

# Frequency of Musculoskeletal Discomfort and Peripheral Neuropathies in Clinical Physical Therapists

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## Author's Contribution

<sup>1-3</sup>Conception and design, Collection and assembly of data, <sup>2-6</sup>Analysis and interpretation of the data, <sup>3-5</sup>Critical revision of the article for important intellectual content, Statistical expertise  
<sup>1-6</sup>Final approval and guarantor of the article.

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## A B S T R A C T

**Objectives:** To determine the frequency of musculoskeletal discomfort and peripheral neuropathies in clinically practicing physical therapist and to assess their health related quality of life.

**Methodology:** This cross-sectional survey was conducted on 352 physical therapist of either gender aged 25 to 40 with minimum one year of clinical experience from February to July 2021. Modified Nordic musculoskeletal questionnaire was used to determine the prevalence of musculoskeletal disorders and Douleur Neuropathique 4 questionnaire was used to assess the peripheral neuropathies. World Health Organization Quality of Life scale was used to assess the quality of life. The data was analyzed through SPSS 21.

**Results:** The mean age of the participants was 30.01±3.66 (years). Majority of the participants were males 196 (55.7%). Most commonly involved areas of discomfort in the past 12 months were lower back 49 (13.92%), wrist/hands 40 (11.36%) and shoulder 35 (9.94%). In last year, physical therapist reported that musculoskeletal disorders at the lower back 51 (14.49%), wrist and hands 38 (10.79%) and shoulder 30 (8.52%) respectively caused limitation in daily activities. Neuropathic pain incidence was found lower 67 (19.03%) using DN4 questionnaire. According to WHOQOL-BREF the mean score was lowest in physical (63.86±17.30) and psychological (64.96±15.68) domains of quality of life.

**Conclusion:** The current study concluded that musculoskeletal disorders were prevalent among physical therapists and only few physical therapists had peripheral neuropathy. Among quality of life domains physical and psychological domain had low mean scores compared to social and environmental domain.

**Key words:** Musculoskeletal disorders, neuropathic pain, physical therapist, quality of life, shoulder, wrist.

## Introduction

Clinical practice in the field of physical therapy is a complex process requiring real time processing of information from multiple sources and making a decision that benefits the patient.<sup>1</sup> Health problems are more significant among health care practitioners, which comes from work-life imbalance, the increased workload and work-related stress.<sup>2</sup> Risk of musculoskeletal disorders related to job/work is higher among physical therapists than in other professionals because of continuous lifting and handling of loads and awkward postures to maintain during the clinical practice.<sup>3-5</sup> According to the data reported in multiple studies these musculoskeletal problems

poses a considerable risk to career longevity and poorly impact overall health related quality of life of physical therapist.<sup>5</sup>

There is an increased economic burden related to these work related musculoskeletal conditions for the individual and the organization because of healthcare cost and loss of productivity.<sup>6</sup> Major risk factor for these musculoskeletal issues is physically demanding tasks during clinical practice.<sup>7</sup> A study findings reported that 80% of the physical therapist experience musculoskeletal symptoms in atleast one body region over 1 year life frame.<sup>3</sup> Rate of recurrence was reported to be as high

as 88% among physical therapists.<sup>8</sup> Multiple studies reported that low back pain is most prevalent work related musculoskeletal problem experienced by the physical therapist during their clinical practice.<sup>9</sup> Overworking and repetitive work also increases stress on peripheral nerves leading to symptoms like tingling, numbness and pain.<sup>10</sup>

There was high evidence available about the quality of life of other health care professionals, but there was limited evidence available of any study in Pakistan that discussed work-related musculoskeletal and neuropathic complications and overall quality of life of physical therapist. Therefore this study aimed to determine the frequency of musculoskeletal discomfort and peripheral neuropathies in physical therapist doing clinical practice and assess their quality of life. Inclusive of this, by finding the existing cases of musculoskeletal disorders and peripheral neuropathy awareness about the factors causing such problems, treatment to reduce progression and preventive measures to inhibit them in the future can be taken.

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## Methodology

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This was a cross sectional survey conducted on 352 physical therapist from February to July 2021 after getting approval from Institutional Review Board and Ethical Committee of Shifa International Hospital, Shifa Tameer-e-Millat University (Ref: IRB # 072-21, Dated: April 9, 2021) Islamabad Pakistan. Sample size was calculated using Rao software using 95% confidence interval and 5% margin of error. Data was collected using non-probability convenience sampling technique from twin cities Rawalpindi and Islamabad.

Inclusion criteria was physical therapist of either gender aged 25 to 40 with minimum one year of clinical experience whereas physical therapist with any chronic or systematic disease, congenital anomalies and trauma or recent injuries were excluded from the study.

First of all the research purpose and its significance was explained to all the participants. Then participants were asked to fill and sign the informed consent which was attached with questionnaires. The questionnaires were distributed among those individuals who fulfill the inclusion criteria. After informed consent the participants were asked to fill the provided questionnaires.

