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[ORIGINAL ARTICLE]

Trends of musculoskeletal conditions in patients undergoing physiotherapy at tertiary care hospital – A retrospective study

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ABSTRACT :

Background: Musculoskeletal disorders (MSDs) are prevalent across the globe, and in India are the commonest causes of long-term pain and disability, affecting millions of people. As physiotherapy plays an important role in preventing and helping in recovering these MSDs. This study is aimed to determine the trend of musculoskeletal conditions among patients undergoing physiotherapy treatment at tertiary care hospital. In a tertiary setup, a particular trend of the disorder might help in formulating a new treatment program that will involve physiotherapy & prevention strategies.

Purpose : To study the prevalence of musculoskeletal conditions in patients undergoing physiotherapy at tertiary care hospital.

Materials And Methods: It was a retrospective observational study in a tertiary care setup. Trends of patients having different musculoskeletal disorders have been observed from January 2022 to January 2023. The Disorders were divided into traumatic and non-traumatic categories. After arranging the data condition-wise analysis was done and the percentage of each condition was calculated accordingly. A total of (n = 6413) patient's one-year data was analysed for different musculoskeletal conditions.

Results: Results showed a majority of disorders that patients in the rural setup are experiencing are lower limb fractures accounting for 44.0%, low back pain at 31.12%, and neck pain at 21.25% of all conditions.

Conclusion: There is a high prevalence of occupation-related musculoskeletal disorders comprising back pain and neck pain under a non-traumatic domain & lower limb fracture under a traumatic domain in tertiary care hospital. Attempts should be made to educate the rural population about physiotherapy and prevention strategies related to increased work demands, to prevent trauma.

Keywords: Musculoskeletal disorders, trends of patients

Introduction

Musculoskeletal Disorders (MSDs) are prevalent across the globe, and in India are the commonest causes of long-term pain and disability, affecting millions of people.1,2 The prevalence of MSD's among the adult population was found to range between 6.92% and 76.8%.9 Million of people across the globe are getting affected by different musculoskeletal disorders (MSDs) causing long-term pain and disability.1Increasing prevalence of musculoskeletal pain and dysfunction such as neck, shoulder, and lower back pain in society with consistently increasing costs has put the healthcare system at burden.1,3

Musculoskeletal disorders are disorders of the muscles, nerves, tendons, joints, cartilage, and supporting structures of the upper and lower limbs, neck, and lower back4. These are caused by sudden exertion or prolonged exposure to physical factors (repetition, force, vibration, or awkward posture).4

When the prevalence of musculoskeletal disorders among the rural population was assessed, most of the

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previous studies show a higher prevalence of perceived musculoskeletal disorders among the working population with work-specific symptoms.3,5,6,7

Tertiary care, is a level above secondary health care, that has been defined as highly specialised medical care, usually provided over an extended period of time, that involves advanced and complex diagnostics, procedures and treatments performed by medical specialists in state-of-the-art facilities.8

As the global as well as national burden of different musculoskeletal conditions is on rise, of which the lifetime prevalence of low back pain in India is 77%9, Out of all 291 conditions studied in the Global Burden of Disease 2010 Study, neck pain ranked 4th highest in terms of disability as measured by YLD.10 Overall prevalence of knee OA was found to be 28.7%.11 According to population surveys, shoulder pain affects 18%-26% of adults at any point in time.11

Data published in 2021 representing the epidemiology of pain in the back and extremities in rural population showed the 12-month prevalence of back pain was 66% in men and 86% in women.12 Rural population-based studies have shown that farmers had increased odds of reporting low back pain and there is absolute evidence of a link between high physical workload exposure (as measured by occupation, physical stress, and vibration at work) and low back pain.13

Meena et al. in 2018 did a prevalence study on musculoskeletal disorders among farmers involved in manual farm operations and found that Various risk variables were discovered to exist, and their impact on MSDs was found to be significant during crop cutting/harvesting and weeding operations. Farmers working in manual farm positions run a significant risk of acquiring MSDs in one or more body areas, such as the lower back, fingers, hands/wrists, and shoulders. These findings are in line with the study conducted by Das who detected high pain in the lower back and shoulder for the similar type of operations.14

Different factors are thought to increase work-related musculoskeletal disorders among the rural population. There are many potential factors associated with work-related musculoskeletal disorders like higher physical demands, nutrition, lack of awareness about work ergonomics, limited available health care related resources, and financial conditions.15

Job demand is directly related to MSD development.16Physiotherapy plays an important role in preventing and helping in recovering the disorder.17

Musculoskeletal disorders have been shown to be on the rise so a trend analysis was necessary to estimate the use of resources in the physiotherapy setup for future in terms of manpower/ time management in OPD, administration, and improving facilities/clinical expertise among clinicians. As in tertiary setup, a particular trend of the disorder might help in formulating preventive strategies as well as new treatment programs.

