**Int. j. adv. multidisc. res. stud.** 2025; 5(4):1395-1399

**Received:** 24-06-2025
**Accepted:** 04-08-2025

International Journal of Advanced Multidisciplinary Research and Studies

ISSN: 2583-049X

# Frequency of Musculoskeletal Disorders in General Public of Rawalpindi and Islamabad: A Cross Sectional Survey

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**DOI:** https://doi.org/10.62225/2583049X.2025.5.4.4768

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**Abstract**

**Background:** Musculoskeletal disorders comprises of minor and major physical disabilities that influence the muscles, ligaments, tendons, bones, & joints. Musculoskeletal disorders are extremely common in general population, increase age increases the risk of musculoskeletal issues.

**Objective**: The purpose of this study is to analyze the frequency of musculoskeletal disorders (e.g osteoarthritis, adhesive capsulitis, low back pain) in general public of Rawalpindi and Islamabad.

**Methodology:** A cross-sectional survey was conducted. The data was collected from different hospitals in Rawalpindi and Islamabad and sample size was 776.

**Results:** The peak age group was between 31 years- 40 years in which 353 patients (45.5%) were male and 423 (54.5%) were female. The mean±standard deviation of the age of patients was 39.29±13.276. Majority of the patients presented with knee osteoarthritis (19.8%), adhesive capsulitis (18.9%), Low back pain (8.4%), neck pain (8.1%) and tennis elbow (7.9%). The majority of patients took 4 sessions of conventional physical therapy (17.3%).

**Conclusion**: This study determined that majority of the patients presented at physiotherapy department had osteoarthritis, adhesive capsulitis, neck pain and low back pain. Majority of the female patients were housewives and teachers and majority of the male patients were drivers, waiters, dentists and bankers.

**Keywords:** Musculoskeletal Disorders, Physical Therapy, Osteoarthritis

## Introduction

Musculoskeletal disorders comprises of minor and major physical disabilities that influence the muscles, ligaments, tendons, bones, & joints [1]. Musculoskeletal disorders may be acute (1$^{st}$ few weeks) which have rapid onset with severe symptoms or become chronic (after 6 month) if appropriate treatment is not given. Musculoskeletal disorders are extremely common in general population, increase age increases the risk of musculoskeletal issues. Proper and timely diagnosis is the key point to control pain while conceivably diminishing further substantial harm [2]. Major areas of the body affected by musculoskeletal disorders are shoulder, neck, wrist, back, knees, foot and legs [3]. Major causes of musculoskeletal disorder are poor life style, excessive use, poor ergonomic work design, age and gender related, poor posture, prolong period of immobilization and trauma [4]. To decrease the risk of musculoskeletal disorders ergonomic modification, regular breaks between works, healthy life style, balanced diet and exercise is required [5]. Common symptoms of musculoskeletal disorder include continuous or intermittent pain, pain increase with activity, muscles cramps, muscle Fatigue, aching or body aches, disturb sleep muscle strain, numbness and tingling sensation, headache, lethargy and muscles twitches [6].

Proper diagnosis of musculoskeletal disorders is done through physical examination, X-ray, CT scan and MRI [7]. Treatment options are occupational therapy, heat or cold therapy [8], rest, work load management, relaxation techniques to reduce stress and anxiety, immobilize the affected joint by using splints to allow healing, acupuncture/ acupressure, chiropractic care, therapeutic massage, strengthening and conditioning exercises, stretching exercises [9], injections therapy use anti-inflammatory or anesthetic medicine in or around the painful joints and muscles, medicines used to relieve pain are acetaminophen, NSAIDs and muscle relaxants [10], opioids if pain is severe and Implantable opioids infusion pumps are also available [11].

**Material and Methods**

Cross sectional survey was done after taking informed consent from the patients. Data was collected from different hospitals of Rawalpindi and Islamabad and sample size was 776, both males and females patients with musculoskeletal disorder were included in this study. Statistical analysis was done with Microsoft excel and SPSS version 21.

