



ISSN: 2456-0057  
IJPNPE 2018; 3(1): 88-91  
© 2018 IJPNPE  
www.journalofsports.com  
Received: 19-11-2017  
Accepted: 20-12-2017

**Suman Kumari**  
MPT, BPT, PGDBM,  
Department of Physiotherapy,  
Prem Institute of Medical  
Sciences, Baroli, Panipat,  
Haryana, India

## Risk factors for musculoskeletal disorders among farmers

**Suman Kumari**

### Abstract

Musculoskeletal disorders of the work place include the acute and chronic injuries or illness of soft tissues which are caused by mechanical stress, strain, sprain, vibration inflammation or irritation. These injuries and disorders that affects the human body's movement or musculoskeletal system (Muscles, Nerves, Tendons, Ligaments etc). Most researcher agree that exposure to a combination of work place risk factor is a major contributor to these disorders. Studies of workers have associated these disorders with many work place physical and Psychological factors. Physical factors like Intense, Repeated or Sustained exertions, awkward sustained, extreme posture of the body. Insufficient recovery time, vibrations and cold temperature specific examples of work place, Time pressure, High work load, lack of support and poor supervisor relation. Aim of this Article is to give some knowledge about risk factors for musculoskeletal disorders. According to profession.

**Method:** Sample of 500 farmers of rural district age between 18-40 years were selected Nordic musculoskeletal questionnaire to measure the musculoskeletal disorders was given to all farmers.

**Result:** 52% Males and 48% Females was selected lower back pain (75%), knee pain (78%), Shoulder Pain (50%), Neck Pain (60%), Elbow (20%), Wrist Pain (30%) higher percentage of respondents indicated chronic affection nearly a year as compared to those who were affected for around a week.

**Conclusion:** Finding of present study shows that yearly Musculoskeletal disorders in farmers of rural India alarmingly high. About 60% Indian cultivators could be affected by the disease. Especially knees and lower back areas are most affected. Knees, Shoulder, Neck Pain are other important MSDs affected farmer in the study area. Observation made during the present study suggest that poor postures, lack of ergonomic awareness in the farming community are the two main positive factors contributing to development of MSDs.

**Keywords:** Awkward, posture, sprain, inflammation, MSDs

### Introduction

Musculo-skeletal disorder are hand, arm tasks includes all types of work performed using hands and arm activity. Such as Assembling, Packaging hair styling, large number of people may be affected according to his/her daily routine. The Article presents the risk factors of work related musculoskeletal disorders among peoples with working habits and occupation. Body position can contribute to injuries. The first relates to body position. When parts of body are near the extremes of their range of movements, Stretching, Compression of Tendons and nerve occur. Longer a fixed Awkward body position is used more develop work related musculoskeletal disorders. Repetitive movements are especially hazardous when they involve the same joints and M/S groups over and over when we do the same motion too often, too quickly, far too long. To analyze how repetitive a task is we need to describe it in terms of steps or cycle.

**For Example:** Glass packing operation requires workers to pack glass in boxes with 24 glass packing. Worker grasp four glass each time same cycle would have to be repeated sit times to fill a box. Work involving movement repeated over and over is very tiring. It takes more effort to perform same repetitive movements. When work activity continuous inspite of fatigue, injuries can occur.

Studies of workers have associated these disorders with many work place physical and Psychological factors. Physical factors like Intense, repeated or sustained exertions, awkward

**Correspondence**  
**Suman Kumari**  
MPT, BPT, PGDBM,  
Department of Physiotherapy,  
Prem Institute of Medical  
Sciences, Baroli, Panipat,  
Haryana, India

sustained, extreme posture of the body. Insufficient recovery time, vibrations and cold temperatures. Specific examples of work place, Time pressure, High work load, Lack of support and poor supervisor relation.

#### Most common problems associated with these factors

- Work postures and movements
- Repetitiveness
- Force of movements
- Vibration
- Temperature
- Increase Pressure
- Lack of Poor Communication
- Low support of Co-Worker

**Aim & Objectives:** Aim of this Article is to give some knowledge about risk factor for musculoskeletal disorders.

#### Procedure (Methods)

All farmers of age 18-40 years were selected. Exclusion criteria was introduced and final sample was made for analysis an explanation of the procedure of the study was given to the subjects, to be made comfortable by telling them about of purpose of the research. Those were also be told that their response will be kept on confidential and will be used for research purpose. Explaining the need and purpose of study to all subjects. After that inform consent form and was distributed and collected from farmers on same day.