Material & method

It was a Retrospective observational study conducted at Vitthalrao Vikhe Patil Memorial Hospital, Ahmednagar, India, a tertiary care hospital. Data of total 6413 patients who visited Vikhe Patil Memorial Hospital the Physiotherapy department was analysed in the study.

Procedure

The data were derived from the daily patient registry of physiotherapy department in tertiary care hospital Ahmednagar. Study population comprised of both in and out patients under 50 years of age, which were referred to musculoskeletal physiotherapy department by orthopaedic department of Vikhe Patil Hospital and other hospitals in Ahmednagar. Data from January 2022 to January 2023 collected from monthly register of the MSK OPD was segregated into traumatic and non-traumatic condition. These conditions were represented in the form of percentage based on each condition.

Result analysis:

The study was conducted to find out the trend of musculoskeletal disorders in rural population of Ahmednagar. Out of 6413 patients who visited the tertiary care hospital physiotherapy OPD were analysed for their disorders and analysis was done for a percentage of the trend for a specific condition.

Condition- Wise analysis of the trend of musculoskeletal disorders in 1 year

Table 1: shows the percentage traumatic cases

		TRAUMATIC		
Table 1	**Sr.no.**	**Conditions**	**Number affected**	**%**
	1	LL#	1231	44
	2	UL#	652	23.33
	3	PIVD WITH SPINAL FUSION	159	5.69
	4	ACL/MCL	612	21.9
	5	DISLOCATION	30	1.07
	6	NERVEPALSY	12	0.42
	7	AMPUTATION	98	3.5

Table 2: Shows percentage of non-traumatic cases

		NON-TRAUMATIC		
Table 2	1	KNEE PAIN	712	20.31
	2	BACK PAIN	1091	31.12
	3	SCOLIOSIS	20	0.57
	4	NECK PAIN	745	21.25
	5	SOFT TISSUE	75	0.21
	6	SEPTIC ARTHRITIS	77	0.21
	7	TOTAL HIP REPLACEMENT	97	2.76
	8	FROZEN SHOULDER	155	4.42
	9	TENISS FLBOW	186	5.3
	10	DE QUERVAINS	20	0.57
	11	SUPRASPINATOUS TENDINITIS	68	1.94
	12	ROTATOR CUFF INJURY	61	1.74
	13	PLANTAR FASCIITIS	147	4.19
	14	ANKLE SPRAIN	8	0.22
	15	VERICOSE VEINS	5	0.14
	16	HEEL PAIN (CALCANEAL SPUR)	94	2.86
	17	QUADRICEPSPLASTY	12	0.34
	18	RICKETS	7	0.19
	19	CTEV	15	0.42
	20	ANK SPOND	24	0.68

Table: 1 & 2 - Statistics of 1 year condition wise data of musculoskeletal disorders from January 2022 to January 2023

