



INCIDENCE OF MUSCULOSKELETAL DYSFUNCTIONS IN PHYSIOTHERAPISTS GIVING HOME PHYSIOTHERAPY SERVICE IN PUNE CITY

Khushi Ajay Maheshwari¹, Dr. Shilpa Khatri²

¹ Intern, College of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune – 37

² Assistant professor, College of Physiotherapy, Tilak Maharashtra Vidyapeeth, Pune – 37

Corresponding Author – Dr. Shilpa Khatri²

ABSTRACT

This study was undertaken to find out incidence of musculoskeletal dysfunctions in Physiotherapists giving home Physiotherapy services in Pune city. Methods – A sample size of 76 Physiotherapists were taken, according to inclusion and exclusion criteria and were assessed using Nordic musculoskeletal questionnaire. Data collected was statistically analysed. Results - Maximum Physiotherapists experienced lower back pain that is 64%, followed by neck pain 55%, 41% upper back pain, 34% shoulder pain and 16% physiotherapists who experienced knee pain. Also 11% physiotherapists experienced wrist pain, while remaining 9% and 7% reported of having hip pain and elbow pain after home visits. Conclusion - The study concluded that there is high incidence of low back pain 64% followed by neck pain that is 55% in Physiotherapists giving home Physiotherapy services in Pune city.

Keywords - Musculoskeletal dysfunctions, Physiotherapists, home Physiotherapy service, Nordic Musculoskeletal Questionnaire

1. INTRODUCTION

Musculoskeletal disorders (MSDs) can affect the body's muscles, joints, tendons, ligaments and nerves.¹ They are common causes of severe long-term pain and physical disability.² Musculoskeletal disorders (MSDs) are among the most common work-related complaints.³ Most work-related MSDs develop over time and are caused either by the work itself or by the working environment.⁴

Although some musculoskeletal injuries occur at one specific moment, many more result from repeated strength demands coupled with lack of significant rest periods. Upon exceeding the tissue tolerance of an individual, these injuries further impair the body's ability to heal itself from the long-term adverse effects of work-related activities.⁵

Musculoskeletal dysfunctions are commonly seen among Physiotherapists because of their nature of profession.⁴

As defined by WHO, Physiotherapists assess, plan and implement rehabilitative programs that improve or restore human motor functions, maximize movement ability, relieve pain syndromes, and treat or prevent physical challenges associated with injuries, diseases and other impairments.⁶

Physiotherapist promotes the quality health of the community as a whole and are often at high risk of developing work related MSDs as they are mostly involved in physically demanding and intense, repetitive tasks in their practices.⁷ They have to use high physically demanding manual and handling skills while treating their patients that put uneven stress on the body.³

The most common physical causes and organizational risk factors of MSDs include:

- Load handling, especially when bending and twisting
- Repetitive or forceful movements
- Awkward and static postures
- Vibration, poor lighting, or cold working environments
- Fast-paced work
- Prolonged sitting or standing in the same position
- Thus, the use of manual therapy techniques such as massage is associated with wrist and hand symptoms.³

Special fields of physiotherapists (orthopaedic, neurology, etc), conditions of workplace, age, and sex of physiotherapists are effective in the prevalence of these work-related disorders.⁸ Physiotherapists also routinely perform activities such as transferring dependent patients, assisting with mat activities, and lifting heavy equipment.¹ Also they perform manual therapy, such as soft-tissue mobilization, which means that the upper limb is also exposed to risk factors associated with musculoskeletal and neurovascular disorders.⁹ Prolonged or repeated bending is recognised as increasing the risk of back problems.¹⁰ Home visits are sometimes necessary in order to enable the Physiotherapist to assist the patient to cope up with their

disability, or to assess the suitability of discharge when recovery has not returned the patient to normal. It is not always easy to assess and treat the patient at home.¹¹ Physical structure is one of the difficulties experienced in the daily work of physiotherapists as sometimes the design of the home or the space is limited, layout of the furniture can be problematic, inappropriate height of bed, small rooms, unavailability of chairs and stools, poor ventilation, illumination, shortage of materials are some of the problems experienced.

