

Original Research Article

## Low Back Pain and Other Work Related Musculoskeletal Disorders and Choice of Treatment among Farmers in a Small Village of the Maharashtra State in India: A Self Reported Preliminary Study Using a Simple Questionnaire

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### ABSTRACT

**Objectives:** The study aims to establish LBP prevalence, possible associates, health service preferences and common physical complaints by farmers.

**Methods:** A cross-sectional questionnaire survey was carried out using convenience sampling in 224 farmers from Tambhere village, District Ahmednagar, Maharashtra state, India via 30 trained NSS volunteers. Data were analyzed by calculating percentage using a scientific calculator.

**Results:** The response rate was 90 %.( N=224). Total 196 (88%) farmers reported LBP trouble. Acute, sub acute and recurring prevalence of LBP was 26% (n=50), 49% (n=97) and 25% (n=49) respectively. Lifting weights and activity involving live stock were the major factors for LBP noted by farmers. 66% (n=130) respondents preferred a general practitioner (GP) and 51% (n=100) respondents additionally chose home remedies. Major symptoms reported by farmers were a) Ache in body muscles b) pain radiating from waist to foot c) LBP during rest / sleep d) morning stiffness in the spine and e) pain at joints.

**Conclusions:** Strained Work of farming related low back pain and musculoskeletal disorders are alarming in the unorganized farming sector of this region and it is necessary to tackle these problems urgently for better health and farming output.

**Key words:** 1) Rural Farmers 2) musculoskeletal problems 3) low back pain 4) Occupational hazards 5) Maharashtra

### INTRODUCTION

“Musculoskeletal disorders” include a wide range of inflammatory and degenerative conditions affecting the muscles, tendons, peripheral nerves, supporting blood vessels etc. [1] The common body regions involved in musculoskeletal disorders are low back, neck, shoulder, forearms, hip and knee. Low back pain and other musculoskeletal disorders are mostly work related illnesses due to discomfort or pain in muscles, joints,

tendons, nerves and soft tissues also known as occupational syndromes. These conditions develop due to repetitive movement, forceful movements, strain, difficult postures etc. and all these are very common health problems. [2,3] Developing countries like ours are largely agrarian cultures and physical labor in field is the most common occupation of the people. Near about 21% of the total population of India is in the agricultural sector. [4] The four regions of the spine, the one around the five

lumbar vertebrae is known as the lower back and low back pain is pain, muscle tension or stiffness localized below the costal margin and above the inferior gluteal folds with or without sciatica. Farmers are the most vulnerable group to high exposure of LBP. [5,6] Epidemiological studies of low back pain and musculoskeletal disorders (MSD) among farmers are few and far between in India and most such studies are focused on the general population and industrial workers. [7] Population surveys of musculoskeletal disorders in the Pune region of Maharashtra shows that rheumatic musculoskeletal disorders are lower in the urban community compared to the rural community. [8] However this study is not focused on the farmers' general musculoskeletal problems which are mostly work related but on low back pain. We are unaware of any literature regarding LBP among farmers in India except the study of rice cultivating farmers and musculoskeletal disorder. [9,10] This study was conducted to explore the prevalence of LBP among regional farmers, associates of LBP and musculoskeletal conditions, choice of health practitioner (systems) and types of treatments for LBP and self reported musculoskeletal troubles which they face in their occupation.

## METHODS

The Committee for Research Ethics (CRE) of the college approved this study on 30 November 2012 and it was conducted in the Tambhere village of Rahuri tehsil in Ahemadnagar district of the Maharashtra state during the first half of December 2012. The farmers in this village were selected for this study because their cultural norms, life style and farming type are homogenous. According to land records department of the Maharashtra state the agricultural population of this village is 867. [11] We selected participants in the age group of 21-70 years which were full time farmers that is the farmers generating self sufficient income from agriculture [12] and that population was found to be near about 700.

The survey system calculator of creative research systems was used for sample estimation. [13] At 95 % confidence level and  $\pm 5$  CI the estimated essential population sample size was 248 but the self reported questionnaire was correctly filled by 224 farmers. Farmers were asked to give information of LBP, musculoskeletal troubles which they faced during the last one year. The population of farmer's  $\geq 21$  years of age was surveyed with the help of volunteers who were active participants in the NSS camp of the college at Tambhere. For this task thirty NSS students were trained in a one day pre-survey workshop organized in the camp itself. Each volunteer was given 10 questionnaires to distribute to farmers by convenience sampling. Every precaution was taken for maintaining confidentiality of personal information.

