



# WORK RELATED MUSCULOSKELETAL DISORDERS: A SURVEY OF PHYSIOTHERAPIST IN NORTH GUJARAT REGION.

<sup>1</sup>Dr. Komal Dashrathbhai Jani, <sup>2</sup>Dr. Ravindrasinh Rajput

<sup>1</sup> 2<sup>nd</sup> year MPT Student, <sup>2</sup>Dean of Gokul Physiotherapy College.  
Gokul Global University, Siddhpur, India.

## Abstract:

**Background/Introduction:** Musculoskeletal disorders are common among health care workers worldwide. They are a common cause of severe, longterm pain and physical disability. Physiotherapists are highly skilled, licensed health care professionals who work to aid patients relieve pain, restore strength and improve mobility so the purpose of this study was to ascertain the prevalence for WRMDs among north Gujarat region physiotherapists.

**Methodology:** A cross-sectional survey study was conducted in the north Gujarat region over a period of six months. The questionnaire was emailed to 120 physiotherapists. Questionnaire included demographic information such as age and clinical experience. Self-reports of workrelated musculoskeletal symptoms and troubles they experienced during work and another questionnaire had questions regarding which body part is affected. The data was analyzed using the Microsoft Excel.

**Results:** 120 participants completed a musculoskeletal health questionnaire and participants were identified as having musculoskeletal symptoms. The most common site of injury was the neck (40.83%). The lower back (33.33%) was the second most common site of injury. The majority of respondents cited managing a large number of patients a day, continuously assuming uncomfortable positions, and manual therapy methods as risk factors. Reducing contact time with patients was identified as the most common coping strategy.

**Conclusion:** Work-related musculoskeletal disorders constitute a significant health risk in the field of physiotherapists. The prevalence of work-related musculoskeletal disorders among physiotherapists in North Gujarat region is high.

**Keywords:** Physiotherapist, Work related musculoskeletal disorders (WRMDs), Work-related injuries

## INTRODUCTION:

Musculoskeletal disorders are common among healthcare workers worldwide.<sup>1</sup> They are a common cause of severe, long-term pain and physical disability.<sup>3</sup> Musculoskeletal disorders (MSDs) are defined as “regional disorders of the muscles, tendons, nerves, and joints. When the work environment and job performance contribute to these types of disorders, then they are called work-related musculoskeletal disorders (WRMDs).<sup>2</sup> Health care workers, including physical therapists, develop a wide array of WRMDs, including but not limited to neck pain, backache, shoulder, arm, and wrist pain.<sup>2,4</sup>

Physiotherapists are highly skilled, licensed health care professionals who work to aid patients in relieving pain, restoring strength, and improving mobility.<sup>5</sup> Physiotherapists can treat people at any stage of life when movement or function is impaired by aging, injury, illness, disability, and environmental factors. In addition to their clinical practice, they also participate in research, education, consultation, and management.<sup>5,6</sup> Salisk and Ozkan defined WRMDs among physiotherapists as muscles and joint injuries that result from work-related activities, and several studies have shown that physiotherapists often suffer from these work-related injuries.<sup>8,9</sup>

Research conducted by physiotherapists has indicated that various work tasks can increase the risk of WRMDs.<sup>7</sup> The three most prominent risk factors associated with WRMDs are repetitive tasks, awkward postures, and the high magnitude of force applied during maneuvers.<sup>1, 3,6</sup> In addition, these professionals regularly perform activities that involve transferring patients (from exercise mats, chairs, parallel bars, etc.), participating in activities on exercise mats, as well as transferring and using bulky equipment.<sup>1,3,4,6</sup> These aspects of a physiotherapist's work profile increase the risk of developing acute and cumulative musculoskeletal pain.<sup>1,6</sup> Other research on the health questions that affect India and overseas physiotherapists revealed some pressing issues. For example, Cromie et al., a physiotherapist in Victoria, Australia, discovered that 91% of respondents suffered from pain and discomfort related to work at some time during their working lives, and 1 in 6 physical therapists moved within or left the profession as a result of WRMDs.<sup>10</sup>