Due to which while providing physiotherapy services, they adopt challenged abnormal postures which might have an adverse effect on their overall health.⁴

Besides the shortage of materials and inappropriate physical space, unavailability of vehicle for carrying out home visits, mode of transport, travelling distance to the place of home visit, driving hours required to reach the place, the traffic in between, type of road and hurdles, can be the leading factors to Musculoskeletal dysfunctions.

Patient handling with assistance is less risky than handling by only one person.¹⁰ Also, sitting in the same posture for a long time will result in restriction in blood flow, which causes distress to body parts causing muscle stiffness and thereby discomfort.¹²

Although physiotherapists have sufficient knowledge of musculoskeletal injuries and prevention strategies, they are at risk of work-related injuries.⁸ There is quite extensive literature available about MSDs in the healthcare sector but little available data specifically for the profession of physiotherapists, while no similar study has ever been performed in Physiotherapists giving home physiotherapy services.

The purpose of this study is to identify the factors like availability of the facilities, physical structure, travelling distance, mode of transport and also the traffic is been considered, traffic is included so as in to understand the duration when the therapist has to wait in the traffic, the number of times he has to press the break, the hurdles which he/she has to pass, which can be the contributing factors leading to musculoskeletal dysfunctions among physiotherapists giving physiotherapy services in Pune City.

OBJECTIVE –

To assess the physiotherapists for musculoskeletal dysfunctions using Standard Nordic Musculoskeletal scale.

2. RESEARCH METHODOLOGY

It was a survey-based study that was carried out by approaching hospitals and rehabilitation centres in and around Pune. The study used convenience sampling method and duration of study was approximately 6 months.

2.1 Population and Sample

Inclusion Criteria

- 1) Physiotherapists giving home Physiotherapy services
- 2) Work experience - minimum 1 year
- 3) Both male and female physiotherapists
- 4) Age group 21 to 30

Exclusion Criteria

- 1) Past history of physical trauma or major illness
- 2) Any cardiovascular abnormality
- 3) Any current illness causing pain
- 4) Pregnant females

- Standardized Nordic questionnaire ⁷

3. PROCEDURE

- Permission was taken from the institutional ethical committee of Tilak Maharashtra Vidyapeeth and various health and rehabilitation centers were approached across Pune.
- Participants were included according to the inclusion and exclusion criteria.
- The aim, objectives and method were explained to the participants.
- They were told to fill the data collection form and self-constructed questionnaire which had simple questions about their name, age, gender, specialization, no. of patients they treat per day, average time per visit, mode of transport, average time per visit, etc.
- The Physiotherapists were told to fill the Nordic musculoskeletal questionnaire which has three questions about all major seven joints.
- The response of the participants was obtained. The data obtained was subjected for statistical analysis.

4. RESULTS

Table no. 1

AGE GROUP	NO. OF PHYSIOTHERAPISTS
21-25	72
26-30	4

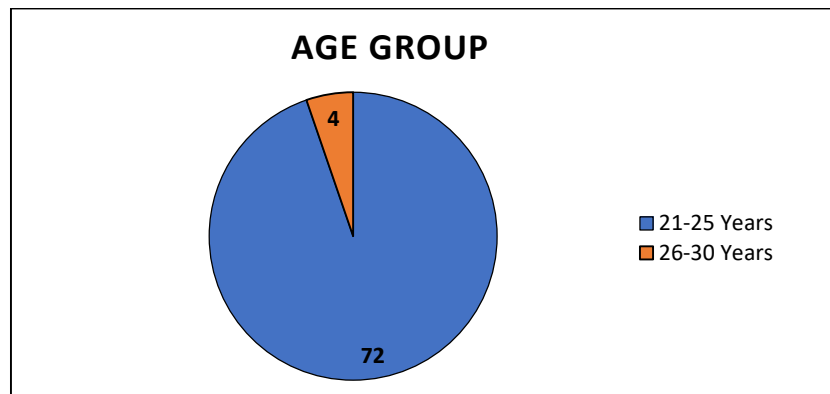


Figure no. 1 Age group

Interpretation: Table 1. Indicates that out of 76 physiotherapists, 72 of them belong to the age group between 21-25 years, while 4 of them belong to the age group between 26-30 years.

