

**Prevalence of Musculoskeletal Disorders and Associated Factors among Head
Load Workers of Azadpur Mandi, Delhi**

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Dissertation submitted in partial fulfillment of the requirements for the award

of

Master of Public Health



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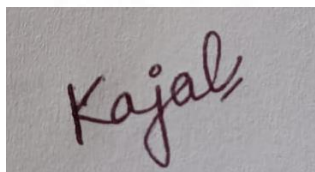
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DECLARATION

I hereby declare that this dissertation titled “Prevalence of Musculoskeletal Disorders and Associated Factors among Head Load Workers of Azadpur Mandi, Delhi” is the bonafide record of my original research. It has not been submitted to any other university or institution for the award of any degree or diploma. Information derived from the published or unpublished work of others has been duly acknowledged in the text.

A rectangular box containing a handwritten signature in dark ink that reads "Kajal".

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June, 2024

CERTIFICATE

Certified that the dissertation titled “Prevalence of Musculoskeletal Disorders and Associated Factors among Head Load Workers of Azadpur Mandi, Delhi” is a record of the research work undertaken by Kajal Prajapati in partial fulfillment of the requirements for the award of the degree of “Master of Public Health” under my guidance and supervision.

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GLOSSARY OF TERMS

APMC	Agricultural Produce Market Committee
BMI	Body Mass Index
DALY	Disability Adjusted Life Years
MSD	Musculoskeletal Disorders
NRC	National Research Council
NSC	National Statistical Commission
PNRS	Pain Numeric Rating Scale
SNMQ	Standard Nordic Musculoskeletal Questionnaire
WRMSD	Work Related Musculoskeletal Disorders
WHO	World Health Organization
YLD	Years Lived with Disability

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ABSTRACT

Background

Musculoskeletal disorders cause chronic pain and disability among many worldwide. Global Burden of Diseases 2019 reported, musculoskeletal disorders accounted for a considerable portion of disability-adjusted life years (DALY) and the leading cause of years lived with disability (YLDs) worldwide, accounting for approximately 149 million YLDs.

Methods

Cross sectional study conducted among 270 head load workers of twenty sheds of Azadpur *mandi*, Delhi. Estimated the prevalence and associated factors studied using chi square test and binary logistic were performed for predictor using SPSS 25.

Result

The prevalence of musculoskeletal disorder was 93 percent estimated using PNRS scale and prevalence was 91.9 percent reported in any of the nine regions of body according to Nordic body map assessment. Mean age was 43.84, 41.4 percent were illiterate, mean monthly income was Rupees 12000, majority of workers migrated from other states and 72.6 percent lived in rented houses. History of fall, number of working days, weight carried, working hours, and history of fall and wage type were assorted with the MSD. While number of working days and wage type were predictors for MSD.

Conclusion

High MSD was reported among head load workers. Demographic and occupational factors are contributing to MSD. Improving the working conditions with proper regulation on working hours and designated resting space will reduce MSD among headland workers.

CHAPTER 1

INTRODUCTION

Background

1.1.1 Musculoskeletal Health

“Musculoskeletal health refers to the performance of the loco motor system, comprising intact muscles, bones, joints and adjacent connective tissues.” Musculoskeletal disorders usually correspond to pain, which is frequently chronic and results in restrictions on dexterity and movement.

These limitations diminish individual’s capacity to engage in work and community activities(WHO, 2024). When these conditions either originates or aggravated due to poor working conditions, and physical factors associated to workplace it causes work related musculoskeletal disorders (WRMSDs). This class of MSDs affects workers in a variety of occupations and might take months or even years to develop which later become the reasons for absenteeism, disability and costs incurred to health care (Khan and Singh, 2018). The Global Burden of Diseases 2019 report has focused that musculoskeletal disorder as a significant source of disability-adjusted life years (DALY) in both developing and developed nations. It also reported that musculoskeletal conditions represent the most substantial source of years lived with disability (YLDs) globally, which make up 17% of the total YLDs worldwide (WHO, 2024). When a person is exposed to heavy workload that leads to exertion of force that has a direct effect on the body of individual. Characteristics of an individual at work are

influenced by exposure to physical factors and the organizational factors. That gives rise to fatigue and if they are prolonged caused WMSDs (Roquelaure, 2018a). The basic risk factors which cause the onset of musculoskeletal disorders mechanical overload, repetition frequency, posture and accidents such as falls and work related injuries. Along with these exposures the duration of each exposure also contributes to development of musculoskeletal disorders. The twisted and extended body postures require high muscular strain and tension of trunk muscles which may lead to overloading and damage of skeletal system. A WHO booklet titled “Preventing Musculoskeletal Disorders at workplace” suggests physical environmental conditions for instance harsh climatic conditions as a potential to combine with other physical risk factors and aggravate musculoskeletal disorders (WHO, 2024).

Low back pain is commonly reported musculoskeletal condition that contributes to 7.4% of YLDs worldwide. The musculoskeletal disorders including fractures, osteoarthritis, neck pain, amputations, gout, and rheumatoid arthritis also contribute to musculoskeletal disorders. All of these ailments greatly restrict person’s range of motion and coordination (WHO, 2024).

To assess the MSDs, the key issue one faces is wide variation in subjectivity of pain, symptoms and threshold of the individual except some of the MSDs such as carpal tunnel syndrome, spinal disc herniation having reliable diagnosis (Punnett and Wegman, 2004). Due to the lack of ideal criteria for objective evaluation,

the best way to capture the pain is through subjective complains (Punnett, 2014). However, in various epidemiological studies done among different occupational settings, MSD was recorded with much similar terminology such as, musculoskeletal pain, musculoskeletal discomfort etc. A majority of MSD burden among different occupational settings has estimated administering Standard Nordic Musculoskeletal Questionnaire (NMQ). NMQ assesses the

prevalence and patterns of WRMSDs. This consist of a body map specifying nine regions in the body including neck, shoulders, wrists/ hands, elbows, upper back, hips and thighs, low back, knees and ankles. It also records the presence of pain in these areas one week and twelve months before the study (Crawford, 2007). The tool is translated into numerous Indian languages as a way to evaluate the frequency of MSDs in workplaces (Gangopadhyay et al., 2007). It can be applied in different settings such as construction sites (Alghadir and Anwer, 2015), line man operators (Padmanathan et al., 2016), brick field workers (Inbaraj et al., 2013) and so on.

The eleven-point Pain Numerical Rating Scale (PNRS), ranging from 0 to 10, is used to rate the intensity and frequency of pain all over the previous seven days (Mannion et al., 2007) is also used by studies. PNRs and NMQ are described in detail in methodology chapter.

1.1.2 Occupational Health

The goal of occupational health research in public health is to maintain and advance the best possible physical, mental, and social health for employees in a variety of jobs (WHO, 2023). The goal is to improve working conditions, and maintaining employees' health and capacity to work while establishing a positive and safe work environment. This will enhance worker's well-being and productivity. There are distinct types of work settings that are being studied globally which can be broadly categorized into organized and unorganized sectors. India has a workforce of over 390 million and only seven percent are in the organized sector and the rest 93% of the workforce is employed in the unorganized sector. In India, unorganized sector accounts for 60% of GDP and operates outside the purview of official regulation and protection (Harriss-White and Gooptu, 2001). The National Statistical Commission (NSC) report states that GDP from unorganized sector is almost half of the total GDP (MOSPI, 2024). According

to the Unorganized Workers' Social Security Act, 2008, an unorganized worker in India is work at home, self-employed, or receives compensation from the unorganized sector (*Unorganized-workers*, 2023). Workforces who are majorly involved in transportation, and loading and unloading of these goods comes under service sector of economic activities (Valiathan, 1984).

The factors influence musculoskeletal disorders predominantly are, (a) workplace factors, (b) lifestyle factors and (c) individualistic factors. Workplace factors include psychosocial risks and kind of work one has to perform at worksite. The work can be sedentary which promotes de-conditioning due to inactivation of muscles causes structural and functional deficits (WHO, 2024). Work settings which requires heavy physical load along with poor or improper postures includes activities like lifting and removing of the goods make the handlers exposed to several risk factors like fall, injuries, monotonously repeating the same movements are associated with MSD and the body parts that affected mostly are hands, wrists, elbows, shoulders and back (Mbang Bian et al., 2022).

High physical work load is a well-established risk leading to WMSD (Singh et al., 2022). Individuals engaged in rigorous activities are more prone to report instances of encountering physical and ergonomic risks such as awkward postures, heavy lifting, forceful exertions. And as there are no training available in such sectors, the employers become more vulnerable to musculoskeletal disorders (Park et al., 2019). In head load activity at market place workers perform many laborious works for prolonged period of time. These tasks include unloading from the truck, stacking the goods beneath the sheds, displaying samples to clients, labeling and recording goods, creating customized parcels based on client requests, weighing the goods, carrying the load to trucks and storing it there, and so forth. These tasks demand repetitive

motions of the body, heavy lifting, prolonged incorrect postures, and prolonged static forceful exertion while standing with a load. While performing these activities the head load workers are exposed to several hazards particularly physical and ergonomic hazards. The un-organization of work including lack of support, low wages, no fixed hours of working and unsafe working environment make them more vulnerable to varieties of health problems specially MSDs (Rahaman et al., 2017).