The survey is conducted on prevalence and study of risk factor work related musculoskeletal among farmers in rural areas in haryana respondents for the study was done from six villages in district Panipat (Haryana) A four section questionnaire was employed as the survey instrument. Section A sought information on demographic profile such as age, height, weight and genders section B sought to general information of work related practice and work status. Nordic questionnaire consisted of questions referring to nine body areas. There are 3 upper limb segments (Shoulders, elbows, wrists/hands/thumb) 1 and 3 lower limb segments hips knee ankle/foot and 3 trunk segments (Neck, upper back, lower back) Section C contain items on perceptions on job related risk factors that may contribute to development of work related musculoskeletal disorders while section gleaned data on coping strategies toward reducing the risk for development of work related musculoskeletal disorders in peoples among rural areas in Haryana. The questionnaires for this study will be adapted from previously validated questionnaire on WMSDS work related musculoskeletal physical therapist [26, 27]. To answer the research question on prevalence musculoskeletal discomfort in rural areas peoples Nordic questionnaire (NMQ) will selected. There are many researches which document the prevalence various musculoskeletal discomfort in occupation like mine workers, stone cutters, sanitary workers, military personnel and aircrew workers act. But much less has been documented about musculoskeletal discomfort in rural areas peoples according to their heavy work load involves excessive bending, twisting, extreme of temperature, carrying load, exposure to dust stoop postures, repetitive and monotonous work etc. Observation made during the study suggest the poor postures and lack of ergonomic awareness in the rural areas peoples and causative factors contributing to the development of MSDs. Future studies should especially focus on the effect of health education and adherence to ergonomic measures and postures on prevalence of MSDs.

The data was collected by using Nordic Musculoskeletal questionnaire in English and Hindi.

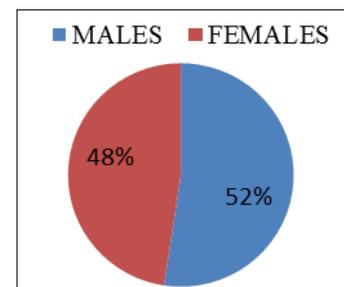
Subjects were given to clear instructions about filling the questionnaire and after that no assistance was giving.

Nordic pain questionnaire is suitable for application in work places and for large workers very quickly and cheaply.

**Results:** The study was conducted to find the Musculoskeletal disorders in farmers. (N-500). Body region-wise analysis of weekly Acute and Chronic Musculoskeletal discomforts.

**Table 5.1:** distribution of subjects according to Gender

Genders	Males	Females
Total No.	262	238
Percentage	52%	48%



- **Neck:** Descriptive analysis of data reveals that a total 20% Neck pain of farmer experienced.
- **Shoulder:** Descriptive analysis 23% farmers experienced shoulder pain.
- **Lower Back Pain:** Analysis of data reveals that 62% farmers suffered this pain.
- **Knee Pain:** Acc. to study 38% farmers reported Knee Pain.
- **Elbow:** Acc. to study 22% farmers reported Elbow Pain.
- **Wrist:** Acc. to study 20% farmers reported Wrist Pain.
- **Upper Back:** Acc. to study 10% farmers reported Upper Back Pain.
- **Hip:** Acc. to study 22% farmers reported Hip Pain.
- **Ankle:** Acc. to study 18% farmers reported Ankle Pain.