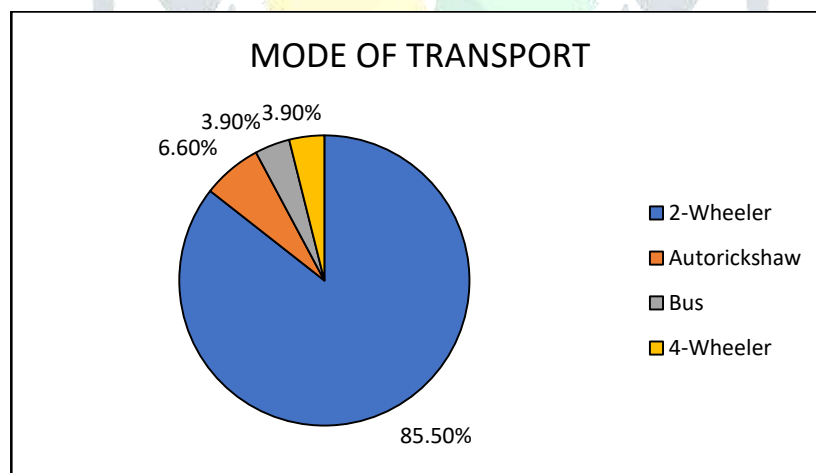


Figure 2. Mode of transport

Interpretation: The pie diagram indicates that 85.5% of physiotherapists use 2-wheeler as their mode of transport, 6.6% of the physiotherapists travel by autorickshaw, 3.9 % of the physiotherapists travel by bus and 4-wheeler.

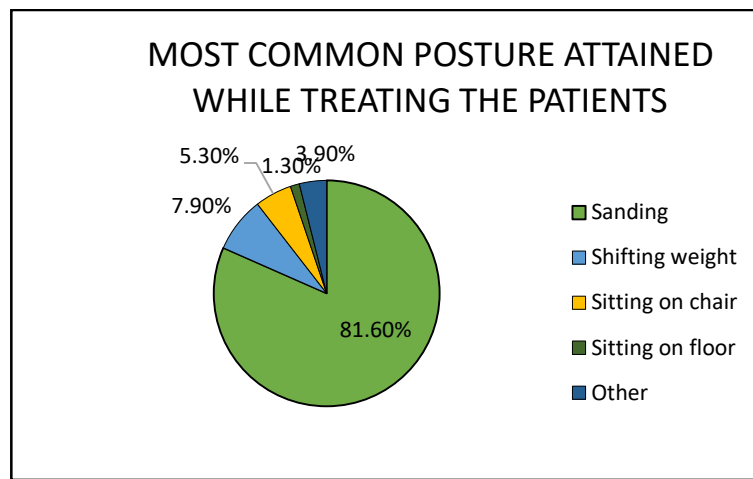


Figure 3. Most common posture attained while treating the patients

Interpretation: Most of the physiotherapists i.e., 81.6% prefer standing posture while treating the patients, 5.3% of the physiotherapists prefer treating their patients by sitting on chair, 1.3% of the physiotherapists prefer treating their patients by sitting on floor, 7.9% of the physiotherapists prefer treating their patients by shifting weight, 3.9% of the physiotherapists prefer treating their patients in some other positions.

