

Prevalence of Musculoskeletal Disorders in Head Load Workers at Construction Sites

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Abstract: ***Background:** A competitive world emerged after Globalization create labor market flexibility in the labor market. Head load market is Known for its organization strength, state intervention and rigid laborer laws. Who is head load worker? The World meaning implies those who take load on Head. This occupational group is continuously subjected to various musculoskeletal problems due to repetitive load exertion in unnatural postures. Such activities include frequent lifting of heavy weight above shoulder height, pushing, carrying, and lowering of weights while adopting unnatural postures (twisting and bending). The most important risk factors attributed with such tasks consists of (a) repetitive motions (frequent lifting/carrying of loads), (b) forceful exertions (lifting/carrying of heavy loads), (c) awkward postures (bending/twisting), (d) accumulated pressure points with loads having sharp edges and static posture for long duration. It is, therefore, imperative that MSDs among load carriers will impose greater loss in income as well increased health-care cost and reduced quality of life. **Purpose:** To find the prevalence of musculoskeletal disorder among headload workers at construction sites. **Method:** The observational study consists of 100 participants, chosen according to inclusion and exclusion criteria were asked to fill the Nordic Musculoskeletal Questionnaire answering in YES/NO. **Result:** The results showed that among 100 participants, 70% prevalence of musculoskeletal disorders is found in headload workers at construction sites. Highest prevalence was found in Upper Back 54% component followed by the Neck 45.75% and Shoulders 36.25%. **Conclusion:** The study concludes that there is 70% prevalence of musculoskeletal disorders in headload workers at construction sites.*

Keywords: Headload Workers, Construction Sites, Musculoskeletal Disorders

1. Introduction

The father of Industrial Medicine, **Bernardino Ramazzini** first noticed work-related musculoskeletal Disorders among the workers.¹ He found these Disorders among the workers working with insistent and irregular movements in unnatural postures. Work-related musculoskeletal disorders (WMSDs) Are a group of painful disorders of muscles, tendons, and nerves, occur from arm and hand movements.⁽¹⁾

Almost all work needs the use of the Arms and hands, thus most of the WMSDs affect the hands, wrists, elbows, neck, and shoulders. On the other hand, heavy load bearing on head, back and Shoulder, long sitting and standing posture and Repetitive activities can lead to WMSDs of the legs, hip, ankle, feet and low back pain.⁽²⁾

Who is head load worker? The World meaning implies those who take load on Head.⁽³⁾ The Kerala head load worker (Amendment) Ordinance 2021, The Act defines a headload worker as a person engaged solely for the purpose of loading or unloading or carrying (on head or person) articles to or from a vehicle or any place in an establishment. The person may be engaged for wages, directly or through a contractor or by the establishment.

On extensive review of literature, there is lack of data available on prevalence of musculoskeletal disorders in head load workers at construction sites. Since very few research have been done on head load workers at construction sites,

this study will focus on the prevalence of musculoskeletal disorders using the Nordic Musculoskeletal Questionnaire.

Need of Study

In India, the health issues of the workers working in various unorganized sectors are given less importance.⁽²⁾ Very limited provision exists for occupational health services in such sectors.⁽²⁾

This occupational group is continuously subjected to various musculoskeletal problems due to repetitive load exertion in unnatural postures.⁽²⁾ Despite the fact that they carry out high intensity manual work, their earning is very low.⁽²⁾

Such activities include frequent lifting of heavy weight above shoulder height, pushing, carrying, and lowering of weights while adopting unnatural postures (twisting and bending). Such situations may lead to WMSDs in different body regions.⁽²⁾

Hence, early detection of musculoskeletal pain in this population is important. On extensive review of literature, there is lack of data available on prevalence of musculoskeletal disorders in headload workers at construction sites.

Aim

To find the prevalence of musculoskeletal disorder among headload workers at construction sites by using Nordic Musculoskeletal Questionnaire.

Objective

To assess the musculoskeletal disorders in Head Load Workers at construction sites by using Standardized Nordic Questionnaire.

2. Methodology

Type of study: Observational study
 Sampling technique: Purposive Sampling
 Sample size: 100
 Study area: PCMC, Pune.
 Study duration: 6 months.
 Study material: Pen, paper, Standardized Nordic Questionnaire.

Inclusion Criteria

Male Headload workers (Only Loading and Unloading Cement Bags at Construction Sites). Within 2-10 years of working experience. Working hours 4-7 hours daily. Age group 20-50 years of age.

Exclusion Criteria

Previous musculoskeletal disorders or deformities, Congenital disorders, metabolic, diseases, neurological disorder and any other systemic illness.

Outcome Measure

Nordic Musculoskeletal Questionnaire.