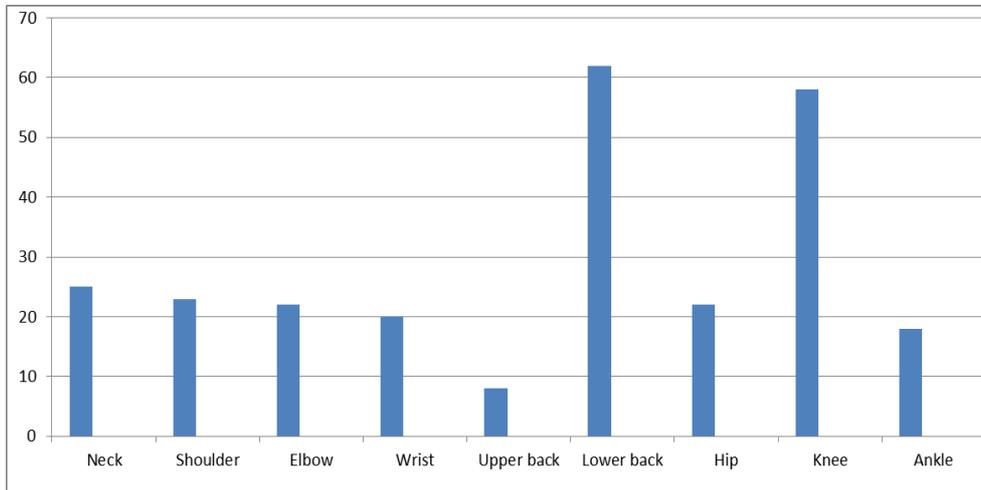
#### Discussion

India is an agricultural country most of the populations are engaged in farming activities. These farmers are exposed to many risky conditions like extreme temperatures, dust and situations that involve excessive bending, kneeling, squatting, twisting, carrying heavy loads and repetitive movements of the hands. These are the more risky factors that lead to musculoskeletal disorders. According to results of our study 76% of farmer's complaint of pain in their knees and 70% above complaint low back pain. This can be attributed to their continuous and repetitive bending and twisting movements that leads to high incidence of musculoskeletal disorders. A similar study done by ahmadi omran etc. Also found a incidence of back pain among farmers. Neck pain and shoulder pain were the next common complaint of farmers. This could due to heavy weight lifting on their heads repetitive movements that are carried out during field work. A Study done on farmers for most common musculoskeletal disorders affecting the farmers. Lower back pain 62% knee pain 38%, shoulder pain 23% neck pain and 10% knee pain can be attributed to continuous bending and squatting postures for a long time.

Observation of persistence of pain it is seen that one pain in particular part of body develops. It is bound to remain over a long time and become chronic. This basically might happen. due to negligence and unavailability of proper health care facilities and lack of proper ergonomics in our study we found that males have higher risk of developing musculoskeletal disorders than females. Although females reported to have higher incidence or wrist pain than males. This can be due to high repetitive motion, abnormal postures and techniques and use of heavy tools etc.

Improving the work conditions for the farmers will help to reduce potential dangers of the environment there is a need of appropriate health care services and ergonomic lessons for the farmers to reduce the risk of developing musculoskeletal disorders.

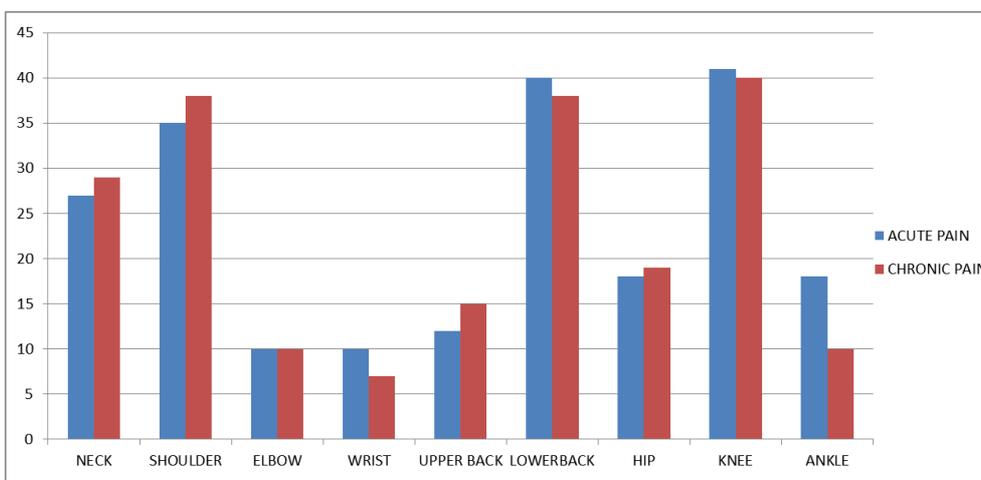
Farming is a physically arduous occupation that places farm workers at potential risk of musculoskeletal disorders, which has been observed to impose a greater impact on health of agricultural workers. Each activity in agriculture brings about certain stress and strain on bones and muscles leading to work-related musculoskeletal disorders (WMSD).