**Calculations and Results**

**Table 1:** Demographic data of the Patients with Musculoskeletal disorders

| Characteristics | Value |
|---|---|
| Age of patient (years) | 39.29± 13.276 |

**Table 2:** Frequency of the Patients

| Sex | Frequency | Percentage |
|---|---|---|
| **Male** | 353 | 45.5 |
| **Female** | 423 | 54.5 |

**Table 3:** Percentage of Patients in both Cities

| Cities | Frequency | Percentage |
|---|---|---|
| **Rawalpindi** | 330 | 42.5 |
| **Islamabad** | 446 | 57.5 |
| **Total** | 776 | 100.0 |

**Table 4:** Diagnosis of the Patients

| Musculoskeletal Disorders | Frequency | Percentage |
|---|---|---|
| **Cervical Spondylosis** | 65 | 8.4 |
| **Lumber Spondylosis** | 51 | 6.6 |
| **Knee Osteoarthritis** | 154 | 19.8 |
| **Adhesive Capsulitis** | 147 | 18.9 |
| **RA** | 42 | 5.4 |
| **U/L Fractures** | 63 | 8.1 |
| **L/L Fractures** | 30 | 3.9 |
| **Tennis elbow** | 61 | 7.9 |
| **Golfers elbow** | 31 | 4.0 |
| **Supraspinatous tendinitis** | 3 | .4 |
| **plantar fasciitis** | 39 | 5.0 |
| **Ankle sprain** | 25 | 3.2 |
| **Low back muscular spasm** | 65 | 8.4 |
| **Total** | 776 | 100.0 |

**Table 5:** Total Number of Physiotherapy Session

| No. of Physiotherapy sessions | Frequency | Percentage |
|---|---|---|
| **1** | 66 | 8.5 |
| **2** | 67 | 8.6 |
| **3** | 91 | 11.7 |
| **4** | 134 | 17.3 |
| **5** | 123 | 15.9 |
| **6** | 110 | 14.2 |
| **7** | 99 | 12.8 |
| **8** | 33 | 4.3 |
| **9** | 6 | .8 |
| **10** | 24 | 3.1 |
| **11** | 4 | .5 |
| **12** | 13 | 1.7 |
| **13** | 1 | .1 |
| **14** | 2 | .3 |
| **15** | 2 | .3 |
| **19** | 1 | .1 |
| **Total** | 776 | 100.0 |

**Table 6:** Name of the Hospitals

| Hospital Name | Frequency | Percentage |
|---|---|---|
| **Holy Family Hospital, Rawalpindi** | 204 | 26.3 |
| **Benazir Bhutto Hospital, Rawalpindi** | 96 | 12.4 |
| **District Headquarter Hospital, Rawalpindi** | 99 | 12.8 |
| **Pakistan Institute of Medical Sciences, Islamabad** | 50 | 6.4 |
| **Others Hospitals in Islamabad and Rawalpindi** | 327 | 42.1 |
| **Total** | 776 | 100.0 |

**Table 7:** Age of the patient's vs. gender of the patients

| Age of the patient (Years) | Gender of the patient | | Total |
|---|---|---|---|
| | Male | Female | |
| 31 to 40 | 113 | 128 | 241 |
| 21 to 30 | 76 | 121 | 197 |
| 41 to 50 | 66 | 76 | 142 |
| 51 to 60 | 53 | 61 | 114 |
| 61 to 70 | 22 | 15 | 37 |

**Table 8:** Age of the patients vs. Diagnosis of the patients

| Age of the patients (Years) | Diagnosis of the patients | | | | | | |
|---|---|---|---|---|---|---|---|
| | Knee Osteoarthritis | Adhesive capsulitis | Cervical spondylosis | Low back muscular spasm | U/L fractures | others | |
| 1 to 10 | 0 | 0 | 0 | 0 | 2 | 0 | 2 |
| 11 to 20 | 2 | 2 | 1 | 2 | 9 | 13 | 29 |
| 21 to 30 | 20 | 25 | 19 | 12 | 30 | 91 | 197 |
| 31 to 40 | 33 | 56 | 22 | 23 | 13 | 94 | 241 |
| 41 to 50 | 27 | 36 | 9 | 18 | 7 | 45 | 142 |
| 51 to 60 | 43 | 22 | 13 | 6 | 2 | 28 | 114 |
| 61 to 70 | 18 | 6 | 1 | 2 | 0 | 10 | 37 |
| 71 to 80 | 7 | 0 | 0 | 2 | 0 | 1 | 10 |
| 81 to 90 | 4 | 0 | 0 | 0 | 0 | 0 | 4 |
| Total | 154 | 147 | 65 | 65 | 63 | 282 | 776 |

