

Prevalence of Musculoskeletal Disorders in Vegetable and Fruit Vendors

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ABSTRACT

BACKGROUND: Musculoskeletal disorders are common health problem between work related disabilities and injuries in vegetable and fruit vendors. These diseases are characterized by pain and complain in hand, wrist, elbow, shoulder, neck, low back, foot and legs caused by vibration, force exertion, repetitive tasks and working in a bad posture. So, aim of the study is to find the prevalence of musculoskeletal disorders (MSDs) in vegetable and fruit vendors using Nordic questionnaire.

METHOD: Total 50 vendors were taken. A Nordic questionnaire was used. In this questionnaire the musculoskeletal system is divided in 9 regions as neck, shoulders, elbow, wrists, upper back, lower back, knees and ankle.

RESULT: Most prevalent MSD was reported at ankle joints (27%), knee (22%) and in lower back (15%) during last 12 months. Most prevalent MSD was reported at knee and ankle (20%), in lower back (18%) and in shoulder (17%) during last 7 days.

Keywords: Musculoskeletal disorders, vegetable and fruit vendors, Nordic questionnaire.

INTRODUCTION

Musculoskeletal disorders (MSDs) are defined as a group of disorders that affect the musculoskeletal system including the nerves, tendons, muscles, and supporting structure.^[1] Work-related musculoskeletal disorders are the most prevalent work-related disorders and injuries and the leading cause of disability.^[2]

WRMDs are classified under many terms such as:

- Repetitive motion injuries
- Repetitive strain injuries
- Cumulative trauma disorders
- Occupational cervicobrachial disorders
- Overuse syndrome
- Regional musculoskeletal disorders - Soft tissue disorders.

There are 3 characteristics of WRMDs:

1. WRMDs result from overuse. Muscle pain or muscle discomfort occur due to musculoskeletal structures abused repetitively over a workload.
2. WRMDs develop gradually over time. The disorder may be developed gradually from a slight discomfort through to serious pain that may stop a market vendor from working. The disorder may take from a few days through to weeks, months, or years. Interestingly, as WRMDs develop gradually, a prevention program may be applied before the symptoms progress too far. This may be viewed as a positive benefit due to the effectiveness of the program. However, the

disadvantage is that the body gets used to the symptoms and pain, so patients often ignore it. This increases the risk of chronic pain over time and great difficulty for complete recovery.

3. The cause of WRMDs is not single factor. Although overuse is one of the main causes of WRMDs, other factors are repetitive strain injury, poor posture, or overload. In combination, these factors may lead to multiple symptoms of WRMDs.

It is a progressive in nature and may be divided into 3 stages:

1. Early stage: Patients feel muscle pain, muscle ache or muscle tightness during working periods. However, symptoms reduce after resting and does not interrupt work.
2. Intermediate stage: Patients feel muscle pain, muscle aches or muscle tightness during working periods. Symptoms do not reduce after resting and will interrupt work.
3. Final stage: Patients feel muscle pain, muscle aches or muscle tightness during day. Patients cannot sleep and may be absent from work.

WRMDs may be classified according to the International Classification of Functioning, Disability and Health (ICF). Both external and internal factors result in loss of activity and social participation due to a decrease in body functions.^[3]

Vegetable and fruit vendors do work of standing, walking, lifting and sit to stand activities for longer periods of time. Musculoskeletal disorders were attributed to numerous risk factors including prolonged static posture, repetitive movements, suboptimal lighting, poor positioning,

genetic predisposition, mental stress, physical conditioning, and age.

As Vegetable and fruit vendors need to work for long periods of time, they may develop work related musculoskeletal disorders which can cause disability and occupational disorders leading to reduced efficiency to work and so there arises the need of the study to find the prevalence.

So, Aim is to find out the prevalence of musculoskeletal disorders in vegetable and fruit vendors

MATERIALS & METHODS

50 participants were taken according to inclusion criteria and first of all consent was taken and they were interviewed to fill the questionnaire.