Procedure

Ethical approval was taken from the ethical committee. Subjects were chosen on the basis of inclusion and exclusion criteria by purposive sampling. Informed consent was taken and Nordic musculoskeletal evaluation was done. Scoring for each area of pain and percentage calculation was done. Statistical data analysis was done.

Data Analysis

Total 100 Head Load Workers have participated in the study. Nordic Musculoskeletal Questionnaire was used. Total 70% of pain frequency in participants was found.

Q1. Have you at any time during the last 12 months had trouble (ache, pain, discomfort, numbness)?

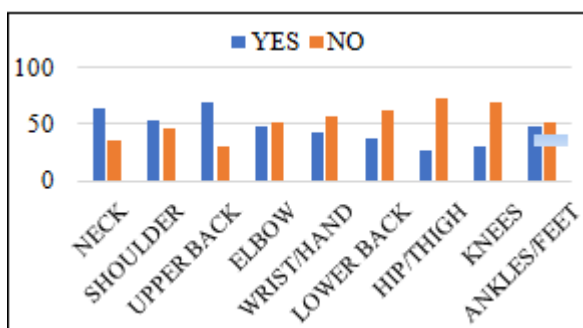


Figure 1

Q2. During the last 12 months have you been prevented from carrying out normal activity?

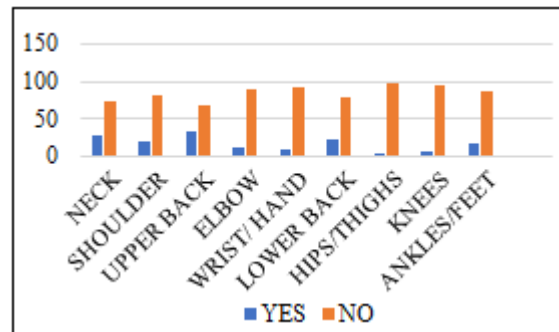


Figure 2

Q 3. During the last 12 months have you seen a physician for this condition?

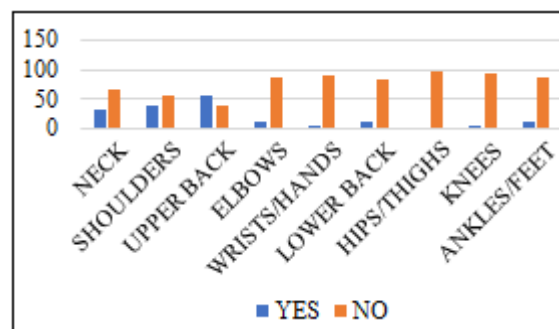


Figure 3

Q4. During the last 7 days have you had trouble in?

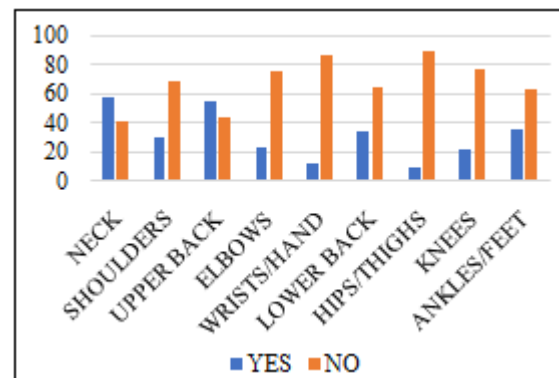


Figure 4

3. Results and Interpretations

- Total 100 males participated in the survey.
- Total pain frequency found was 70%.

Table 1: Explains total percentage of participants experiencing trouble (ache, pain, discomfort, numbness) in the various components in past 12 months

Area of Pain	Percentage
Neck	65%
Shoulder	53%
Upper Back	70%
Elbow	48%
Wrist/Hand	42%
Lower Back	38%
Hips/Thighs	27%
Knees	31%
Ankle/Foot	49%

Table 2: Explains total percentage of participants that have been prevented from carrying out normal activity during the last 12 months

Area of Pain	Percentage
Neck	28%
Shoulder	20%
Upper Back	33%
Elbow	12%
Wrist/Hand	8%
Lower Back	22%
Hips/Thighs	3%
Knees	5%
Ankle/Feet	15%

Table 3: Explains total percentage of participants that have seen physician for any condition in last 12 months

Area of Pain	Percentage
Neck	32%
Shoulder	41%
Upper Back	58%
Elbow	12%
Wrist/Hand	7%
Lower Back	14%
Hips/Thighs	2%
Knees	5%
Ankle/Feet	11%

Table 4: Explains total percentage of participants experiencing any trouble during last 7 days:

Area of Pain	Percentage
Neck	58%
Shoulder	31%
Upper Back	55%
Elbow	24%
Wrist/Hand	13%
Lower Back	35%
Hips/Thighs	10%
Knees	22%
Ankle/Feet	36%