**Table 9:** Age of patients vs. physiotherapy sessions

| Age of the patients (Years) | Sessions | | | |
|---|---|---|---|---|
| | 4 | 5 | 6 | 7 |
| 1 to 10 | 1 | 0 | 0 | 0 |
| 11 to 20 | 5 | 9 | 3 | 3 |
| 21 to 30 | 41 | 35 | 32 | 27 |
| 31 to 40 | 35 | 38 | 32 | 33 |
| 41 to 50 | 22 | 18 | 25 | 14 |
| 51 to 60 | 24 | 15 | 15 | 17 |
| 61 to 70 | 3 | 6 | 3 | 5 |
| 71 to 80 | 2 | 2 | 0 | 0 |
| 81 to 90 | 1 | 0 | 0 | 0 |

**Table 10:** Gender of the patient's vs. diagnosis of the patients

| Gender | Osteoarthritis | Adhesive capsulitis | Cervical spondylosis | Low back muscular spasm | U/L fractures |
|---|---|---|---|---|---|
| Male | 61 | 58 | 25 | 35 | 28 |
| Female | 93 | 89 | 40 | 30 | 35 |

**Table 11:** Gender of patients vs. sessions

| Gender of the patient | 4 sessions | 5 sessions | 6 sessions | 7 sessions |
|---|---|---|---|---|
| Male | 63 | 49 | 43 | 45 |
| Female | 71 | 74 | 67 | 54 |

**Table 12:** Diagnosis of the patients vs. Name of the hospitals

| | | Name of the Hospital | | | | | Total |
|---|---|---|---|---|---|---|---|
| | | Holy Family Hospital | Benazir Bhutto Hospital, Rawalpindi | District Headquarter Hospital, Rawalpindi | Pakistan Institute of medical Sciences, Islamabad | Others | |
| (Diagnosis Of the Patient) | Cervical spondylosis | 22 | 6 | 6 | 4 | 27 | 65 |
| | Lumber Spondylosis | 16 | 2 | 6 | 5 | 22 | 51 |
| | Osteoarthritis Knee | 42 | 10 | 18 | 13 | 71 | 154 |
| | Adhesive Capsulitis | 45 | 15 | 12 | 9 | 66 | 147 |
| | Rheumatoid Arthritis | 12 | 16 | 5 | 0 | 9 | 42 |
| | U/L Fractures | 17 | 23 | 14 | 0 | 9 | 63 |
| | L/L Fractures | 18 | 8 | 3 | 0 | 1 | 30 |
| | Tennis elbow | 17 | 9 | 12 | 3 | 20 | 61 |
| | Golfers elbow | 5 | 3 | 5 | 3 | 15 | 31 |
| | supraspinatous tendinitis | 3 | 0 | 0 | 0 | 0 | 3 |
| | plantar fasciitis | 6 | 3 | 6 | 3 | 21 | 39 |
| | Ankle sprain | 1 | 1 | 0 | 4 | 19 | 25 |
| | Low back muscular spasm | 0 | 0 | 12 | 6 | 47 | 65 |
| Total | | 204 | 96 | 99 | 50 | 327 | 776 |

The mean age of the patients was 39.29±13.276 (Table 1). Among 776 patients 54.5 % were female and 45.5% were male (Table 2). Among 776 patients 42.5% patients were from Rawalpindi and 57.5% from Islamabad (Table 3). Majority of the patients were diagnosed with knee osteoarthritis (19.8%), adhesive capsulitis (18.9%), low back muscular spasm (8.4%), upper limb fractures (8.1%) and tennis elbow (7.9%) (Table 4). 17.3 % of the patients took 4 physical therapy sessions, 15.9 % took 5 physical therapy sessions, 14.2% took 6 took 6 physical therapy sessions and 12.8% took 7 physical therapy sessions (Table 5). Among the 776 patients (42.1%) were reported in other hospitals, 26.3% of the patients were reported in Holy Family Hospital and 12.8% were reported in Benazir Bhutto Hospital (Table 6).