1.2. Literature Review

1.2.1 Burden of Musculoskeletal disorders in different occupations (Global context)

Annual prevalence of MSD varies among different occupations depending upon the nature of the activities performed by the individuals. Low back pain is the most frequent form of MSDs among all types of MSDs. In a survey of construction workers in Saudi Arabia, musculoskeletal diseases were found to be 48.5 percent common, with low back pain and knee pain being the most common areas of discomfort (Alghadir and Anwer, 2015). According to a study done among union iron workers, the lower back had the highest frequency of MSD symptoms at 56%, followed by the wrists, hands, and fingers at 40%, with an overall prevalence of 82.8 percent (Forde et al., 2005). Iranian study among steel workers found, 46.3% reported having musculoskeletal disorders in one or more body regions in the previous seven days and 61% in the year prior to the survey (Aghilinejad et al., 2012). A study conducted among Iranian rubber factory workers found the prevalence of 73.6 percent of musculoskeletal pain. It also reported low back pain prevalence (50.2%), knees prevalence (48.5%) , and prevalence at upper back (38.1%) (Choobineh et al., 2007). Another study

conducted among Iranian workforce and job Groups found health care workers had the prevalence of MSDs 90.3 percent, manufacturing 86.9 percent , hand weaving sector 79.7 percent, offices 74.7 percent , and petrochemical organizations 61.5 percent one year prior to the survey. The data also indicates that office workers have greater prevalence rates of MSD symptoms in the neck (56.6%) and wrists/hands (46.7%) areas when compared to workers in other industries (Choobineh et al., 2016). A study conducted in Tanzania among women carrying heavy load to find the impact of head load carrying on musculoskeletal pain by using PNRS found that in an average, participants rated pain in all parts of the body as being slightly above moderate (Kadota et al., 2020a).

1.2.2 Burden of Musculoskeletal disorders in different occupations (Indian Context)

A study that examined musculoskeletal disorders related to construction workers reported that physical risk factors, including awkward postures, repetitive movements, static postures, vibration, contact stress, and force exertion, accounted for 77.1 percent of the variability in the occurrence of musculoskeletal disorders (Bodhare et al., 2011). Another study conducted among manual workers in Kolkata found MSD in minimum of one body part is 95 percent among the workers during past 12 months (Sarkar et al., 2016). A study among 268 workers of six occupational groups in construction work such as, masons and concrete workers, carpenters, loading-unloading, reinforcement, labourers and others was conducted. This study assessed the occupational stress, MSDs and quality of life. It found that 80 percent of the participants experienced MSDs largely (40.64%) in lower back (Chakraborty et al., 2018). An assessment of health profile of daily wage labourers was conducted in Maharashtra that found 60.76 percent of daily wagers had musculoskeletal problems (Gurav et al., 2005a). A study

conducted in Dhaka city among garment workers found 41.9 percent of the participants had musculoskeletal pain (Bahauddin Bayzid.pdf, 2016). The male potato cultivators experienced a severe degree of discomfort (>4 to ≤ 7) in their lower back, based on PNRS. Workers engaged in potato cultivation tasks suffered different levels of perceived exertion (Pal et al., 2016).

1.2.3 Causes of MSD

There are several ways in which musculoskeletal diseases can arise in head load workers and occupations that involve rigorous activities such loading and offloading.

These ways can be broadly categorized into individual, work related and psychosocial aspects (Cole and Rivilis, 2004).

Frameworks for MSD causation

A number of hypotheses were developed to study the association between musculoskeletal disorders and diverse occupational environments. Some of the popular models are described below.

(Carayon et al., 1999)

Carayon et al emphasized that personal characteristics plays the key role which influences the linkage between organizational and psychosocial factors and occurrence of MSDs. The model of job stress suggests that organization of work determines the biomechanical factors and psychosocial factors and later can give rise to stress reactions, and if these stress reactions are present for long period, it can cause MSDs. In spite of having no stress reactions the concept still proposed the physical factors have a direct influence on health events.

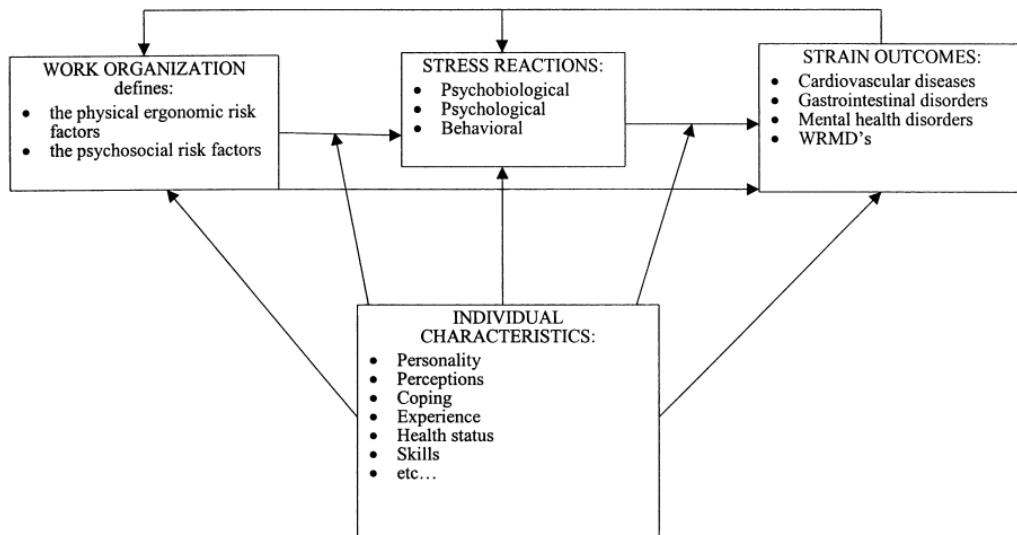
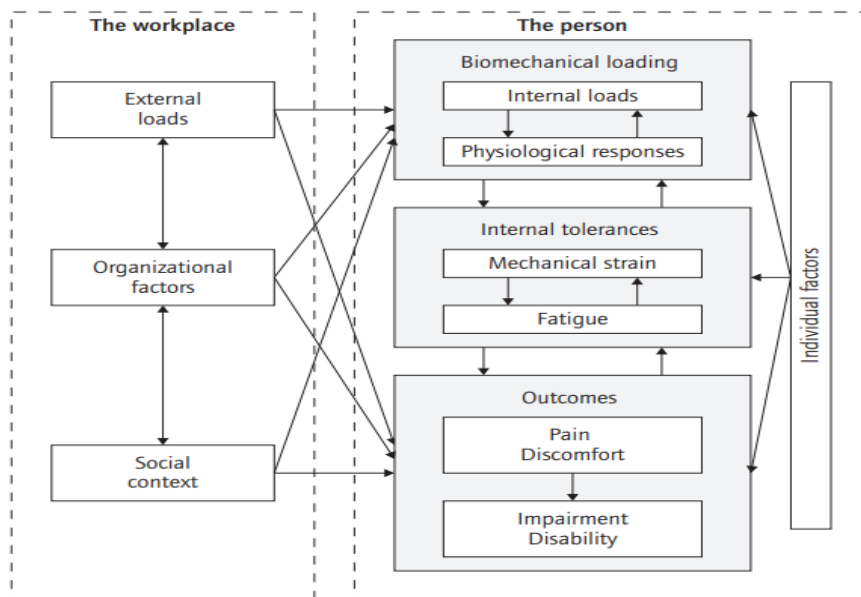


Figure 1.1 Model of job stress



Source: based on National Research Council (2001)

Figure 1.2 Model of work-related musculoskeletal disorder causation. (National Research Council, 2001)

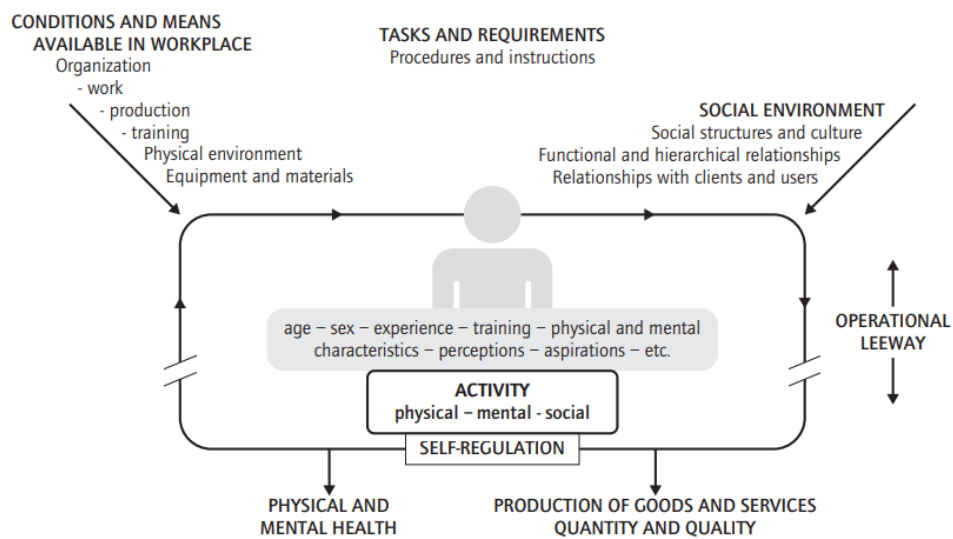
National Research Council model

Another model introduced by National Research Council (NRC) which incorporated interrelationship between workplace related and individualistic dimensions along with biological, psychological and social factors leading to development of discomfort causing

impairment disability. It explains that organizational factors interact with external loads and social context. These factors have an effect on individualistic factors which has its impact on biomechanical loading causing pain and later impairment disability (Roquelaure, 2018b).