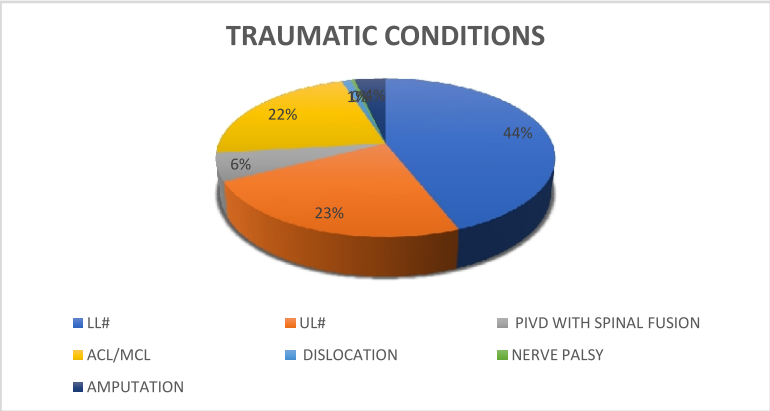

Fig -1 – Traumatic musculoskeletal conditions

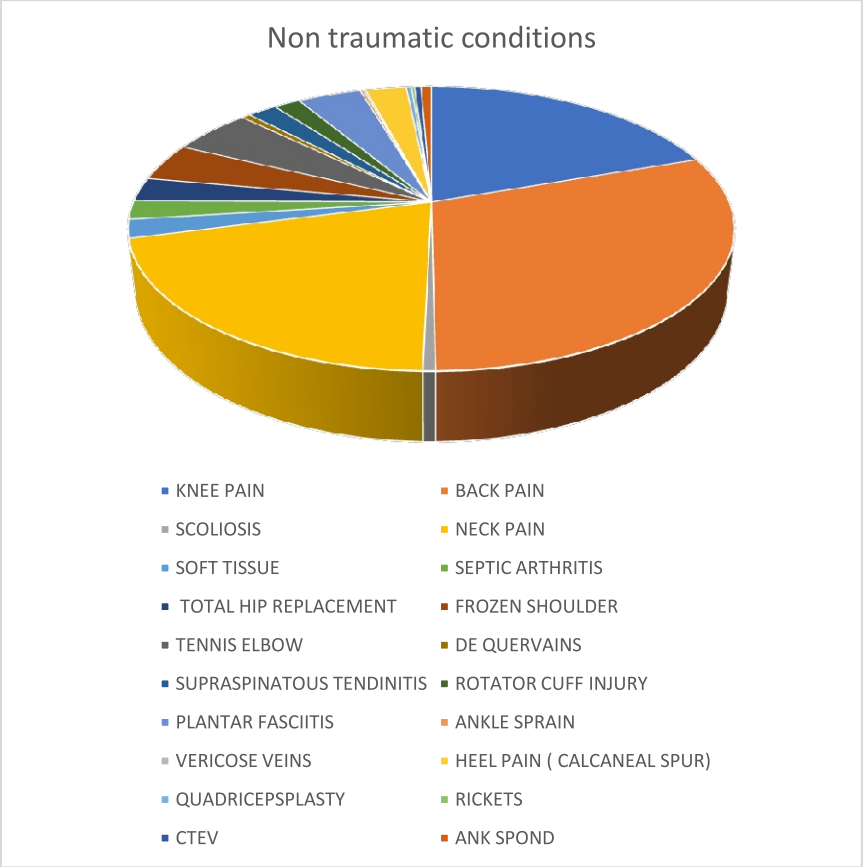

Fig. 2 : Non-traumatic Musculoskeletal Conditions

A) Traumatic :

Lower limb fractures show the highest trend of 44.0% in a year. Then the other conditions accounted as follows Upperlimb fractures: 23.33%, ACL /MCL injuries:21.9 %, PIVD with spinal fusion: 5.69% , Dislocations: 1.07%, Amputation: 3.5%, and nerve palsy: 0.42%.

B) Non-traumatic :

Under the non-traumatic condition back pain was the most common musculoskeletal disorder with a percentage of 31.12%, Neck pain was 21.25%, Knee pain accounted for 20.31%, Cold Upper limb (COLD UL)conditions which comprise of frozen shoulder, rotator cuff injuries, supraspinatus tendinitis, tennis elbow de quervains were 13.97%,then Cold Lower Limb (COLD LL) which includes plantar fasciitis, ankle sprain, Vericose veins, heel pain (calcaneal spur) were 7.23%, Ankylosing sponditlitis:0.68%, Scoliosis:0.29%, Pediatrics with musculoskeltal disorders(quadriplasty, rickets, CTEV): 0.95%, septic arthritis: 0.21%.

Discussion

Our study was a retrospective observational study and an attempt was made to reflect the trends of patients undergoing physiotherapy at tertiary care hospital. Results showed the majority of disorders that patients in the rural setup are experiencing are lower limb fractures (44 %) under traumatic conditions whereas, low back pain (31.12%) and neck pain (21.25%) are under non-traumatic section as explained in table no 1 & 2 and represented in the form of pie chart in fig no 1 & 2.