The pathomechanics underlying the WRMDs suffered by physiotherapists are also influenced by the presumption that muscles and tendons are evolved for regular use.<sup>2</sup> However, when the frequency and duration of the protocol exceed the adaptive capacity of the muscles and tendons, inflammation occurs, followed by degeneration, micro-tears, and scar formation.<sup>2</sup> Clinical evidence of tendon pathology suggests that excessive relative motion, high peak loads, and accumulated stresses reduce lubrication between the tendon and its sheath, leading to frictional injury of the tendon due to prolonged sliding under load.<sup>6</sup> When a tendon is injured, the muscle to which the tendon is attached must compensate by working harder to support the limb and joint.<sup>2</sup> Increased levels of muscle support lead to fatigue and tension.<sup>8</sup> Muscles need an adequate supply of oxygen to function properly.<sup>3</sup>

This study was designed to assess the prevalence and incidence according to various body parts for the risks of developing WRMDs. There are many questionnaires used to evaluate MSD. In this study, a Musculoskeletal

Health Questionnaire (MSK-HQ) and a Nordic Musculoskeletal Questionnaire (NMQ) were adopted. The field of physiotherapy is growing exponentially in the North Gujarat region. Though various research efforts are being undertaken across the world, the field is still untapped in India. The objectives of this study were to assess the prevalence of WRMDs among physiotherapists working in North Gujarat and to elucidate the incidence according to various body parts for risks of developing WRMDs, thereby providing a basic knowledge for the prevention of musculoskeletal symptoms among physiotherapists and to identify preventive measures to reduce the risk of WRMDs.

**MATERIALS AND METHODOLOGY:**

A cross-sectional survey study was conducted in the north Gujarat region over a period of six months. The study included 120 physiotherapists selected through convenient random sampling, comprising 77 females and 43 males. Inclusion criteria encompassed physiotherapists of both genders aged between 22 and 44 years, working across various sectors including academic institutions, outpatient clinics, private clinics, internships, and home visitations. Exclusion criteria comprised undergraduate students, individuals with a history of physical or mental trauma, diagnosed degenerative or inflammatory disorders, congenital anomalies, cardiovascular or severe pulmonary diseases, recent orthopedic surgeries within the past year, and pregnant females.

**MATERIALS USED:****1. Musculoskeletal Health Questionnaire (MSK-HQ)**

The Musculoskeletal Health Questionnaire (MSK-HQ) is a patient reported outcome measure (PROM) designed for use with patients suffering from a range musculoskeletal conditions.<sup>11</sup> The MSK-HQ is intended for patients suffering from any musculoskeletal condition for adults older than 18 years of age.<sup>12</sup> It is a questionnaire addressing the changes in different conditions the musculoskeletal system during treatment, and patients reported that the outcome measures were very relevant and easy to understand.<sup>13</sup> MSK-HQ has good test-retest reliability = 0.84.

**2. Nordic Musculoskeletal (NMQ)**

It is the most frequently used symptom questionnaire, designed for all musculoskeletal disorders. It was used to assess the nature and severity of self-reported musculoskeletal disorders in nine body regions: neck, shoulders, elbows, wrists/hands, upper back, lower back, hips, knees, and feet. The occurrence of these symptoms in the past week (weekly prevalence) and in the past year (annual prevalence) was recorded. In addition, the alpha value of the Nordic Questionnaire was high at 0.945, indicating good reliability.<sup>14</sup>

**PROCEDURE:**

A total of 120 physiotherapists participated in this study, including 77 women and 43 men, aged between 22 and 44 years. Subjects were selected based on inclusion and exclusion criteria. The questionnaire was emailed to 120 physiotherapists in the North Gujarat region. Initial email addresses were obtained from the authors' personal contacts, and participants were asked to recommend another physiotherapist in the North Gujarat region. The questionnaire included demographic information such as age and clinical experience. Self-reports of work-related musculoskeletal symptoms and troubles they experienced during work, and another questionnaire had questions regarding which body part is affected. The questionnaire was accompanied by a cover letter indicating the purpose of the study and assurances of confidentiality. The subjects were allowed one week to complete and return the questionnaire via e-mail. The data obtained were analyzed using Microsoft Excel.