Ergonomic or organizational models of MSDs

This model includes key ergonomic concepts like working situations variability, individual and collective regulation of activities and leeway (Roquelaure, 2018b). In order to meet productiveness worker develops various ways of working and these available options is called leeway. The concept of leeway is related to idea of decision-making control in work related stress model. The means which are available in workplace along with social environment has an influence on individual features such as age, sex, perceptions, training, physical and mental characteristics of the workers that is reflected upon the physical and mental health and production of goods and services quantity and quality. Work activity variables which includes basic conduct and movements, gesture, posture, communication and information take also has an impact on operating method and strategies under the influence of social environment, and requirements and tasks causing discomfort and dissatisfaction (Roquelaure, 2018b).



(Murtoja Shaikh et al., 2022), (Gurav et al., 2005b), (Bansal et al., 2020), (Kadota et al., 2020b). However, each activity comes with unique risk on musculoskeletal system which highly depends on the way the activity is performed (Mbang Bian, 2022). Some of the common risks pertaining to head load workers are listed below in table 1. Long working hours with physical overload leads to work related musculoskeletal disorders along with physical demands such as pushing and pulling goods, lifting the goods, extreme bending, twisting while lifting and keeping the goods and sudden movements increases the risk of complaints of MSD across different body regions (Krishnan et al., 2021). A study conducted among goldsmiths concluded that improper body postures and work load highly effect the health of workers (Ghosh et al., 2010). A study conducted among miners revealed that physical activities such as bending and lifting repetitively worsen the musculoskeletal pain (Gianchandani, 2011).

Table 1.1. Common physical risk factors among head load workers in a market place

Common risk factors	Common affected body parts	Example of activity
Repetitive and monotonous movement of upper extremity	Shoulder pain	Separating and cleaning goods for making different parcels
Forceful lifting with bent posture	Shoulder pain, arm and low back pain	Lifting heavy goods directly from the ground
Carrying heavy load straight on head	Neck pain, shoulder pain, upper back and lower back and degenerative changes in cervical spine.	Carrying vegetables and fruits parcels for different customers
Working in unfavorable postures	Shoulder pain, low back pain and knee pain	Dragging while keeping the goods on the truck/ ground
Walking repetitively with heavy load	Low back pain, knee pain and ankle pain	Long distance walking with load.

Individualistic factors

Factors such as age, socio demographic characteristics, average monthly income and lifestyle etc. come under individualistic factors.

Age

The functional capacity of people will be affected as the age of the person progresses. As per previous literatures the musculoskeletal disorders prevalence has been observed as the age increases (Holmström and Engholm, 2003), (Collins and O'Sullivan, 2015).

Sex

Studies report women experience higher work-related musculoskeletal disorders (WRMSDs) but it also depends upon the different work sectors. However there are evidences where men and women of same age has no difference in occurrence of WRMSDs (Park et al., 2018).

According a review conducted among Indian population, females experienced more low back pain as compared to males. There are also studies reported no association between sex and musculoskeletal disorders (Bindra, 2015).

Body Mass Index (BMI)

A study conducted among brick craftsman to find the correlation between age, tenure and height with MSD in Lok Buntar village reported that height has no direct association with the experience of MSD (Noor et al., 2015). A systematic review discovered the increased risk of developing MSD mostly in lower limb due to obesity (Fortunato et al., 2021).

Studies found a positive association between MSD and body mass index. BMI is also found to be an exclusive risk factor for musculoskeletal disorders (Viester et al., 2013).

Average Income

A research conducted among low income housewives to determine if physical activity and musculoskeletal disorders are related found low household income impact on musculoskeletal disorders (Saat et al., 2022).

Work related risk factors

Factors related to work place such as working hours, quantity of weight carried, number of working days, rest cycle, years of experience, frequency of receiving wages is discussed as work related factors. A study conducted among welders reported that there is a significance relation between years engaged in work and prevalence of MSD (Dev et al., 2018). Workers involved with repetitive, stressful work for longer duration in a single work-rest cycle and the load carried by them has an association with musculoskeletal disorders(Sahu et al., 2010). A significant association between duration of exposure more than ten years and work position was reported in a study among Indian population (Bindra, 2015). Wage system is important criteria for an industry. Higher degrees of physical effort were linked to group performance-based remuneration, according to a Danish study of construction workers (Ajslev et al., 2015). A study conducted in garment industry in Kolkata revealed that ill health is made up of different occupational and socio-economic factors including poverty, lack of education, poor working conditions, extra working hours. Through FGDs study explored that lack of time to take rest, low wage, poor behaviour of employer has an effect on work stress which contributes to ill health (Bandyopadhyay, 2012).

Prior to collection of data a pilot study was conducted by the researcher and observed that MSD among head load workers in unorganized sector is a pervading problem in addition to

participation in activities of daily living but also restricts the work at work place. Head load workers belong to service industry who is engaged with loading and unloading of vegetables and fruits by carrying them on their head, shoulders and back in a market place. The risk factors that are sensitive to development of MSD. These factors include working conditions and different ways that workers adopt in order to enhance their productivity which involves intense physical activity, repetitive movements, improper postures, exertion on limbs, and prolonged hours of working without proper rest cycle.

1.2.5 Present framework for my study

The study aimed at studying the prevalence and individual and work related factors associated with the musculoskeletal disorders (Please refer Figure 4).

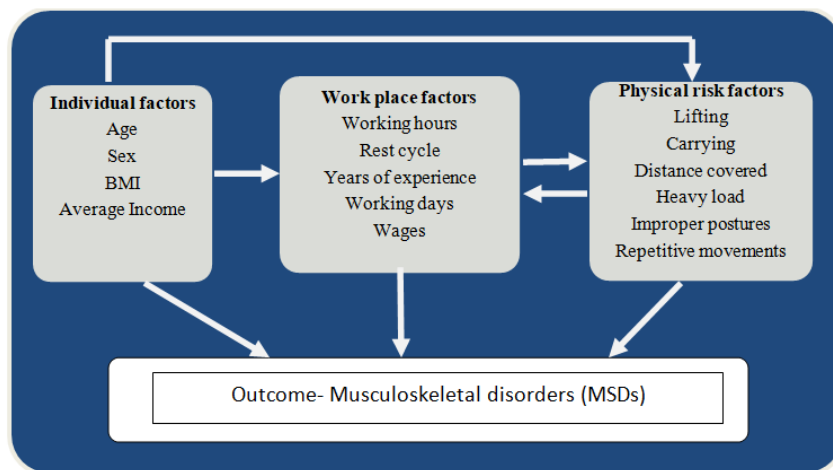


Figure 1.4 Possible factors associated with MSD

1.3 Rationale

There are studies available conducted among construction workers, miners, weavers, farmers and brick industry etc. which involves head loading. However, studies specifically related to market areas are very few and no study has been conducted in Azadpur *mandi*, Delhi. The market serves as an essential center for the distribution and wholesale trade of vegetables and fruits. Azadpur *mandi* is situated in North Delhi district in NCT of Delhi state. Along with national capital region it caters to different states within India and outside India. The frequency of MSDs among workers who engage in demanding occupations has been linked to a number of factors. With a focus on head load workers in Delhi's Azadpur market, the study estimates the prevalence of MSDs and associated factors.

1.4 Objectives of the study

Primary objectives:

- To estimate the prevalence of musculoskeletal disorders among head load workers of Azadpur *mandi*, Delhi.
- To study the factors associated with musculoskeletal disorders among head load workers of Azadpur *mandi*

Secondary Objective:

- To study different postures adopted by the laborers associated with pain in different body parts.

CHAPTER 2

METHODOLOGY

The study aims to assess burden of musculoskeletal disorder and the associated factors among 18 years and above head load workers in Azadpur Mandi, Delhi. The objectives also include to study different postures adopted the laborers associated with pain in different body parts.

First section includes, the data collection methods such as, study design, study setting and sampling strategies along with the inclusion and exclusion criteria of study participants. The first part is followed by the data collection techniques used to obtain information. In the last part of chapter, the steps taken for maintain the ethical considerations of conducting the research have been described.