Musculoskeletal conditions: osteoarthritis, rheumatoid arthritis, osteoporosis, and low back pain which has shown to impose a major burden on overall health and healthcare systems worldwide.1 MSDs were ranked as the second commonest cause of disability in terms of Years Lost Due to Disabilities (YLD's). Among these, low back pain was the leading cause of Years Lived with Disabilities (YLDs) in 86 countries and the second & third leading causes in 67 countries.1511 Neck pain and a large category of musculoskeletal disorders were ranked in the top ten causes of global YLDs between 1990 and 2013.18

Kumar A et al. in 2019 did a review on the prevalence of musculoskeletal disorders among the adult

population of India, eight articles were reviewed each of which used different outcome measures to assess musculoskeletal disorders. They found that the prevalence of musculoskeletal disorders varied from 6.92% to 76.8% with urban and rural variation. Different factors which were responsible for the musculoskeletal pain were female sex, age, lifestyle, occupation, and nature of work. Higher prevalence of musculoskeletal disorders is directly linked to heavy workload.19

Job demand is associated with musculoskeletal disorders development. With higher work-related force demands there is a higher risk of injury. There are factors such as poor understanding, less efficient screening, and poor treatment opportunities are leading cause to increased musculoskeletal injuries.

In 2021 Das, et al. studied Ergonomic and psychosocial risk factors for low back pain among rice farmers in West Bengal, India. Results of the study explained the significant relationship between the low back pain and ergonomic risk factors such as repetitiveness, working in awkward posture, lifting loads, pulling loads which all are integral components of farming.6

Mishra, et al in 2023 studied the prevalence and risk of musculoskeletal pain in rural homemakers of north India, Modifiable risk factors in homemakers were high parity, high BMI and use of nonsmoking tobacco which had significant relation with low back pain.7

Guna, et al. in 2016 studied the relation of low back pain disability among women in rural area. The factores related to low back pain were influenced by age, marital status, illiteracy, total family income, type of delivery, number of children and household chores, menopausal status, and chronic illness. Disability was influenced by age, education, and occupation. They explained that majority of women expirienced moderate disability.5

Study was done in 2020 by Patil P. et al showed that patients from rural population has been shown to have lower awearness of occupational hazards and various safety regulations & ergonomics before and during performing high loads of manual work.20 Patients complaining low back pain typically showed the history of high wight lifting and bending activities including females who were engaged in household activities that demand repetative forward bending movement of trunk.

Major conditions which showed highest trend are traumatic conditions like lower limb fractures and upper limb fractures. When non-traumatic conditions were considered which includes low back pain, neck pain, specific and nonspecific knee pain in rural population. In accodence with the above studies our study found highest trend in non-traumatic condition is of low back pain patients which was observed due to higher demand of manual work which lead to sudden attack of low back pain.5,6,7

According to the present study results there has been increased highest trend of lower limb fractures under non-traumatic section and low back pain and neck pain under traumatic condition in rural population with the percentage of 18.44%, 16.3%, and 10.3% respectively. The possible reason behind this trend could be due to maximum number of poulation belongs to workers comprising of construction site workers, farmers, sugarcane cutting workers, brick making workers, truck drivers. In accodance with the above literature as there was maximum number of population were workers which demanded high loads of manual work which includes repetitiveness, working in awkward posture, lifting loads, pulling loads, use of nonsmoking tobacco, lower awearness of occupational hazards and various safety regulations & ergonomics before and during performing high loads of manual work.21

Though it was the first trend based study on musculoskeletal conditions in rural area of Ahmednagar only patients refered to physiotherapy department of Vikhe Patil hospital were included , in future studies multicentered trend based study can be done to assess larger pupulation.

Coping strategies like more awearness among the rural population about occupational hazards ,various safety regulations & ergonomics before and during performing high loads of manual work could have a positive impact on reducing risk of musculoskeletal dissorders among rural population.

Conclusion:

We found in our study musculoskeletal disorders are more prevalent in the rural population with a higher trend of traumatic conditions which include fractures of extremities and low back pain, neck pain & knee pain under non-traumatic category.

It has been observed that individuals with history of trauma and increased work demands had higher

incidence of musculoskeletal disoredrs, with need for triaging MSK syndromes, trying to set up a protocol for treatment, train interns/observers for postop protocols, and time management for patients, thus there is a definite need to develop and use simple screening tool to identify patients with MSD. And attempts should be made to educate the rural population about physiotherapy and prevention strategies related to increased work demands, to prevent trauma.

Limitaion :

Patients which were visiting the teriery care hospital , only those patients were included into the study. Multi-centered observational study can be conducted to get more accurate results.

Conflict of interest: None.

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