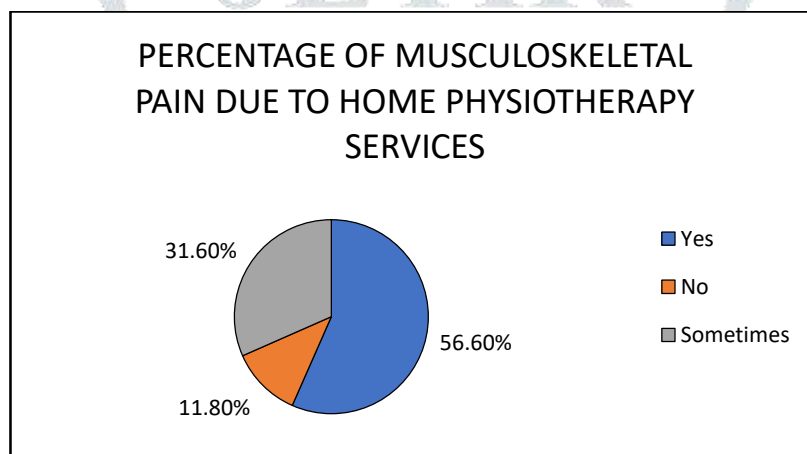


Figure 4. Percentage of musculoskeletal pain due to home Physiotherapy services

Interpretation: The pie diagram indicates that 56.6% of physiotherapists are facing musculoskeletal pain and discomfort due to home visits, 11.8% of them are not facing any musculoskeletal discomfort due to home visits, 31.6% of them are facing musculoskeletal pain or discomfort sometimes due to home visits.

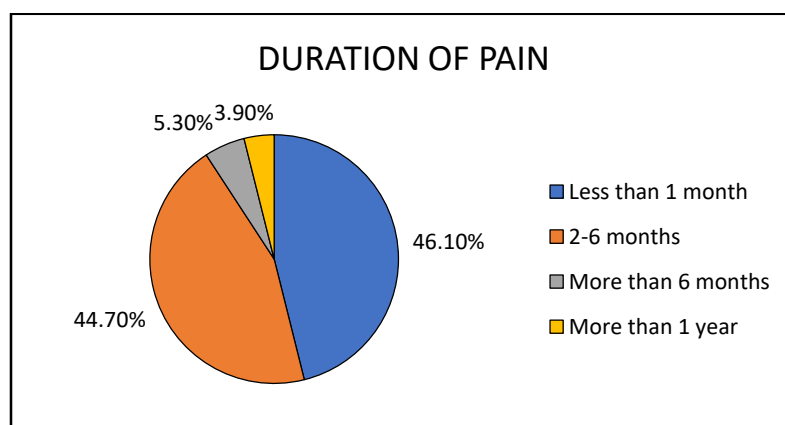


Figure 5. Duration of pain

Interpretation: The pie diagram indicates that 46.1% of physiotherapists are experiencing musculoskeletal pain from less than 1 month, 44.7% of them are experiencing musculoskeletal pain or discomfort from 2-6 months, 5.3% of them are experiencing musculoskeletal pain or discomfort for more than 1 year, 3.9% of them are experiencing pain from more than 1 year.