2.1 Study type/ design

To achieve the objectives of the study, a cross sectional study design was followed. An interview schedule for assessing prevalence of musculoskeletal disorders and to study associated factors with musculoskeletal disorders among head load workers, Azadpur *mandi*, Delhi was administered.

2.2 Operationalization terms

Head load worker: Workers involves in loading and unloading of goods on their head, shoulders and back in a market place.

Commission agent: Agents facilitate loading and unloading of goods in mandi and are hired by the farmers, they supervise the job of head load workers.

2.3 Study setting

This study was conducted at the Azadpur *mandi* a wholesale market for vegetables and fruits. The market is located in the North Delhi district of National Capital Territory, administered by the Agricultural Produce Marketing Committee (APMC) of Delhi. It serves as a vital centre for the distribution and wholesale trade of agricultural products mainly vegetables and fruits for many states in India such as Bihar, Jammu and Kashmir, Punjab, Haryana, Rajasthan, Himachal Pradesh, Mumbai, Tamil Nadu. The trade also occurs internationally where many fruits and vegetable are export and import to different countries such as China, Thailand, California, Nepal, and Pakistan etc. (Raheja, 2017). It employs approximately 20,000 to 30,000 laborers involved in the manual handling of goods. There are 20 sheds in the area where these head load workers work under commission agents. The workforce which is majorly involved in head loading and unloading of the vegetables and fruits are popularly known as “*Palledars*”. This occupation is exposed to various occupational health hazards as it requires intense manual labour including heavy load lifting and carrying even in extreme climatic conditions. As this particular occupational group lacks a well-defined institution making it a part of unorganized workforce, I selected this occupational group as a part of my research.

2.6 Sample Size

The sample size was estimated with an assumption of a 77.1 prevalence rate based on a study on work-related musculoskeletal disorders among construction workers from Andhra Pradesh (Bodhare et al., 2011). Assuming 95% confidence interval, 5 percent of precision estimated sample size was 270 and with 10 percent non response rate, the total sample size was 297 which was rounded up to 300.

2.7 Sample selection procedure

2.7.1 Inclusion criteria and exclusion criteria

Inclusion Criteria

- Men and women engage in head load in Azadpur Mandi, Delhi.
- Workers working for at least 1 year

Exclusion Criteria

- Workers who do not directly deal with head load
- Workers working with less than 18 years of age.

2.7.2 Sampling strategy

All the sheds (N=20) were included in the study. Since the target population falls within the unorganized sector and does not possess a precise employment roster, the selected sampling approach for the study will be systematic random sampling. The method relies on the total count of registered commission agents with the APMC and available on APMC website. Average numbers of commission agent per shed were 100 and average numbers of head load worker works under an agent ranged from 5 to 10. So, to ensure representation of commission

agents consecutively 3 commission agents were approached on that particular day and then 5 workers per agent were approached. After taking consent from the participants in an average 4 workers participated in the study that worked out to be 270 out of 300 approached. Process of systematic could only be followed till commission agents, in order to select participants, the procedure could not be followed.

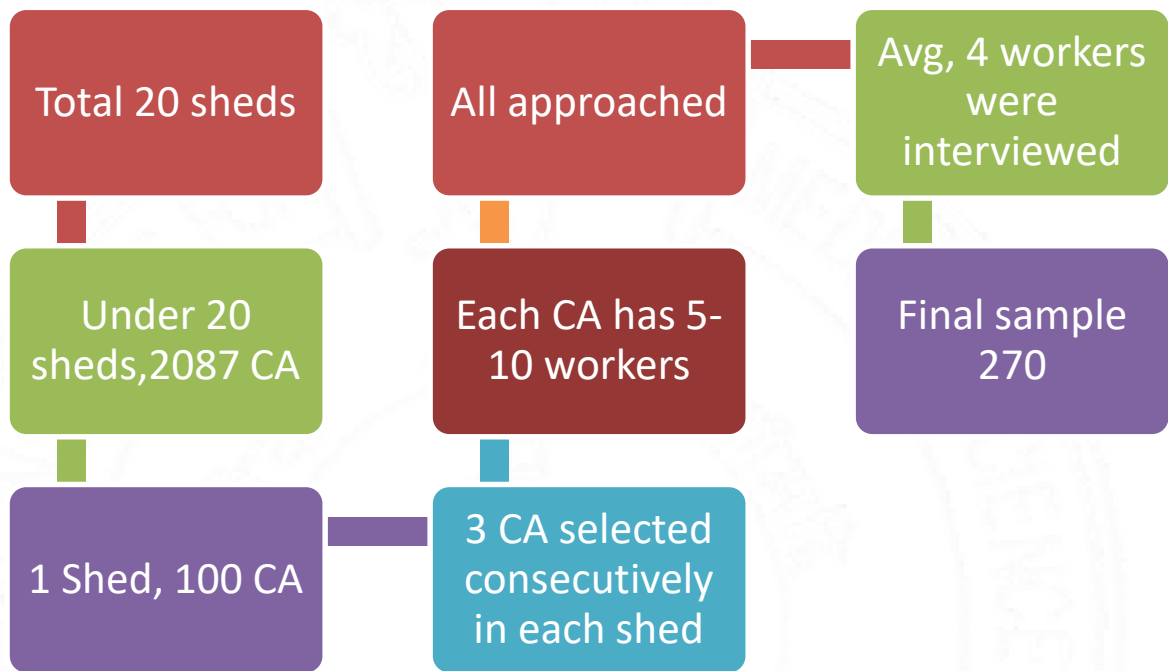


Figure 2.3 Sampling procedure

2.8 Data collection

Data collection process was undertaken from 2nd January to 26th February 2024 using a structured interview schedule (as detailed in ANNEXURE- 3). Hindi version of the tool was pre tested. The tool was intended to capture the nature and consequences of musculoskeletal disorders along with some potential social, individual and occupational risk factors.

2.8.1 Components of data collection

Structured interview included the following sections:

Section – 1 contained questions about personal and socio- demographic background of participants intended to capture age, sex, education status, family type, marital status, ownership of the house, monthly average income, number of children, migration.

In section 2 anthropometric parameters were taken that include height and weight of the individuals. Height of the participant was recorded using standard inch tape. While weight was measured with digital weighing machine HealthifyMe.

In section 3, information regarding medical history for the one year prior to data collection such as, hypertension, diabetes, cancer, history of fall, varicose vein, constipation and others were collected. Participants were also about if they have experienced any illness in past 15 days except acute illness such as viral fever with myalgia/ arthralgias or accidents unrelated to workplace.

Section 4 gathered information related to work; years of engaged in work, type of good they lift, daily duration of work, extra hours of working, different activities required as part of their work, any tools used to lift and carry the load, distance covered by them while carrying the load on head, back and shoulders, maximum weight carried, days of working, frequency of receiving wages, items used to make their work easy, impact of pain on their work, hours of taking rest in a day. In addition, information on fall during working hours, and other injuries was also collected.

Section 5 – This section includes modified version of Standard Nordic Musculoskeletal Questionnaire which enquire about having pain any of the nine regions specified in the scale for past 12 months and for last 7 days. The Body map present in scale is shown in Annexure.

Section 6 – This section has Pain Numeric Rating scale ranging 0 to 10 and consisting four questions related to pain in last 7 days.

Section 7 – This section has the pictures of the postures that being commonly adopted by the workers in market. Each participant was asked to choose one of the postures that they commonly adopt during their work in three categories.

Utilizing the ODK Collect app, data was gathered and simultaneously downloaded as an Excel document.

2.9 Data Cleaning

Data entry was done in Microsoft excel and imported the data in IBM SPSS version 25 for windows after masking all the identifiers of collected data which was verified for the purpose of cleaning by running frequency in SPSS software. In the process of cleaning other errors have been rectified.

2.10 Analysis of Data

Univariate and Bivariate analysis were done to assess the prevalence of musculoskeletal disorders and to study the associated factors with it. Initially, frequencies of all the variables generated and for continuous variables the mean, median and mode were generated. For the variables which have skewed values, median was preferred against mean for analysis. In order to examine the association between musculoskeletal problems and other variables, Pearson Chi

Square test or correlation whichever was appropriate. The variable which had a p value < 0.05 regarded as statistically significant.

Multi variable analysis performed to variables which found to be significance. For that the predictors for musculoskeletal disorders were included in the regression model which had p value lesser than 0.05.

2.11 Data Storage

The hard copies of consent forms have been kept by the principle investigator and responses of interview schedule have been kept digitally. In order to maintain the confidentiality and privacy of the collected data a respondent was assigned with a unique identity number. The principal investigator and her guide can only access the identity number. The personal details of any participant were not shared under any circumstances. The data would be preserved for the next five years from the date of collection and afterwards the entire dataset will be destroyed.

2.12 Outcome variable

Musculoskeletal disorders

As a cross sectional study it aimed to capture musculoskeletal disorder which can be seen as pain, ache, discomfort in various anatomical regions that forms the locomotor system of the body. The Nordic Musculoskeletal Questionnaire and Pain Numeric Rating scale was used to collect data on one year and seven days prior to data collection.