The Questionnaire: For epidemiological studies of musculoskeletal disorders and their symptoms several questionnaires are available and among them Community Oriented Program for Control of Rheumatic Diseases (COPCORD) and Nordic questionnaires are commonly utilized for population surveys. [14,15] However these questionnaires are suitable for medical and nursing professionals.

Our questionnaire was very general and suitable for self reporting. It was developed in the local language-Marathi and was designed to answer questions like: "Is it a common trouble? how many times you feel LBP per year? Do you seek medical help? Do you feel LBP more at rest? Do you experience stiffness in the backbone in the morning? "It was divided in to 3 major parts. The first one dealt with information like name, sex, age, caste, religion, occupation and education. The second part was for the information about acute and sub acute lumbago and the third part was designed for seeking information like major trauma, prolonged steroid use, sciatic pain etc. At the end height, weight, blood group information, signature and the declaration was obtained. The questionnaire also seeks

self reported information about contributing factors and choice of medical treatment. Thus it provides basic information about the peasants' musculoskeletal problems for further in-depth investigation and preventive measures. LBP was defined as an ache/pain in the area between the five lumbar vertebrae and was shown on a body diagram with shaded area to all consenting farmers. Self reported lumbago (LBP) was classified as acute when the pain was reported lasting less than 6 weeks. The lumbago lasting 6 to 12 weeks was classified as sub acute. The recurring LBP was defined as the pain which recurred more than 3 times in the year after the relief from previous one. The data obtained were analyzed by calculating percentages using a scientific calculator, CASIO fx-82B.

**RESULTS**

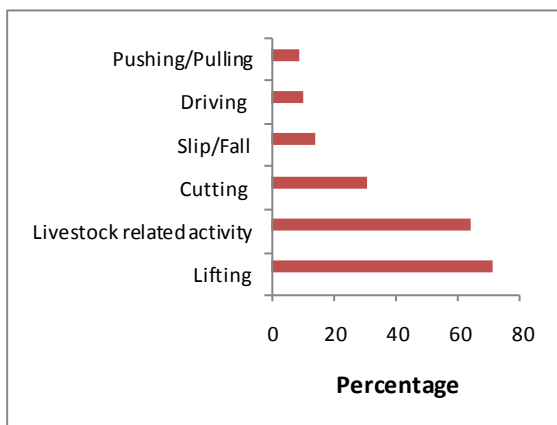
All 224 respondents were full time farmers in the age range of 21-70 years. They worked on between 2 and 20 hectares of land and were also actively engaged in

cattle rearing. Totally 196 farmers reported LBP showing 88% prevalence. The acute, sub acute and recurring prevalence of LBP was 26% (n=50), 49% (n=97) and 25% (n=49) respectively. All farmers believed that agricultural labor is the main cause of their problem. The self reported causes of LBP are summarized in Fig.-1. Lifting and live stock related activities were the major contributing factors for LBP according to the respondents' opinion. Cutting operations, slip or fall were the next reasons for causing LBP. Majority of farmers preferred Aayush general proctioner (GP) for their LBP treatment and many also went for home remedies in addition to GP (Table-1). Figure 2 shows work related musculoskeletal conditions which farmers face frequently. Tiredness and ache in body muscles, pain from waist to foot, low back pain during rest or sleep, morning stiffness in the backbone and joint pains were the major self reported musculoskeletal conditions.

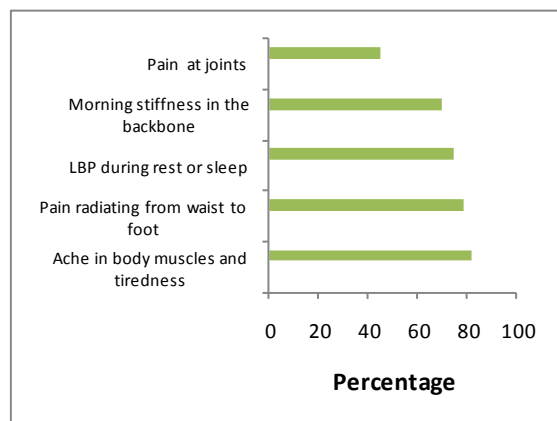
**Table -1: Choice of medical practitioner by farmers and treatments plus home remedies**