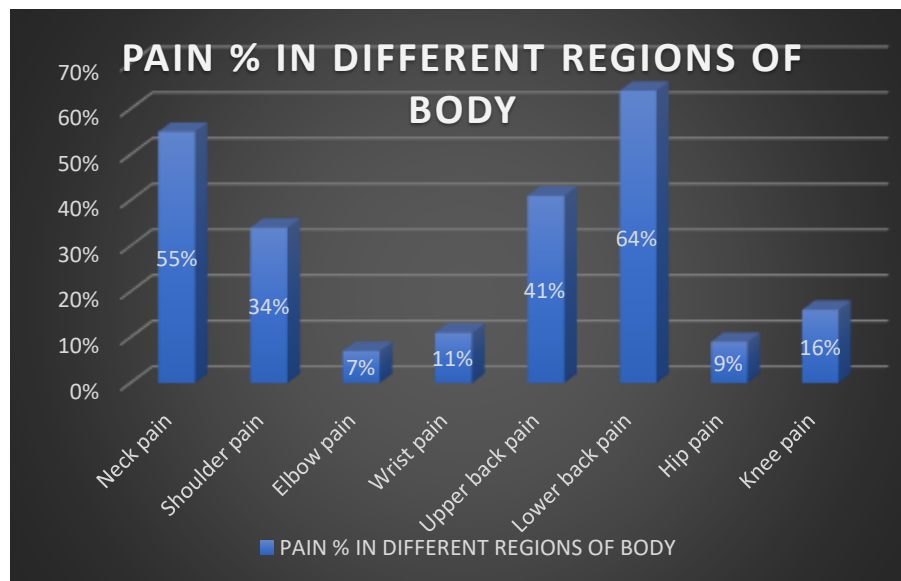


Figure 6 - Pain percentage in different regions of body

Interpretation: Most of physiotherapists experienced pain due to home visits. Maximum physiotherapists experienced lower back pain that is 64%, followed by 55%, 41%, 34% and 16% physiotherapists who experienced neck pain, upper back pain, shoulder pain and knee pain respectively. Also 11% physiotherapists experienced wrist pain, while remaining 9% and 7% reported of having hip pain and elbow pain after home visits.

5. DISCUSSION

Physiotherapists are prone to develop musculoskeletal dysfunctions in them because of the nature of their profession.⁴ Physiotherapy is concerned with enabling patients to maintain and restore maximum movement and functional ability.

The aim of this study is to find out the incidence of musculoskeletal dysfunctions in physiotherapists who give home-based physiotherapy.

Home visits are necessary to enable the physiotherapist to assist the patient to cope up with their disability, or to assess the suitability of discharge when recovery has not returned the patient to normal.

In this study, we collected demographic and WRMD data from 76 physiotherapists who gave home physiotherapy services in Pune city, and analysed risk factors, and site of pain, we asked them to complete the self-administered questionnaire.

Areas of discomfort were studied using the Nordic Musculoskeletal Scale which has three questions about all major seven joints namely neck, shoulders, elbows, wrist, hips, knees, ankle, upper back and lower back.

Total 76 physiotherapists were included in the study, of which 68 were females and 8 were males. The mean age of participants was 26.5 years.

About 76.3 % i.e., 58 physiotherapists give home physiotherapy to patients. Most of the physiotherapists 93.4% were treating ortho-musculoskeletal conditions, 53.9% were treating neurological conditions, 15.8% were treating cardiorespiratory conditions and remaining 10.5% were treating obstetrics and gynaecological conditions.

Home based physiotherapy plays an essential role in rehabilitation for the patients who are unable to visit the hospital or physiotherapy clinic for treatment.

Two-wheeler is considered as one of the fast and fuel-efficient means of transport, compared to other means of transport.¹²

Two-wheeler riders are exposed to a large number of factors, which contributes to discomfort.¹² In this study 85.5% of Physiotherapists used 2-wheeler as their primary mode of transport.

According to our study 40.8% population required 30 mins to 1 hour for travelling to reach the place, usage of two wheelers for prolonged time can cause musculoskeletal disorders, also two-wheeler riders are exposed to the environment directly to a greater extend and factors such as heat, noise, vibration affecting them more dangerously compared to other means of transport.¹² Most of the physiotherapists, that is 51.3% spent 30- 45 mins per visit and 89.5% of them treated 1-3 patients per day.

31.6% of the physiotherapists carry modalities or equipment's along with them during home visits to treat the patients. Depending on the patient's condition modalities such as IFT, TENS, US, EMS, etc may be required, and hence are needed to be carried along; the weight of the modality, the method of carrying the modality, mode of transportation may cause additional physical stress on the physiotherapist. In our study 11.8% of the physiotherapists changed home setup of the patient's house for treating them by using a stepper or a small stool if the height is high, increasing the bed height by adding more mattress, moving the bed to approach the opposite side of bed, making use of window railings for support or assistance, by continuously changing patients' position, fixing railing in the toilet or bathroom, attaching a wheel with a scarf for overhead pulley using lots of pillows, tables, chairs, water bottles etc.