**Table 5.3:** Distribution of musculoskeletal pain in female subjects

Body Areas	Acute Pain	Chronic Pain
Neck	27	29
Shoulder	35	38
Elbow	10	10
Wrist	10	7
Upper Back	12	15
Lower Back	40	38
Hip	18	19
Knee	41	40
Ankle	18	10

**Distribution of musculoskeletal pain in female subjects**



**References**

1. Silverstein Michael, Franklin Gary, Silverstein Barbara. Work-related musculoskeletal disorders. JOEM. 1997; 39(2):99-101.
2. Miroljub Grozdanovic. Human activity and musculoskeletal injuries and disorders. Medicine and Biology. 2002; 9(2):150-156.
3. Ioik Urla Zeytino, Margret Denton. Casual jobs, work schedules and self-reported musculoskeletal disorders among visiting home care workers. Social Sciences and Humanities Research Council of Canada, 2000.
4. Shoko Ando *et al.* Associations of self estimated

- workloads with musculoskeletal symptoms among hospital nurses. *Occup Environ Med.* 2000; 57:211-218.
5. Nicola Magnavita, Adriano Fileni. Work-related musculoskeletal complaints in Sonologist. *JOEM.* 1999; 44(11):981-988.
  6. Bernard BP. Musculoskeletal disorders and workplace factors. A critical review of epidemiologic evidence for work-related musculoskeletal disorders of the neck, upper extremity and low back pain. 1997, 97-141.
  7. Eriksen W, Bruusgaard D, Knardahl S. Work factors as predictors of sickness absence: a three month prospective study of nurse's aids. *Occup Environ Med.* 2003; 60:271-278.
  8. Kondo N, Smith DR, Tanaka E. Musculoskeletal disorders among hospital nurses in rural Japan. *Nursing and Health Sciences.* 2003; 5:185-188.
  9. Alison Trinkoff M, Rong Le. Longitudinal relationship of work hours, mandatory overtime and on-call to musculoskeletal problems in agricultural farmers *American Journal of Industrial Medicine.* 2006; 49(11):964-971.
  10. H-R Guo. Working hours spent on repeated activities and prevalence of back pain. *Occup Environ Med.* 2002; 59(10):680-688.
  11. Tezel A. Musculoskeletal complaints among a group of Turkish nurses. *International Journal of Neuroscience.* 2005; 115(6):871-880.
  12. Burton AK *et al.* Is ergonomics intervention alone sufficient to limit musculoskeletal problems in nurses? *Occup Med.* 1997; 47:25-32.
  13. Knibbe JJ, Friele RD. Prevalence of back pain and characteristics of the physical workload of community nurses. *Ergonomics.* 1996; 39(2):186-198.
  14. Hakkanen M. Job experience, work load and risk of musculoskeletal disorders. *Occup Environ Med.* 2001; 58:129-135.
  15. Ijzelenberg W, Burdorf A. Risk factors for musculoskeletal symptoms and ensuing health care use and sick leave. *Spine.* 2005; 30:1550-1556.
  16. Helena Miranda *et al.* Individual factors, occupational loading and physical exercise as predictors of sciatic pain. *Spine.* 2002; 27:1102-1109.
  17. Karen Messing. Ergonomics studies provide information about occupational exposure differences between women and men. *JAMWA.* 2000; 55(2)72-75.
  18. Cassou B, Derriennic F, Monfort C, Norton J. Chronic neck and shoulder Pain, age, and working conditions: longitudinal results from a large random Sample in France. *Occup & Environ Medicine.* 2002; 59(8):537-544.
  19. Geertje Ariens AM *et al.* High quantitative job demands and low coworker support as risk factors for neck pain. *Spine.* 2001; 26:1896-1903.
  20. Yin Bing Yip. A study of work stress, patient handling activities and risk of low back pain among nurses in Hong Kong. *Journal of Advanced Nursing.* 2001; 36(6):794-804.
  21. Lone Donbaek Jensen *et al.* Prevention of low back pain in female eldercare workers: randomized controlled work site trial. *Spine.* 2006; 31:1761-1769.
  22. Catarina Nordander. Work-related musculoskeletal disorders-exposure assessment and gender aspects. Department of Occupational and Environmental Medicine. Institute of Laboratory Medicine, Lund University, Sweden, 2004.