✓ INCLUSION CRITERIA

- Age group – 20 to 50 years.
- Vendors who work for 2 or more than 2 hours a day.
- Vendors who work 7 days a week.
- Vendors who work 3 or more than 3 days per week.

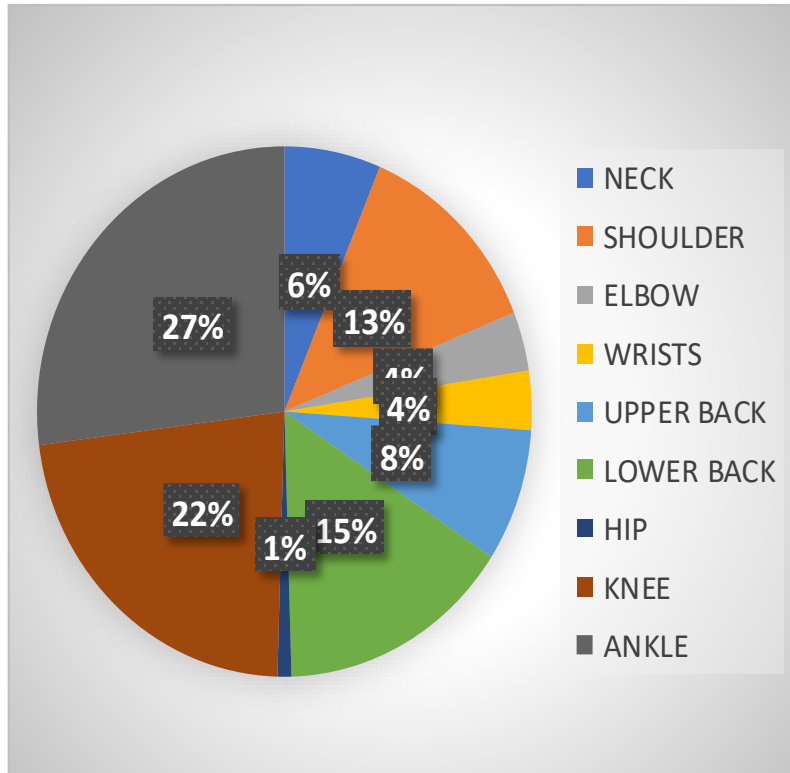
✓ EXCLUSION CRITERIA

- Subjects having severe neurological, musculoskeletal and cardiopulmonary condition.

RESULT

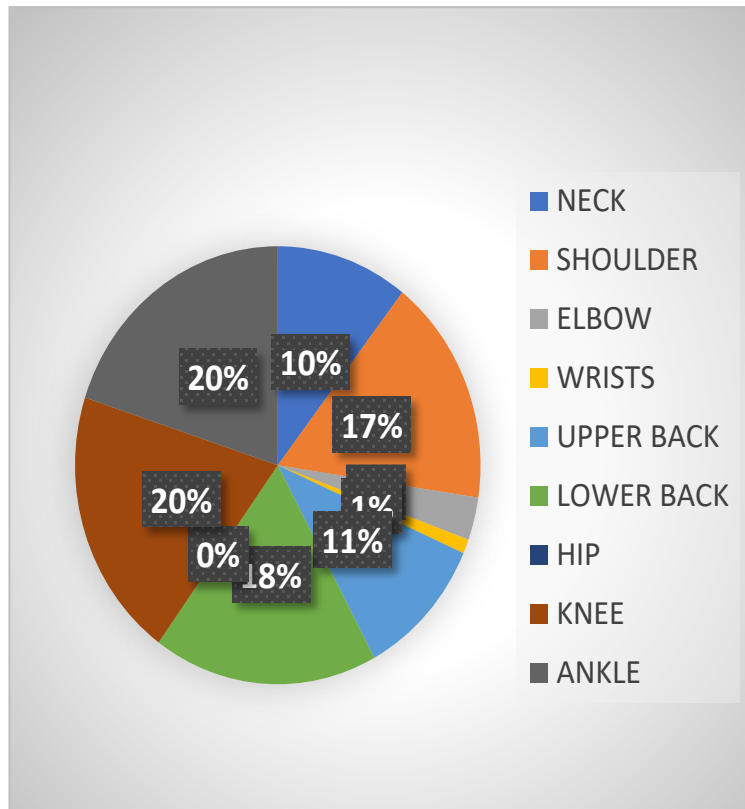
Data analysis was done in SPSS software. PREVALENCE OF PAIN IN PAST 12 MONTHS

Highest prevalence of pain in past 12 months was found in ankle joints (27%) followed by knees (22%) and in lower back (15%).