	n (%)
1) Farmers who visited medical practitioners for LBP	
a) General Practitioner (GP)	130 (66)
b) Physiotherapist	00
c) Orthopedic doctor	00
2) Treatment from GP	
a) Topical Ointments like Moove, Zandu Balm Iodex, Volini, Dazzle, Rumaxel gel etc	118(60)
b) Tablets/ Capsules like Paracetamol , Ibuprofen	18(8)
c) Exercise (walking)	80(41)
3) Home remedies like use of hot plate, brick and massage from younger family members on affected part	100(51)

Note: Many respondents reported more than one treatment hence sum of all the choice percentages is not 100. 196 farmers responded to treatment for LBP and treatment options



**Figure 1: Perceived Musculoskeletal conditions from ergonomic work factors**  
(Note: The sum of all the percentages is not 100 because many respondents reported more than one cause. N=224)



**Figure 2: Prevalence of agricultural work related musculoskeletal conditions**  
(Note that farmers reported more than one trouble. N=224)

## DISCUSSION

The acute, sub acute and recurring prevalence of LBP among farmers was 26, 49 and 25 % respectively. All respondents felt that agricultural labor creates the problem of LBP. Farmers having LBP opined that lifting and live stock related activities are the major factors for LBP. Cutting which is an essential operation in farming was also another cause of LBP revealed by farmers. Only 66% (n=130) farmers visited general practitioner for the treatment of this disorder. None had consulted a physiotherapist or orthopedic specialist. Total 60% (n=118) farmers revealed various topical ointments for rubbing on the affected area and exercises like walking when asked about the medicines prescribed by GP. A Significant number of farmers (51% n=100) opted for home remedies like using hot plate or brick and massage from younger family members along with the medical treatment (Table-1). As far as clinical symptoms are concerned, the major troubles faced by farmers are Ache in body muscles (82 %), Pain radiating from waist to foot (79 %), LBP during rest / sleep (75%), Morning stiffness in the backbone (70%) and Pain at joints (45%). Bending, twisting movements, lifting, cutting, live stock handling and thereby a major or minor trauma, incorrect or difficult work postures, digging, shoveling etc. are the most common physical activities required in farming. These activities make farmers vulnerable to these troubles. Ache in body muscles or wide spread pain throughout the body may point towards fibromyalgia while second reported pain from waist to foot may point towards sciatic pain due to nerve compression. Sciatica related low back pain is a result of compressed nerve due to herniated disk in the lumber region. These cartilage pads keep the spine flexible and function as shock absorbers. Morning stiffness in the backbone for a long period is indicative of rheumatoid arthritis while short duration of morning stiffness finger towards osteoarthritis. <sup>[16]</sup> Fibromyalgia

patients often have generalized morning stiffness. All these physical symptoms among farmers occur because of overstressed joint during lifting, repetitive loadings, improper postures, cutting operations and other farming activities, also called work related factors of low back pain. <sup>[17]</sup> It is necessary to tone down these symptoms among farmers and to find out correlation between farming activities and the physical symptoms which farmers frequently face (Figure -2). The potential selection bias cannot be ruled out even though the response rate was unexpectedly good. The causes reported by farmers were consistent of the current literature. <sup>[18-20]</sup> The self reported musculoskeletal conditions faced by farmers must be thoroughly investigated and medically treated by experts in this field. There is a need of Occupational Safety and health professionals (OSH) at village levels for the unorganized farming sector of India. OSH coverage to the farming sector as well as inclusion of occupational health with primary health care are of prime importance. <sup>[21]</sup> There are some reports of usefulness of non drug therapies like meditation and yoga postures for treating low back pain and musculoskeletal disorders. <sup>[22-24]</sup> Studies on efficacy of such non drug therapies with special reference to Indian farming community are necessary to evolve special strategies. This study provides a good base line for research on a larger scale.

**Limits of this study:** In general recent and serious musculoskeletal disorders are remembered better than older ones. The other factor is that the environment at the time of questioning may affect results. The convenience sampling method is a non probability method and hence sampling bias is possible. The test-retest method for reliability of the questionnaire is necessary. The data obtained were self reported and validation from independent sources were lacking. The sample size was small and

hence separate analyses for men and women were not performed.

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