Completion of Nordic Musculoskeletal questionnaire was done by showing a body map highlighting different sites of pain. Using Nordic body map information on musculoskeletal

disorder symptoms in the regions of neck, shoulders, elbow, wrist/ hand, upper back, low back, hips/ thighs, knees and ankles/ feet in past 12 months and past 7 days.

Further the Pain Numeric Rating scale: It is an 11-point scale (0- 10) which rates the intensity of pain by administering verbally.

Instruction given for using the PNRS was please indicate on the line below with zero to ten, where zero is no pain at all and 10 is the worst pain imaginable.

Participants suggested a number between 0 to 10 (11-point scale) for current pain, worst, best and usual pain in the last one week. As there is a daily fluctuation in pain, an average rating over the preceding weeks (average of best, usual and worst pain) is recommended (Mannion et al., 2007).

The average rating of PNRS from zero considered as no pain, one to four considered as mild, five to six as moderate and seven to ten was considered as severe (Serlin et al., 1995).

Mild pain can be termed as a category when there is noticeable little pain that does not lead to interference of the activities of daily living.

Moderate pain can be referred to the pain that impede significantly in activities of daily living.

The pain which makes anyone disabling or feel unable to work or perform tasks of daily living and limits accessibility to social, physical, and sleep was classified as severe pain.

2.13 Ethical consideration

The investigator initially shared the information sheet containing the objectives and possible outcome of the study. After obtaining the consent form duly signed by the participant, the investigator collected data. The participation in the data collection was purely voluntary and participants were free to withdraw at any point of data collection or refuse to answer some questions. Ethical clearance was obtained from the Institutional Ethics Committee (IEC) of Sree Chitra Tirunal Institute for Medical Sciences and Technology (SCT/IEC/2176/DECEMBER-2023).

CHAPTER 3

RESULTS

This chapter is divided into, research setting, socio demographic profile, the work related factors, medical history, impact of pain and other associated factors.

3.1 Overview of the research setting with a focus on occupation:

The findings from observations and informal conversations revealed that the market was an open area and recently during Covid 19 in 2020 the tin sheds were installed for each shed before that it was an open area. The *mandi* was well connected to the main road and there were check posts available for trucks in three main gates. On the way inside market, there is an open market area where vegetables and fruit retailers sit on the ground to sell the fruits and vegetables. Then there was a wholesale market of vegetables and fruits where these head load workers work.

3.2 Personal and socio- demographic profile of workers currently engaged in head loading

There was a huge work force involved in Azadpur market in different areas of occupations like there are contractors, commission agents, clerks (*munshi*), retailers, guards and head load workers (*palledars*).

Data was collected from 270 head load workers and out of them 15.6 percent of women and 84.4 percent of men consented to participate. The median age was 44 years and the participant's age ranged 19 to 68 years. Half of the participants (51.8%) were aged 44 years and below. Almost all (93.7%) of the workers were married and 99.6% have come from other states. Out of 270 participants 72.6 percent stay in rental homes, 15.6 percent resides with in *mandi*, remaining are living in either in slums or having own house shown in Table 3.1.

The mean BMI was found to be 23.4 kg/ m² with a standard deviation of 3.4.

Table 3.1 Personal and Socio- demographic details of study participants (N=270)

Variable	Category	N (%)
Age	Mean± SD	43.84± 9.99
Marital Status	Married	253 (93.7)
	Others	17 (6.3)
Family Type	Joint	236 (87.4)
	Nuclear	34 (12.6)
Education	No formal schooling	121 (44.1)
	Primary school onwards	149 (55.9)
Type of House	Rent	196 (72.6)
	<i>Mandi</i>	42 (15.6)
	Others	32 (11.9)
Average Monthly Income	Mean± SD	11355.56±3118.3
	Median	12000
BMI	Mean± SD	23.4980±3.45053
	Median	23.3294
Weight	Mean± SD	62.13± 9.83
	Median	61.50
Height	Mean± SD	162.6± 7.26
	Median	164

3.3 Work related information

All the participants mentioned that there was no fixed working hours and they work a minimum 7 hour to maximum 24 hours on working day. The median number of years of work with head loading among workers is 18. Only 11.1 percent of the participants were having registration in Agricultural Produce Marketing Committee thus it shows that there is no organization within this occupation. The head load workers were involved in many activities as shown in graph 3.1 as their part of work and according to the survey each activity requires at least 3 hours to complete. The type of the good that workers carry most frequently was gunny (44.1%) as mentioned in table 3.2.

Table 3.2 Type of parcels carried by workers (N= 270)	
Type of Goods carried	n (%)
Gunny	111 (44.1)
Wooden crate	66 (24.4)
Plastic crate	53 (19.6)
Cardboard carton	26 (9.6)
Cardboard carton and gunny	9 (3.3)
Gunny and plastic crate	5 (1.9)

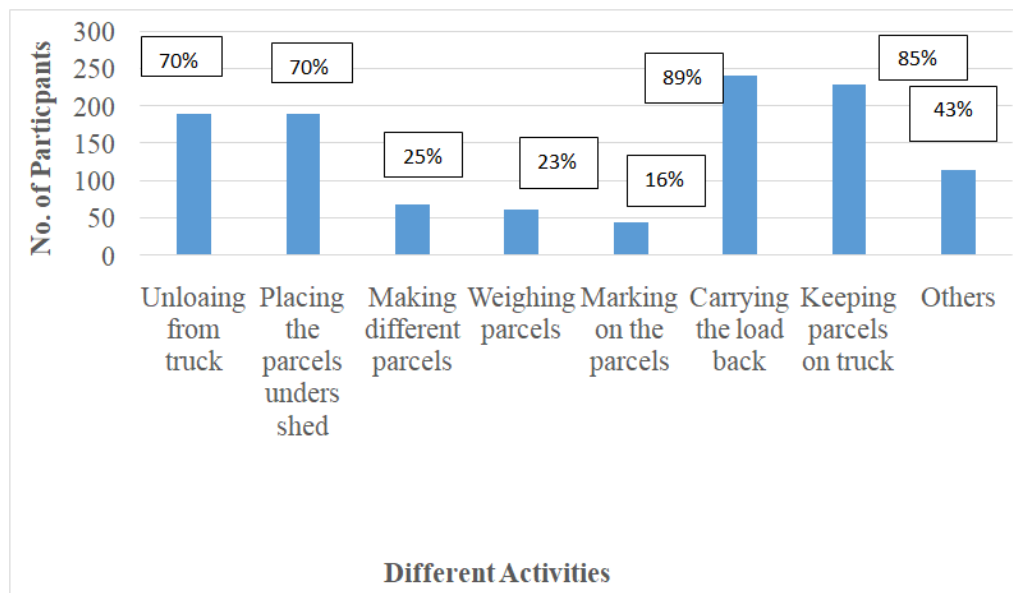


Figure 3.1 Activities performed by the head load workers

More than half (59.6%) of them did not rest in between their working hours and all the participants reported that there was no designated place for resting. Among 270 participants 46.7 percent of participants used tools to mention in table 3 to ease their work and none of the participants were

engaged in any other occupation. Among 270 participants 24.8 percent have experienced fall at workplace in past once year.

The average weight carried by the workers was 47.72 kg (SD 18.007) and mean distance covered with the load is 612.96 meter. Most of the participant's self-reported the shed distance as 400 meter and the maximum the distance they cover was 1000 meter, according to the survey, 40.7 percent people take stipulated time for rest and median for taking rest was 60 minutes. Most of the workers spend 12 hours in the *mandi* as their working hours, and 27.8 percent of the participants spend more than 12 hours as shown in table 3.3. There are two kinds of head load workers, first who were only limited to shed and work with in it. The other kind of the workers was not limited to a particular shed and work anywhere within *mandi* wherever the work was available. Through the survey we got to know 64.1 percent received their wages once a week and others received daily. The most used postures during lifting was direct bending, while carrying the load on one limb above shoulder for longer duration and placing the parcel involved one limb straight and bending both limbs while lowering the goods.

Table 3.3 Work related information of study participants (N=270)		
Variable	Category	n (%)
Years engaged in work	Mean± SD	18.91± 8.321
	Median	18.00
Hours work in a day	Mean± SD	12.2 ± 2.394
	Median	12.00
Spent more than 12 hours	More than 12 hrs	76 (27.8)
	12 hrs and less	194 (72.2)
Hours of the <i>mandi</i> change according to weather	Change in <i>mandi</i> hours	4 (1.5)
	No change in <i>mandi</i> hours	266 (98.5)
Max. Weight carried as head load	Mean± SD	47.72± 18.007
	Median	45.00
Distance covered carrying load (m)	Mean± SD	612.96±271.74
	Median	400.00
Washroom facilities	Present	177 (65.6)
	Absent	93 (34.4)
History of fall at workplace	History of fall	124 (45.9)
	No history of fall	146 (54.1)
Frequency of receiving wages	Daily	97 (35.9)
	Weekly/ Monthly	173 (64.1)
Injury other than fall at work place		43 (15.9)
Working Days	Mean± SD	6.15±0.36
	Median	6.00
Stipulated time for rest	N	110 (40.7)
	Mean± SD	59.3± 39.8
	Median	60 min
Any tools used	Tool used	125 (46.7)
	No tool used	145 (53.3)

For estimating the prevalence of musculoskeletal disorders, the PNRS score was used after computing the average of the last three questions out of four of the scale (Discussed in detail in the methodology section). The prevalence of severity of MSD for mild, moderate and severe is 63.7 percent, 27.8 percent and 1.5 percent respectively (Table 3.4). And the overall prevalence of musculoskeletal disorders by using PNRS came to be 93 percent. Nordic body map was

administered to find the musculoskeletal pain in different regions. Out of 270 participants, the annual prevalence of musculoskeletal problems affecting any of the nine body regions was 91.9 percent.