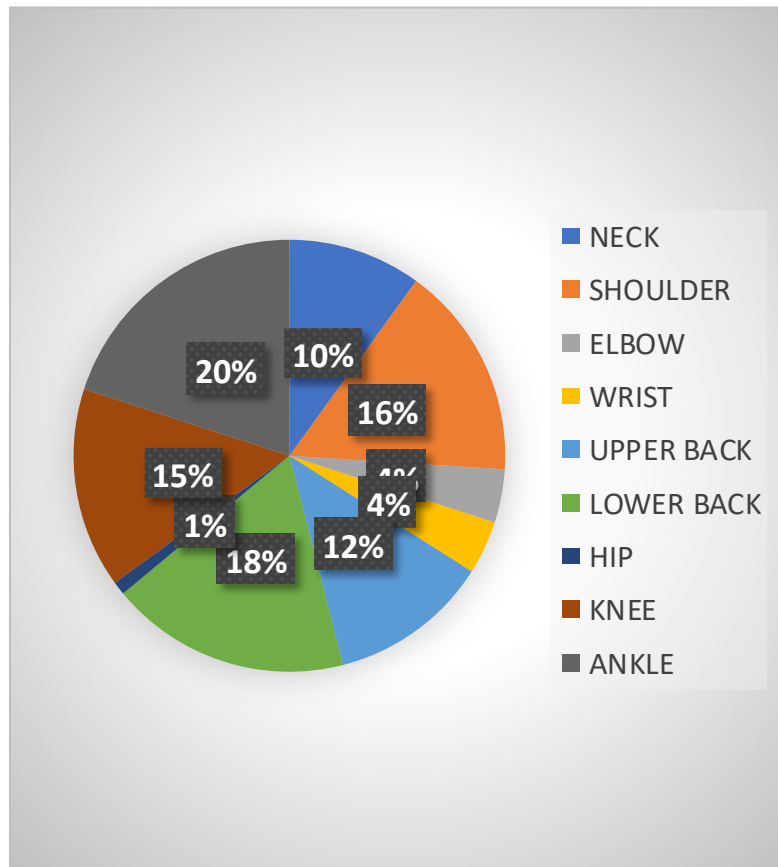


PREVALENCE OF PAIN IN PAST 7 DAYS

Highest prevalence of pain in past 7 days knee and ankle (20%), in lower back (18%) and in shoulder (17%).



DISTRIBUTION OF PAIN THAT PREVENTED FROM CARRYING NORMAL ACTIVITIES IN PAST 12 MONTHS



DISCUSSION

- **Awkward posture with static muscular work:** Awkward posture is the unnatural posture adopted because of workplace or working processes that may lead to muscle strain, ligament sprain, muscle pain or fatigue. These injuries often occur because postures are near their limit in range of movement (ROM).^[3]
- **Physiological distress associated with prolonged sitting and/or standing:** Prolonged static positions can result in muscle discomfort or fatigue due to continuous muscular contraction in maintaining these positions. Constant muscular contraction requires a greater amount of blood supply due to muscle energy demands, however, muscular contraction also increases pressure inside the muscle that causes blood vessels to be constricted and thus a

decrease in blood flow to working muscles resulting in muscle fatigue. Standing and sitting are common working positions for market vendors.

Prolonged sitting is a common risk factor for low back pain due to increased stress and pressure on back muscles and vertebral discs. Lumbar lordosis in a standing position is higher than in a sitting position. An increase in intervertebral disc pressure is caused as a result of a decrease in lumbar lordosis while sitting due to knee and hip flexion as well as posterior pelvic tilt rotation. A study revealed that an increase in intervertebral disc pressure and decreasing lordosis was associated with low back pain.