**RESULTS:**

The mean age of 120 participants was  $32.48 \pm 6.86$  years (range 22 - 44 years), of which 77 (64.17%) were female and 43 (35.83%) were male. Participants were further divided into different age groups and according to their work settings.

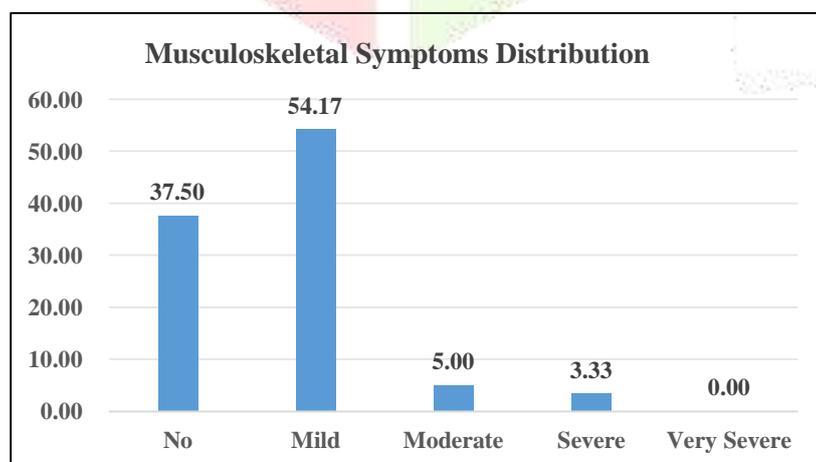
**Table 1: Distribution of Physical Therapists by Age and Work Setting (N=120)**

| Characteristics     | Percentage |
|---------------------|------------|
| <b>Age (years)</b>  |            |
| 22 - 27             | 33.33      |
| 28 - 33             | 19.17      |
| 34 - 39             | 26.67      |
| 40 - 44             | 20.83      |
| <b>Work Setting</b> |            |
| Academics           | 18.33      |
| Outpatients         | 36.67      |
| Private Clinic      | 22.50      |
| Rehabilitation      | 8.33       |
| Home Visits         | 14.17      |

120 participants filled up the Musculoskeletal Health Questionnaire and it revealed that 65 (54.17%) of the participants were having mild musculoskeletal symptoms. Further 6 (5%) of participants had moderate musculoskeletal symptoms and 4 (3.33%) had severe musculoskeletal symptoms.

**Table 2: Distribution of severity of musculoskeletal symptoms by MSKHQ (N=120)**

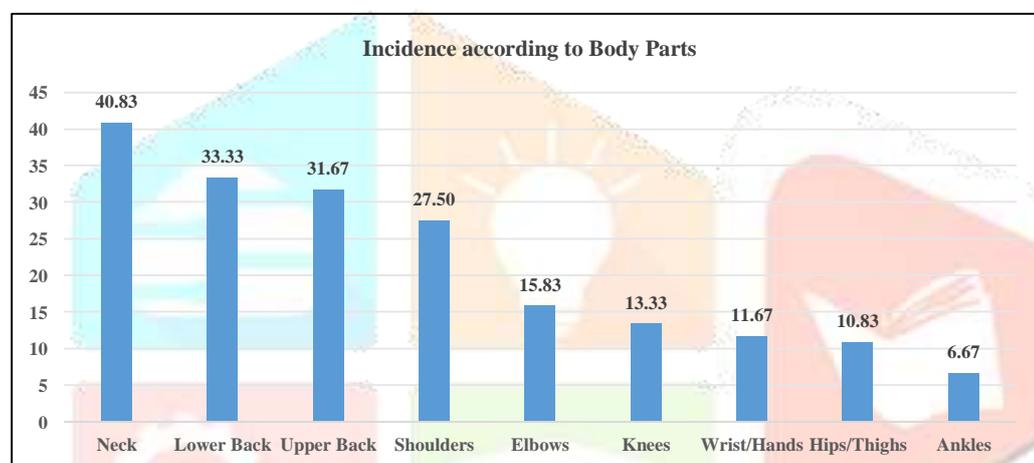
|             | Percentage |
|-------------|------------|
| No Symptoms | 37.50      |
| Mild        | 54.17      |
| Moderate    | 5.00       |
| Severe      | 3.33       |
| Very Severe | 0.00       |