Most of the physiotherapists 81.6% prefer standing posture while treating the patients, they need to stand for prolonged time for the treatment, the study Postural control during prolonged standing in persons with chronic low back pain by Lafond D, Champagne A, Descarreaux M, Dubois JD, Prado JM, Duarte M. has shown that, prolonged standing has been associated with development and aggravation of low back pain.¹³

5.3% of the physiotherapists prefer treating their patients by sitting on chair, 1.3% of the physiotherapists prefer treating their patients by sitting on floor, 7.9% of the physiotherapists prefer treating their patients by shifting weight, 3.9% of the physiotherapists prefer treating their patients in some other positions.

23.7% of the physiotherapists prefer assistance by patients relative or assistant while treating the patients in their home setup. Assistance is required in conditions when the patient is unable to walk independently. 30.3 % physiotherapists take break in between the treatment for themselves, the goal of break between the treatment is to interrupt or decrease long periods of repetitive or monotonous workloads and periods in which physiotherapists have to adopt awkward postures. 36.8% of the physiotherapists do fitness exercise for themselves, regular physical activity is known to improve health. Several studies have examined physical activity and relation to primary prevention of musculoskeletal problems. Higher level of fitness may correlate with a lower incidence of musculoskeletal disorders.¹⁴ Results of this study show that 56.6% of physiotherapists are facing musculoskeletal pain and discomfort due to home visits, physical therapists are mostly involved in performing manual therapy techniques such as mobilization, stretching, myofascial release, transferring patients and maintaining a position for a prolong period of time. Also, they have to work in the same position for longer period of time, working in static postures with flexion or rotation; and performing manual therapy techniques, all these activities commonly lead to injuries and discomfort. Furthermore, treating the patients in their home set-up may be problematic if the height of bed is inappropriate, if the space in the room is limited, if the layout of the furniture is problematic etc. all these factors may cause the physiotherapists to stand in awkward or uncomfortable posture, which may further lead to pain and discomfort. In our study we found out that, most of physiotherapists experienced pain due to home visits. The results of this study showed higher incidence of lower back pain, with 64% low back pain followed by neck pain 55% respectively, which is similar to the result of previous study done by Priyanka Maheshwari et al (2015)² which concluded that low back and neck regions were the most commonly affected site among physiotherapists.² Another study of Work-related musculoskeletal disorders: A survey of physical therapists in Izmir-Turkey have also identified lower back as the most commonly involved area of the body, followed by neck and upper extremities.⁹ A cross-sectional study done in Bangalore by Vijay Mohan et al have shown that holding the head in a bent posture and working in the same posture for prolonged periods of time were both significantly associated with neck pain.¹⁵ In this study too, holding head in a bent posture was found to have significant association with and neck complaints. 41%, 34% and 16% of physiotherapists experienced upper back pain, shoulder pain and knee pain respectively. Also 11% physiotherapists experienced wrist pain, while remaining 9% and 7% reported of having hip and elbow pain after home visits. 46.1% of physiotherapists are experiencing musculoskeletal pain from less than 1 month, 44.7% of them are experiencing musculoskeletal pain or discomfort from 2-6 months, 5.3% of them are experiencing musculoskeletal pain or discomfort for more than 1 year, 3.9% of them are experiencing pain from more than 1 year.

60.5% of physiotherapists are not taking any treatment or medications for the pain, whereas 39.5% of physiotherapists are taking treatment in the form of modalities, exercises, yoga, stretches, myofascial release and cryotherapy.

6. CONCLUSION

The study concluded that there is high incidence of low back pain 64% followed by neck pain that is 55% in Physiotherapists giving home Physiotherapy services in Pune city.

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