Among 776 patients the peak age group was between 31 years to 40 years in which 113 patients were male and 128 were female. The second peak age group was between 21 years to 30 years in which male patients were 76 and female were 121.Than the next age group was between 41 years to 50 years in which male were 66 and female were 76.In the age group between 51 to 60 years the peak value of male patients were 53 and female patients were 61. Between 61 years to 70 years the male were 22 and female were 15 (Table 7). Among our 776 patients the majority of the patients were reported with knee osteoarthritis with the total number of 154. Most commonly reported in the age of 31 years to 40 years. The second major problem was Adhesive capsulitis with the total of 147, commonly seen in the age group between 31 years to 40 years. Next problem reported was cervical spondylosis, commonly reported in the age of 31 years to 40 years, with the total number of 65 patients. Patients presented with low back muscular spasm between 31 years to 40 years of age was also 65. Upper limb fractures reported were 63 patients out of 776 patients and most commonly seen in the age group of 31 years to 40 years. 282 patients presented with other musculoskeletal disorders out of 776 patients (Table 8).

Maximum physical therapy sessions were 4 among all age groups especially 3rd decay. (30.59%), in 4th decay (26.11 %), in 5th decay (16.41%), in 6th decay (17.91%) (Table 9). In patients presented with Osteoarthritis 61 were male and 93 patients were female. Adhesive capsulitis was reported in 58 males and 89 female. Cervical spondylosis was diagnosed in 25 males and 40 females. Low back muscular spasm was diagnosed in 35 males and 30 males. (Table 10). 43 males and 67 females took 6 sessions. 45 male and 54 females took 7 sessions, 63 males and 71 females took 4 sessions, 49 males and 74 females took 5 sessions. (Table 11). Most of the patients was reported with osteoarthritis with the total number of 154. Adhesive capsulitis was reported in 147 patients (Table 12).

## Discussion

Physical therapy is one of the most important treatment strategy in musculoskeletal disorders. In this study osteoarthritis of knee joint is one of the major musculoskeletal issue diagnosed in patients of age 31 to 40 years including 39.61 % males and 60.38 % females, but the study conducted in May 2013 USA showed that the prevalence of symptomatic knee osteoarthritis found in 60 years of age is totally different from our results. The study also indicated that musculoskeletal disorders are more common in women as compared to men. In other study published in 2005 university of Colorado health sciences showed that the majority of adults diagnosed with osteoarthritis of age above 55 years showed radio graphic changes in knee joint. This study also showed higher prevalence and incidence in women than men. Another study conducted by March LM *et al* in 2004 Australia showed that osteoarthritis is 3rd leading cause of disability [12] but according to this study Osteoarthritis is the most common musculoskeletal disorder.

According to this study Adhesive capsulitis is the 2nd major problem in patients between 31 years to 40 years and the frequency of male patients is 58 and females is 89. In one of the study 17% of the male and 21 % of the female patients were diagnosed with Adhesive capsulitis but this study stated that 7.47% of the patients are male and 11.46% are female. Another study conducted on Italian population stated that adhesive capsulitis is more common in women as compared to men and this study showed same results as well. In one of the study frequency of the adhesive capsulitis is 3.06% of the total population but in this study frequency of the adhesive capsulitis is 18.94% of the total population. Neck pain is a very common in one of the study conducted in 2014 Radio graphic spondylosis was noticeable in 25-50% of people of 50 years of age and 75-90% by the age of 65 years, but this study stated that cervical spondylosis is commonly reported in the age group of 31 to 40 years with the percentage of 8.37%. Schmidt CO *et al*. carried out a study in 2007 which showed that 20% of population is suffering from severe or disabling back pain [13] which support our results which is 8.37 %.

## Conclusion

This study determined that majority of the patients presented at physiotherapy department had osteoarthritis, adhesive capsulitis, neck pain and low back pain. Majority of the female patients were housewives and teachers and majority of the male patients were drivers, waiters, dentists and bankers.

## Recommendations

1. Sample size was small for the study.
2. Modifications related to major musculoskeletal disorders need to be done in physiotherapy department.
3. Proper education and counseling for general population regarding common musculoskeletal disorders such as Osteoarthritis, knee joint etc.

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