Variable	Category	N (%)
Absent from duty (presence of muscular pain in last 6 months)		30 (11.1)
Performed partial duty (presence of muscular pain in last 6 months)		42 (15.6)
Still performed duty (presence of muscular pain in last 6 months)		111 (41.1)
Experiencing persistent outside work hours		138 (51.1)
Pain impact - everyday activities and routines		99 (36.7)
Pain impact- in working		123 (45.7)
Pain severity	No pain	19 (7)
	Mild	172 (63.7)
	Moderate	75 (27.8)
	Severe	4 (1.5)

There were 51.1 percent of the participants who experience persistent pain outside work hours and due to pain not only 45.7 percent find it difficult in working but also 36.7 percent of them experienced challenge in performing normal daily activities (Table 4).

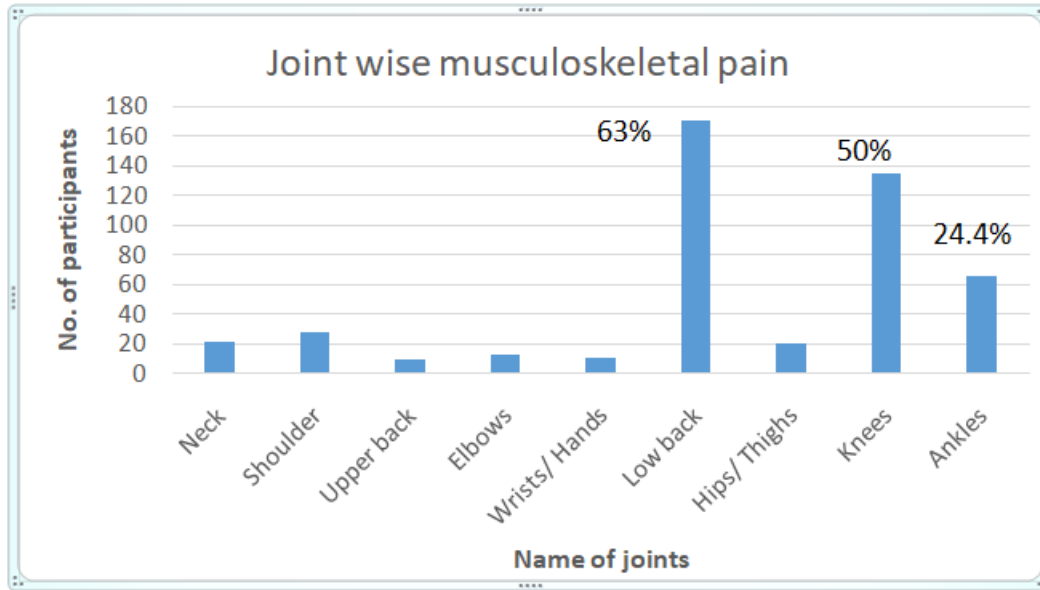


Figure 3.2 Number participants experiencing pain in any one joint in past one year (N=270)

Table 3.5 Percentage of participants experiencing pain in different regions in past one year

Joints N= 270	Neck	Shoulders	Upper back	Elbows	Wrists/ hands	Low back	Hips/ Thighs	Knees	Ankles
No. of participants	22	28	10	13	11	170	20	135	66
Percentage	8.1	10.4	3.7	4.8	4.1	63	7.4	50	24.4

3.4 Factors Associated and predictors to musculoskeletal disorders

Table 3.6 presents the factors associated with musculoskeletal disorders. For finding the association we performed. The variables that were found significant in Pearson chi square test were considered for binary logistic regression. The MSD used as an outcome variable while analyzing the binary logistic regression was categorized as pain and no pain. This was based on merging no pain and mild as no pain and moderate and severe as pain. For pain category, moderate and severe levels of pain were merged together and no pain and mild level of pain were clubbed as other category. It so happened even median came out to be 3.67~ 4 which was also falling into mild category.

Table 3.6 Factors Associated to Musculoskeletal disorders					
Variables	Category	N = 270	Pain (%)	No pain (%)	P value
History of fall	Having history of fall	124	47 (37.9)	77 (62.1)	0.004
	Not having history fall	146	32 (21.9)	114 (78.1)	
Max. Weight carried	Below 45 Kg	127	27 (21.3)	100 (78.7)	0.006
	45 Kg and above	143	52 (36.4)	91 (63.6)	
No. of working days	Working for 6 days	229	57 (24.9)	172 (75.1)	<0.001
	Working for 7 days	41	22 (53.7)	19 (46.3)	
Stipulated time to take rest N (110)	60 min and below	95	22 (23.2)	73 (76.8)	0.015
	Above 60 min	15	8 (53.3)	7 (46.7)	
Injury		43	18 (41.9)	25 (58.1)	0.048
		227	61 (26.9)	166 (73.1)	
Frequency of receiving wages	Daily	97	41 (42.3)	56 (57.7)	<0.001
	Weekly/monthly	173	38 (22.0)	135(78.0)	

For the purpose of analysis maximum weight carried by the workers and stipulated time to take rest were categorized on the basis of median. History of fall, number of days, maximum weight carried, stipulated time, any injury other than fall in workplace and frequency of receiving wages were some of the variables were significantly associated. All variables that were found significantly associated were considered for further analysis.

Table 3.7 suggest that head load workers who had history of fall has 2.164 higher odds of getting musculoskeletal disorders as compared to workers who did not have and this association was found to be statistically significant. Head load workers who carried less than 45 kg weight had 52.7 percent lesser odds of experiencing musculoskeletal disorders and a strong association can also be seen with p value of 0.006 which is statistically significant. Workers who had experience any injury other than fall has 1.954 times higher odds of occurrence of musculoskeletal disorder as compared to workers who has not experience injury other than fall at workplace, however the association is nearly reaching significance. With the 95 percent of confidence interval (0.086, 0.809), workers who took rest more than 60 minutes had 73.6 percent higher odds of experiencing musculoskeletal disorders compared to those took rest for 60 minutes and less. Participants who were receiving wages daily have 61.6 percent higher odds of MSD as compared to those receives wages weekly or monthly with a CI of 0.224 to 0.660 and the association was also statistically significant. There were 3.949 times higher odds of having musculoskeletal disorder among workers who work for seven days when compare with workers who were working for six days and this was statistically significant (p value = <0.001).

Variable	Category	P- value	Crude OR	95% CI
History of fall	Having history of fall	0.04	2.164	1.275, 3.710
	Not having history fall		Reference	
Max. weight carried	Below 45 kg	0.006	0.473	0.272, 0.8145
	45 kg and above		Reference	
Any injury other than fall	Any injury	0.05	1.954	0.99,3.841
	No Injury		Reference	

Stipulated time to take rest	60 min and below	0.020	0.264	0.086, 0.809
	Above 60 min		Reference	
Frequency of wages	Daily	0.001	2.601	1.515, 4.464
	Weekly/ monthly		Reference	
Working days	6 days	<0.001	0.286	0.145,0.567
	7 days		Reference	

Multivariable logistic regression was done controlling the effect of confounders. After controlling the other factors we analyzed that working days and frequency of receiving wages were strongly associated to musculoskeletal disorders as mentioned in Table 3.8, according to which workers who were working for 6 days has 62.9 percent lesser odds of having MSD as compared to head load workers working for 7 days. Similarly, head load workers who are receiving wages daily have 2.601 higher odds of experiencing musculoskeletal disorders as compared to workers who are receiving wages weekly.