Prolonged standing increases stress on the leg and back muscles resulting in leg muscle and back muscle pain. A study showed that prolonged standing can cause muscle discomfort, muscle fatigue and muscle pain

relating to the back, leg and foot regions. Moreover, a standing position when working could lead to leg edema because of muscle fatigue and discomfort. A study evaluated mechanisms of lower back pain that developed during standing. Results indicated that 50% of healthy participants complained of low back discomfort after 2 hours standing due to a changing of inter vertebral disc pressure and joint shear at L4 and L5. This change leading to facet joint separation and ligament length because of moderate spine flexion. [3]

- **Repetition and lack of variability in working tasks:** Repetitive movement and lack of variability in work related tasks is associated with the same motion sustain over a long period leading to injury on working muscles, tendons, ligaments, and joints. This may result in muscle fatigue and injury. [3]
- **Long working hours:** Long working hours is a risk factor for WRMDs. A previous study investigated the relationship between working hours and musculoskeletal disorders among 2,617 nurses who answered questions about their work schedules and any symptoms of musculoskeletal pain (30). The longitudinal study revealed that work schedule independently increased the risk of developing a musculoskeletal disorder. Moreover, odd ratio showed nurses who worked an extra hour over a 13 hour day were 1.94, 1.87, and 1.87 times more likely to be exposed to a risk factor relating to neck, shoulder and back disorders, respectively, than nurses who had no an extra hour over a 13 hour day. [3]
- A study in Korea surveyed 24,783 wage workers aged 20 and over: 11,890 (48.8%) were female and 12,893 (52.0%) were male, 53.5% had working less than 40 hours/week, 28.1% had working hours between 41-52 hours/week, and 18.4% had working hours greater than 52 hours/week. This study found that 26.4% male workers and 33% female workers reported upper

limb pain while 16.4% male workers and 23.4% female workers reported lower limb pain within the past 12 months. After adjusting for confounding factors, the odds ratios for upper limb pain in male and female workers who worked more than 52 hours/week were 1.40 and 1.66 times more likely to be exposed to upper limb pain than male and female workers who worked less than 40 hours/week. Odds ratios for lower limb pain showed that male and female workers who worked more than 52 hours/week were 1.47 and 1.47 times more likely to be exposed to lower limb pain than male and female workers who worked less than 40 hours/week. [3]

- **Meher SR et al** in the study on **common health problems and utilization of healthcare facilities among self-employed street vendors of Chandrapur district of Maharashtra.** International Journal of Community Medicine and Public Health. 2020 which states that the condition of street vendors is not favourable for health. They use to work in all weather conditions like during hot summer, cold winter and during rainy season alongside the streets. They lift heavy weights daily and they work for a long time. They start their routine from early morning and end their day nearly at midnight. They don't have any safety measures or first aid available at the workplace. All these factors affect the health of the street vendors. [4]
- **María Nubia Molano-Sotaquira** in the study **Postural physical burden of street vendors in Boyacá, Colombia** stated that 73 % of the workers have a very high risk of generating MDSs due to postural physical burden they are exposed to, which means that an immediate intervention must be done to improve their work conditions. The most frequent diagnoses of occupational illness during 2002 were MSDs, where 20% corresponded to a carpal tunnel syndrome and 18% to lumbosacral spine

disorders. The percentual distribution of occupational dangers in workplaces shows the physical burden with the highest percentages; among them hands and/or arms repetitive movements (73.58 %), tasks requiring to hold still during all or great part of the working hours (70.06 %) and biomechanical danger with the possibility of causing pain (57.81 %).^[5]

CONCLUSION

This study concludes that highest prevalence of musculoskeletal disorders is found in ankle followed by knees and lower back.

CLINICAL IMPLICATION

1. Ergonomic advices can be given.
2. Strengthening exercises can be given for knee, ankle and shoulders.
3. Preventive measures can be given to reduce musculoskeletal disorders

Declaration by Authors

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Conflict of Interest: No conflict of interest.

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