Figure 5 Explains average percentage of area wise pain:

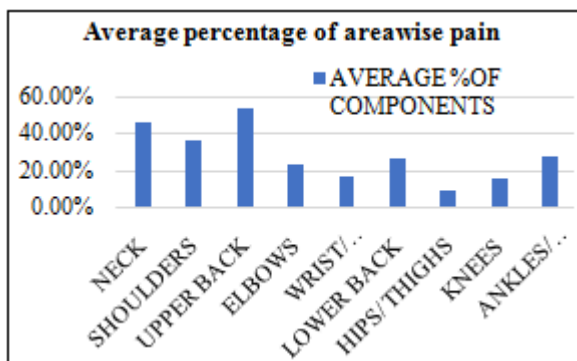


Figure 5

Area of Pain	Average Percentage of Pain
Neck	45.75%
Shoulders	36.25%
Upper Back	54%
Elbows	24%
Wrist/ Hands	17.05%
Lower Back	27.25%
Hips/ Thighs	10.05%
Knees	15.75%
Ankles/ Feet	27.75%

4. Discussion

Head load market is known for its organisation strength, state intervention and rigid laborers laws. As per the present study conducted by us 100 Headload workers of different age groups in PUNE And PCMC area it was observed that Head load workers are mostly male and belongs to a low socioeconomic class. ⁽²⁾

This occupational group is continuously subjected to various musculoskeletal problems due to repetitive load exertion in unnatural postures. The most important risk of injury is to the neck and the upper back region include load being too heavy large, difficult to grasp and hold it properly. ⁽³⁾

Result obtained from our study showed that 70% pain frequency was found in the participants, considering the individual components highest amount of pain frequency was found in UPPER BACK 54%, followed by NECK 45.75% and SHOULDERS 36.25% These three components were majorly affected in combination along pain in other components as well such as Elbow 24%, Wrists/Hands 17.05%, Lower Back 27.25%, Hips/Thighs 10.05%, Knees 15.75%, Ankles/Feet 27.75%.

The spine is a complex structure that functions to protect the spinal cord and support loads in numerous postures and positions. However, repetitive loading without proper rest time can cause tissue degeneration, leading to a weakening of the structure and its failure at lower levels of trauma. Thus, carrying a load on the head leads to a loss of cervical spine lordosis, reduction in disc height, remarkable translation of vertebrae, and redistribution of degenerative changes to the upper cervical spine, accelerating the cervical spine degenerative process and increasing the threshold of injury in head loaders. ⁽¹⁶⁾

Lifting a heavy object without keeping the spine aligned can put undue stress on the upper back. In particular, lifting or holding a heavy object above the head, especially more toward the left or right as opposed to centered, can leave the shoulder and upper back susceptible to injury. ⁽¹⁹⁾

The exact cause of upper back pain is often unclear, but upper back pain is more common in work roles that involve Repetitive tasks – such as manual packing of goods, force – heavy manual labor, handling tasks, pushing, pulling heavy loads, posture – poor/ awkward postures such as stooping, bending over, crouching, stretching, twisting and reaching, duration – prolonged periods in one position. ⁽²⁰⁾

In our study we selected subjects of various age groups the study shows ageing is a process which leads to physiological and cognitive changes which can make working into later life a challenge. However, remaining in work has been shown to have a positive effect on maintaining social networks and providing a sense of purpose. The most frequently discussed changes (40%) were around good manual handling practices to reduce musculoskeletal symptoms such as keeping their backs straight, bending their knees, getting help from a colleague or using assistive equipment. In addition, younger workers reporting more acute musculoskeletal symptoms suggests that neither

chronological age nor length of time in construction are sole predictors of this.⁽²²⁾ Hence proving there is no correlation between age and load bearing by headload workers.

Hence from our study it was found that Head load workers at construction sites get exposed to various stresses over their musculoskeletal system due to their work demands which if not prevented or treated on time can lead to severe pain, It was therefore recommended that awareness campaign to educate and enlighten load carriers on proper lifting technique and load carrying should be organized.

5. Conclusion

The result of the study shows that 70% prevalence of musculoskeletal disorders is found in the Head Load Workers at Construction Sites. It can be concluded that on an average, the prevalence of musculoskeletal disorders is highest in **Upper Back** 54% component followed by the **Neck** 45.75% and **Shoulders** 36.25%.

6. Limitations of study

The study was limited only for PUNE And PCMC Area.

7. Future scope of study

- This study can be conducted by differentiating between younger and older head load workers.
- This study can be done on head load workers who have worked for more than 10 years in this field.
- This study can be expanded to whole State.
- Awareness campaign to educate and enlighten load carriers on proper lifting technique and load carrying should be organized.
- Occupational health hazards awareness can be made and use of personal protective equipment can be advised.

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