Table 3.8. Binary logistic regression with multiple variables

Variable	Categories	Crude OR (95% CI)	Adjusted OR (95% CI)	P-value
Working days	6 days	0.286 (1.765, 6.918)	0.371 (0.182, 0.756)	0.006
	7 days		Reference	
Frequency of receiving wages	Daily	2.601 (1.515, 4.464)	2.121 (1.206, 3.730)	0.009
	Weekly/ monthly		Reference	
History of fall	Having history of fall	2.164 (1.275, 3.710)	1.686 (0.960, 2.962)	0.069
	Not having history of fall		Reference	

CHAPTER 4

DISCUSSION

4.1 Discussion

Studies on Musculoskeletal disorders (MSD) across different occupational categories are studied generally. However, MSD among specific occupational groups such as head-load workers are scarce. This study is on MSD among head-load workers of Azadpur *mandi*, a wholesale market place that markets vegetables and fruits catering to the demands of National Capital Region of Delhi, that includes Delhi, New Delhi, Ghaziabad, Noida and Gurugram spread over in three states. Total quantity of fruits and vegetables handled in a day is 11845.37 tonnes (APMC, 2023). The market employs about 50,000 workers on a daily basis. The Azadpur market open all 365 days of the year without any break. The market handles 5000 to 8000 trucks a day, that supplies fruits and vegetables brought from different states and some of the neighboring countries (Raheja, 2017). The head-load workers engaged activities such as offload goods from the trucks, load goods to trucks, packing parcels and packages, display goods to inspecting customers, weighing the parcels and marking the parcels. All these activities require rigorous efforts that many at times lead to fault postures while handling and end up in MSD. The aim of the present endeavor is to study the above mentioned issues in the Azadpur *mandi*.

The present study found the prevalence of MSD as 93 percent using the Pain Numeric Rating Scale. The prevalence is closer to that of another study of construction workers in Karim Nagar, found 77 percent of MSD prevalence (Bodhare et al., 2011). As there are no studies among head load workers, similar occupation as this, namely construction was taken for comparison. Another important assessment used for MSD is using Nordic body map to find the regions of musculoskeletal pain. The current study demonstrated that 91.9 percent of people had musculoskeletal issues each year that affected one or more of the nine body regions. This result is more in confirmation with another research of construction workers (Chakraborty et al., 2018) found that 80 percent of participants experienced some form of MSDs in the last twelve years prior to the study. Present study reported that lower back is the most common site of pain which is in confirmation with a previous literature conducted among construction workers (Chakraborty et al., 2018). In accordance to present study the second afflicted region is knee with 50 percent of prevalence which is closer to the findings of a construction worker study (Alghadir and Anwer, 2015) who indicated prevalence of 20 percent of knee pain in past 12 months.

Age of the head load workers ranged from between 19 to 68 with the mean age of 43.84 is an agreement with the study conducted among construction workers (Alghadir and Anwer, 2015). A study (Patil et al., 2018) conducted among farmers to study the prevalence and health impact of musculoskeletal disorders found age as one of the associated factors with musculoskeletal disorders, however in present study age is not found to be statistically significant. As the result

section of the current study states that the participation of men was more (84.4%) and the women were less (15.6%) which is in concurrent with a study (Reddy et al., 2016).

The Azadpur *mandi* is a state government facility managed by Delhi Development Authority (DDA). This has 20 number of sheds and four cold storages. These are managed by contractors of the shed who deal with arrival of the goods to the sheds, commission agents who facilitate loading and unloading of goods in *mandi* and are hired by the farmers, and the agents employ weekly wagers and daily wagers. Commission agents supervise the work of head load workers, who are central to this loading and unloading and these workers receive their wages directly from farmers however their work is supervised by commission agents. There are in total twenty sheds employing 3664 commission agents/wholesalers (APMC, 2024), about 20000 to 30000 workers; that functions from 3:00 AM to 10:00 PM or at times work round the clock.

Similar to other musculoskeletal disorders studies, the factors associated under socio-demographic characteristics such as age, sex, education, family type, housing, native or belong to different regions, marital status were included.

The Karimnagar study of construction workers reported the age of the respondents in the age group of 16 to 64 years (Bodhare et al., 2011). Present study age group was ranged from 19 to 64 years with the mean age of 43.87. The sex distribution of the present study shows that out of 270 individuals and out of them 15.6 percent of women and 84.4 percent of men this finding is in consistent with another study (Bodhare et al., 2011).

Within present study there were 44.1 percent of the participants did not obtained any formal education and 55.9 percent have received some kind of formal education. This findings is different

from a research conducted among 155 head-load brick field workers found a small percentage of respondents (16.1%) had completed primary school, and majority had no formal education (Rahaman et al., 2017). Almost (93.7%) all participants in this study were married. Almost all (99.6%) are from other states and many (87.4%) belonged to joint family. As mostly belong to different regions, it is found that most of the participants (72.6%) live on rent and 15.6 percent reside in *mandi* and remaining participants live in slums or own house. The average monthly income was found to be Rs. 11355.5. A review found low and middle income countries for agriculture and musculoskeletal disorders (Kumar et al., 2019) from four studies were found associations between back pain with lower monthly income. This is in consistent with present research that shows that 64.9% of participants out of 202 experienced low back discomfort while earning Rs.12000 monthly.

The study at hand found the participants were involved in lifting heavy weights that includes lifting, moving while loading and offloading for longer duration. This finding is in consistent with a study from Calcutta conducted among manual workers (Sarkar et al., 2016). Such activities cause high force in muscular-skeletal system as they requires high muscular forces that lead to muscle fatigue (Preventing musculoskeletal disorders in workplace, 2024). Present study shows that in an average head load workers have worked for 18 years. This finding is in confirmation with the Kolkatta study (Sarkar et al., 2016). In present study we could not find any association between years engaged in work and musculoskeletal disorders, however a study conducted among waste loaders of Mumbai (Salve et al., 2017) found longer years of work had a significant increased likelihood of MSD. Present study demonstrated, on average individuals work for twelve hours a day and 27.8 percent of the participants even work more than 12 hours. This study shows that in an average participants work for at least 12 hours a day and out of 270, 27.8 percent of the

participants worked more than 12 hours. In spite of no statistical significance between working hours and musculoskeletal disorders. A study conducted among construction workers (Alghadir and Anwer, 2015) shows that there was no association between working hours per day and musculoskeletal pain which is in consistent with our study. Most of the women work for seven to eight hours a day. This is because, women have additional domestic responsibilities that does not permit them to work beyond eight hours.

The association between carrying more weight and MSD was found in this study. This finding is in consistent with the findings of Kolkata study conducted among manual workers (Sarkar et al., 2016). In the present study, participants carried different forms of goods as discussed in results. The forms of goods are different for different sheds. It is also found that women working in fruit handling sheds and women carry them on head while men deal within the same sheds carry plastic crates, wooden or gunny bags. For these forms of goods determine the type of tool requires for carrying by them include *kundi* (hook shaped tool) which can specifically be used to lift the gunny bags while other forms of goods may be lifted without any tool.

Addition to carrying heavy goods the workers also have a problem of not following appropriate posture and that makes it difficult to establish the in general posture on musculoskeletal disorders. the mostly used postures during lifting is direct bending, while carrying the load on one limb above shoulder for longer duration and mostly keeping their one limb straight and bending both limbs while lowering the goods which is positively associated with musculoskeletal disorders (Das, 2014).

There were instances where the head load workers reported falls. The history of fall is associated with musculoskeletal disorder. This was not found any other literature.

A construction workers study in India (Jaiswal and Veerkumar, 2016) found the prevalence of injury was 25.4 percent and the present study found 41.9 percent reported an experience of injury.

It was found that 34.4 percent of participants reported poor accessibility to washroom facility in market premises. The distance of the washroom from some of the sheds was farther and time consuming. All participants reported that *mandi* had no facility of resting. The stipulated time for rest is associated with musculoskeletal disorders. This finding is in confirmation with another study conducted among fisher women in Trivandrum (Rahim et al., 2024).

The participants working for six days has 62.9 percent lesser odds of having MSD as compared to head load workers working for seven days. The frequency of wages was significant with the musculoskeletal disorders; however, a study on construction workers found association between wage system and risk factors for musculoskeletal disorders (Ajslev et al., 2015) found no association between both the variables but they found an association between ankle pain and wrist pain with wages.

In general, present study did not find an association between socio-demographic factors and musculoskeletal disorders. Occupational factors such as frequency of wages, in working days and working conditions found to be different comparing to other occupations. These variables along with some variables such as in inaccessibility to washroom facilities, no resting facility reflects the unorganized and unregulated nature of this occupation.

4.2 Conclusion

A rare occupational group namely head load workers working in vegetables and fruits whole sale market engaged in rigorous activities as being studied. It has been found high levels of musculoskeletal disorders due to the nature of work, the actual prevalence of MSDs found to be associated with occupation related factors such as type of work, working conditions, working hours, compensation and rigorous work. Like any other occupation the unorganized sector such as head load workers, lack recognition of their health and well being. In spite of their contribution to the economy, they were never been focused for any public health.

Age distribution of head load workers and education qualification shows there are still unemployment for who are working for an average salary of Rs 12000 per month.

Azadpur *mandi* established as a market place since 1977 even after 46 years the market uses conventional practice with minimal technology interventions that cause MSD, draw the attention of the researcher. Basic infrastructure modification such as introduction of technology for facilitating unloading, loading and lifting the weight and the movements would have solved of the larger prevalence of musculoskeletal disorders.

Unless the authorities address the basic needs of the work place such as restrooms, retiring rooms, proper drinking water facilities, lighting, safety and security of the workers, working such types of larger markets will be denied of their basic entitlements along with exposure to musculoskeletal disorders.

