacological modality for knee OA (Adeniyi 2013, Peter et al. 2011, Fernandes et al. 2013). In our study, the majority of Physical Therapists (86.2%) used therapeutic exercise as a first line of treatment for knee OA along with ice/heat (63.6%), manual therapy (58.8%), and TENS (27.3%). Only 12% reported using therapeutic exercise alone for knee OA management.

Education on weight reduction was one of the core elements of treating knee OA. Reducing weight, especially in obese patients would help in relieving pain and lessen disability. 80% of Physical Therapists in this study focused on weight reduction education, which was recommended in clinical practice guidelines for knee OA management (Fernandes et al. 2013, Zeller, Lynm, and Glass 2007). The level of using TENS (57%), ice/heat (50%), and bed rest (39.3%) in this study showed divergence with standard treatment guidelines and Zeller et al findings (Peter et al. 2011, Zeller, Lynm, and Glass 2007, Zadro, O'Keeffe, and Maher 2019). However, this study showed similarity with Zardo et al and Ackah et al findings (Ackah et al. 2022, Holden et al. 2008, Zadro, O'Keeffe, and Maher 2019).

Regarding the choice of treatment for knee OA, most Physical Therapists said that their choice of treatment was from reviewed literature (85%), known skills (70%), treatment availability (51%), and 13 % from imposed workload. These findings showed similarities with (Ackah et al. 2022) and other studies (Peter et al. 2011, Zeller, Lynm, and Glass 2007, Holden et al. 2008, Foster et al. 2007).

Based on our findings, the majority of Physical Therapists (54%) provided 10 treatment sessions as compared to 46% of Physical Therapists who focused on more than 10 treatment sessions. This was in accordance with the findings of (Adeniyi 2013, Ayanniyi, Duncan, and Adeniyi 2013).

**Figure 1: Management preference for knee OA by physical therapist.**




Findings from (Holden et al. 2008) showed variance with our study. According to(Holden et al. 2008), majority of Physical Therapists in the UK provided five treatment sessions for knee OA. NHS Physical Therapists gave 2-3 treatment session (Foster et al. 2007). Foster et al and Hurley et al supported 6 to 12 treatment sessions for knee OA in their RCT studies (Hurley et al. 2007, Foster et al. 2007).

## 5. Conclusion

This study demonstrated that most physical therapists diagnosed knee OA using X-rays (88.8%) and primarily managed it with therapeutic exercise (86.2%), often combined with ice/heat, manual therapy, and TENS. Only 12% used exercise alone. Patient education on weight reduction and home-based management were widely recommended. Treatment decisions were influenced by literature (85%), personal expertise (70%), and protocols (51%), with an average of 10 sessions, and 2 visits per week. In conclusion, physical therapists used a comprehensive, evidence-based approach for knee OA, integrating various modalities to optimize patient outcomes. Future research should assess the long-term effectiveness of these protocols and new technologies.

### Conflict of Interest

All the authors declare no conflicts of interest.


### Funding

There were no funding contributions for this research from any source.


### Study Approval

This study was approved by the Khyber Medical University Islamabad, Pakistan.

### Consent Forms

Every participant signed a consent form before participating in the research.

### Authors Contributions

Manzoor conceptualized the study and analyzed the results, Arif Shah & Ijaz Ul Haq did the experimental part Ali Rahman supervised the whole project and Manzoor wrote the final manuscript.

### Data Availability

All the data relevant to this study is with the authors.

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