Assessment of musculoskeletal pain, discomfort and disorders was done using Modified Nordic musculoskeletal questionnaire. It contains 4 questions and each question has category of different parts of body like "neck, shoulder, upper back, elbow, wrist/hands, lower back, hip/thighs, knees, and ankles/feet". The questionnaire is valid with cut-off value above

0.3. The reliability test results with Cronbach's alpha value is >0.9 (11).

DN4 is a neuropathic pain diagnostic questionnaire used for the assessment of peripheral neuropathy. It has 10 questions in it and every question carried 1 point. The score equal to or greater than 4 indicate peripheral neuropathy and less than 4 indicate negative results. The DN4 questionnaire is reliable with Cronbach's alpha coefficient: 0.71 and valid for a cut-off value > or = 4 points.<sup>12</sup>

WHOQOL-BREF questionnaire was used to measure the quality of life. It contains 26 items covering the 4 domains of quality of life. Physical domain encompasses 7 items while psychological contains 6 items, social relationship contains 3 items and environmental domain contains 8 items. It is a 5 point Likert scale where 1 represents "disagree" and 5 represents "completely agree". The scores are then transformed on 0-100 scale, higher score indicates better quality of life and vice versa. The construct validity of all subscales shows high positive correlation, ranging from 0.608 to 0.839, with each other. The overall reliability of questionnaire is 0.92.<sup>13</sup>

Descriptive statistics were used in this study. For descriptive statistics, frequency, percentages, mean and standard deviation were used. Data was analyzed using SPSS version 21.

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## Results

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Out of total 352 participants 196 (55.7%) were males and 156 (44.3%) were females. The mean age of the participants was  $30.01 \pm 3.66$  years. Majority 198 (56.3%) reported to have pain of musculoskeletal origin, 52 (14.8%) reported to have neuropathic pain and 28 (8%) participants reported to have mixed type of pain.

According to the results of Modified Nordic musculoskeletal disorders questionnaire 12- month period prevalence of musculoskeletal discomfort was commonly reported in lower back (13.92%), wrist/hands (11.36%) and shoulder (9.94%) among physical therapists (Table I). In last year, physical therapist reported that musculoskeletal disorders at the lower back (14.49%), wrist and hands (10.79%) and shoulder (8.52%) respectively caused limitation in daily activities (Table I).

Out of total 352 participants, majority 285 (80.97%) of the participants reported no neuropathic pain (Table 2). The mean QOL score was highest in social relationship domain followed by environmental domain. The lowest mean score was seen in physical and psychological domains (Table II).

**Table I: Frequency of trouble (such as ache, pain, discomfort, numbness) that have prevented you from carrying out normal activities during last 12 months.**

Body region	Musculoskeletal Discomfort (trouble during last 12 months)		Musculoskeletal Discomfort (trouble from carrying out normal activities during last 12 months)	
	N (%)		N (%)	
	Yes	No	Yes	No
Neck	22 (6.25%)	3 (0.85%)	20 (5.68%)	14 (3.98%)
Shoulder	35 (9.94%)	4 (1.14%)	30 (8.52%)	11 (3.12%)
Upper back	30 (8.52%)	11 (3.125%)	27 (7.67%)	18 (5.11%)
Elbow	24 (6.82%)	19 (5.4%)	24 (6.82%)	13 (3.7%)
Wrist/hands	40 (11.36%)	13 (3.7%)	38 (10.79%)	9 (2.56%)
Lower back	49 (13.92%)	14 (3.98%)	51 (14.49%)	13 (3.7%)
Hips/thighs	11 (3.125%)	28 (7.96%)	11 (3.12%)	17 (4.83%)
Knees	26 (7.39%)	8 (2.26%)	24 (6.82%)	13 (3.7%)
Ankle/Feet	12 (3.41%)	3 (0.85%)	8 (2.27%)	11 (3.12%)

**Table II: Frequency of peripheral neuropathy using DN4 questionnaire and Quality of life domain scores**

DN4 questionnaire	
Responses	N(%)
Yes	67 (19.03%)
No	285 (80.97%)
Quality of life domain scores	
Quality of life domains	Mean±SD
Physical	63.86±17.30
Psychological	64.96±15.68
Social relationship	76.17±13.78
Environmental	68.18±13.27

## Discussion

The current study results showed that there is high risk of musculoskeletal disorders related to work among physical therapist especially in lower back, wrist/hands and shoulder region. Supporting the results, a study by Munir Ahmed et al. showed that lower back and shoulder is the most commonly involved area for discomfort among physical therapist doing clinical practice in Pakistan.<sup>14</sup> Working posture and repeated lifting/transferring of the patients contributes to increased discomfort in the lower back.<sup>15</sup> Other studies reported similar findings of higher lower back work related musculoskeletal disorder prevalence, followed by other regions including neck, wrist/hands and shoulder.<sup>4, 16</sup> Physical therapist clinical job is demanding involving a lot of repetitive work that puts a lot of stress on specific anatomical areas such as lower back, neck, upper back and hand/wrist).

The prevalence of neuropathic pain was low among physical therapist in the present study. To our knowledge, the current study is the only study that portrays the prevalence of peripheral neuropathy among physical therapists. Although the percentage was low but still, it shows the existence of peripheral neuropathy among physical therapists. Contrary to the results peripheral neuropathies was found higher among health care workers doing clinical practice.<sup>17</sup> The reason for higher scores might be long working hours, compensatory postures and health related conditions such as diabetes.

Quality of life has become a major issue of concern in current era. Professional development, competition, and stress influencing the quality of life of all health care professionals.

The present study results showed low mean scores in physical and psychological domain of quality of life. Similar results were reported in a cross-sectional study where physical domain of quality of life was negatively affected among physical therapist doing clinical practice.<sup>18</sup> The possible reason for this similarity in results might be the physically demanding job of the physical therapist around the world that not only increases the incidence of musculoskeletal disorders but also affect their overall quality of life.

## Conclusion

The current study concludes that musculoskeletal disorders are prevalent among physical therapists of Pakistan and only few physical therapists had peripheral neuropathy. The most commonly affected body parts were low back, wrist/hands and shoulder. Quality of life of physical therapist was better in social and environmental domain and lowest score was reported in physical and psychological domain.

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