Out of 120 participants, 102 were affected by WRMDs in at least one body part in last one year giving incidence of WRMDs 85%. 36.27% of those injured had experienced injury to more than one body area in last one year. The neck (40.83%) was the most common site of injury. The lower back (33.33%) was the second most prevalence site of injury followed by the upper back (31.67%), shoulders (27.50%), elbow (15.83%), knees (13.33%), wrist/hand (11.67%), hips/thighs (10.83%) and ankles (6.67%)

**Table 3: Incidence by body parts among Physiotherapists (N=120)**

| Body Part (N)    | Percentage |
|------------------|------------|
| Neck (49)        | 40.83      |
| Lower Back (40)  | 33.33      |
| Upper Back (38)  | 31.67      |
| Shoulders (33)   | 27.50      |
| Elbows (19)      | 15.83      |
| Knees (16)       | 13.33      |
| Wrist/Hands (14) | 11.67      |
| Hips/Thighs (13) | 10.83      |
| Ankles (8)       | 6.67       |



## DISCUSSION:

The aim of this study was to investigate the work-related musculoskeletal disorders in physiotherapists in North Gujarat, thereby providing basic information for preventing musculoskeletal symptoms and identifying measures that can reduce the incidence of WRMD.

Studies on the prevalence of WRMD among physical therapists in various countries have shown that the prevalence is 47.6% in Kuwait<sup>15</sup>, 53.5% in Sweden<sup>16</sup>, 57.5-61% in the United States<sup>17,18</sup>, and 67.5% in the United Kingdom.<sup>19</sup>, 85.0% in Malaysia<sup>20</sup>, 54.8-91% in Australia<sup>21,22</sup>, and 91.3% in Nigeria.<sup>23</sup> Causes of WRMD include a shortage of personnel, poor working conditions, and a lack of facilities to reduce stress on the body.

The relatively high prevalence (33%) of work-related musculoskeletal symptoms observed in the lower back and neck among physical therapists in this study is consistent with several studies on the prevalence of back pain among other occupational health workers. Smedley and colleagues, who surveyed 1,616 nurses, reported a 12-month prevalence of low back pain of 45%. In a survey of 344 physiotherapists, Molumfi et al. identified the prevalence of occupational illnesses. Concomitant low back pain lasting 3 days or more was 29% figure is slightly lower than the results and is probably linked to the definition.<sup>24, 25</sup> In their study, Buddhadev Neeti P et al. similarly discovered a greater prevalence and concluded that practicing physical therapy is a major contributing factor for WRMDs. This may be a reflection of the environment in which physiotherapists practice in India.<sup>26</sup>

This study found that the higher prevalence of WRMD among physiotherapists is due to treating a large number of patients, working in the same position for long periods of time, awkward postures, insufficient rest, and a lack of breaks to reduce physical strain.

## CONCLUSION:

Work-related musculoskeletal disorders constitute a significant health risk in the field of physiotherapists. The prevalence of work-related musculoskeletal disorders among physiotherapists in the North Gujarat region is high (59.17%). Therefore, this supports the research hypothesis of the present study. The most common work settings in which WRMD first occurred were private clinics, outpatients, and home visits. The incidence of WRMD among physiotherapists was highest in the neck, lower back, upper back, and shoulders. Therefore, it is recommended that educational programs on prevention and coping strategies for musculoskeletal symptoms should be mandatory for physiotherapists to reduce the risk of developing musculoskeletal disorder, which will ultimately improve quality of life.

The limitations of this study must be acknowledged. The study included only physiotherapists and not those working in rural centers, primarily in North Gujarat. The study relied on self-reported data for musculoskeletal symptoms and work-related musculoskeletal disorders, which can be subject to recall bias and subjective interpretation of symptoms. The cross-sectional design of the study captures data at a single point in time, making it difficult to establish causal relationships or assess changes in musculoskeletal health over time. Various suggestions for future research are needed to develop preventive measures aimed at promoting and restoring the health of workers in specific occupations. Additionally, a larger sample size is recommended for future studies to enhance the generalizability of the results. Including other healthcare professionals for comparison and including subjects from all age groups would provide a more comprehensive understanding of work-related musculoskeletal disorders.

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