Recommendations

- An effort should be made to enhance the infrastructure of the market to improve the working condition of the workers.
- Training to headload workers can be given for lifting and carrying heavy load on head.
- Provision of retiring rooms specially for the workers who lives within mandi.
- Proper seating facilities for head load workers along with resting stations will improve the MSD status among head load workers.
- Proper drinking water facilities can be included in Azadpur market.
- Policies regarding the fixed amount of wages can be brought to improve the economic status of the head load workers.

Strengths

- Standardized tool for estimating prevalence of musculoskeletal disorders and can be replicated.
- The study of risk factors for musculoskeletal disorders among head load workers helped for better understanding of occupational risks come along with this occupation.

Limitations

- The data was collected for only two months (January and February), which may effect the generalization to other months.
- Due to the limited time the sample size could be reached 270, larger sample size may add some more clarity.
- Due to nature of work, there were only few women who participated in the study.
- Detailed information on activities are not being collected.

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ANNEXES

Annexure 1

Achutha Menon Centre for Health Science Studies (AMCHSS)

Sree Chitra Tirunal Institute for Medical Sciences & Technology (SCTIMST)

Trivandrum- 11

Participant Information Sheet

I am Kajal Prajapati, currently pursuing a Master of Public Health (MPH) at Achutha Menon Centre for Health Science Studies (AMCHSS), Sree Chitra Tirunal Institute for Medical Sciences and Technology, Trivandrum, Kerala. I am doing a study on “**Prevalence of Musculoskeletal Disorders and Associated Factors among Head Load Workers of Azadpur Mandi, Delhi**”, under the guidance of Dr. K. Srinivasan, Professor and Associate Dean, Public Health at AMCHSS.

You are being invited to participate in this research study. Before you decide whether or not to participate in this study, it is important that you understand why the research is being done and what it will involve. Please read the information sheet and the consent form carefully and feel free to ask for clarifications you may have.

Purpose of the study

The purpose of this study is to estimate the prevalence of musculoskeletal disorders among heavy-load workers of Azadpur mandi, Delhi, and the level of awareness about handling weight and effective technology for loading and unloading goods. The study will also explore different postures adopted by the laborers associated with pain in different body parts and identify factors contributing to musculoskeletal disorders that can be altered or influenced by both systemic and individual actions.

Procedure

If you are willing to participate in the study, you will be asked to complete an interview schedule which will include questions focusing on personal and sociodemographic information, medical history, work-related information, and questions related to muscular pain. The

interview will take approximately 20-25 minutes of your valuable time. Additionally, we will take some anthropometric measures such as your height and weight.

Benefits from the study

The study will not directly benefit you. There will be no incentive in any form for participating in the study. However, the results of the study will be helpful in further research & policy making which may benefit society as a whole.

Potential risks and discomforts

Participating in the study imposes no risk to your health. But in case you feel any discomfort during the interview, feel free to quit.

Confidentiality

Information obtained in this study will be kept strictly confidential. A participant identification number will be assigned to each participant which will help to maintain the strict confidentiality of the data collected. All the information that is being collected will be used solely for research. Your name will not be used in reporting information in publications or reports. The results of the study will be published and presented in public forums.

Withdrawal from the study

Your participation in the study will be completely voluntary. You are free and have the right to withdraw during the study at any time. There will be no penalty for withdrawal or not participating in the study.

Contact information

If you have any research-related questions or you would like to verify my credentials, you may contact

Kajal Prajapati

Principal Investigator

MPH 2022, AMCHSS, SCTIMST

Contact Number: 9990907661

Dr. Srinivas G

**Member Secretary, Institutional Ethics
Committee,**

Email: jal.prajapativg@gmail.com

**Sree Chitra Tirunal Institute for Medical
Sciences & Technology (SCTIMST),
Trivandrum 695011 Kerala,**

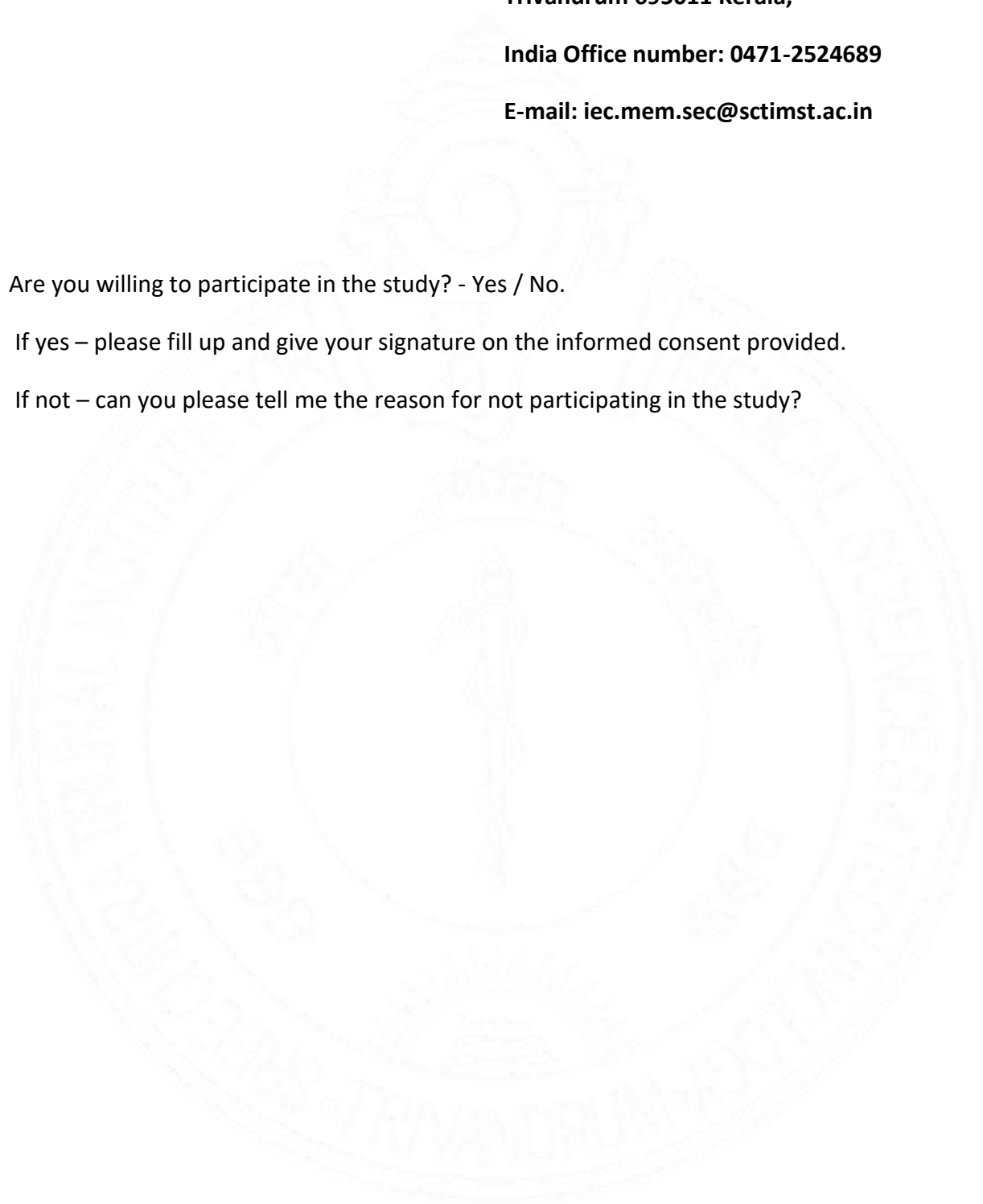
India Office number: 0471-2524689

E-mail: iec.mem.sec@sctimst.ac.in

Are you willing to participate in the study? - Yes / No.

If yes – please fill up and give your signature on the informed consent provided.

If not – can you please tell me the reason for not participating in the study?



Annexure 2

**Achutha Menon Centre for Health Science Studies,
Sree Chitra Tirunal Institute for Medical Sciences & Technology,
Trivandrum, Kerala, India- 695011**

INFORMED CONSENT

I confirm that I have read/ heard and understood the information regarding the study **“Prevalence of Musculoskeletal Disorders and Associated Factors among Head Load Workers of Azadpur Mandi, Delhi”** as provided in the participant information sheet. All of my questions concerning this study have been answered and all the possible harms, discomforts, and benefits (if any) of this study have been explained to me. I also understand that my identity and personal information will be kept confidential. I understand that my participation is voluntary and that I am free to withdraw at any time, without giving a reason and without consequences. By signing this form, I confirm my voluntary participation in this study. I agree to be contacted again if any missing information or further clarification is needed. I understand my right to withdraw from the interview at any time without any obligation. A copy of this form has been given to me.

Date:

Place:

Name of the Participant

Name of the Witness

Participant's Signature/ Thumb impression

Witness Signature/ Thumb impression

Annexure 3

INTERVIEW SCHEDULE

**Prevalence of Musculoskeletal disorders and associated factors among head load workers
Azadpur Mandi, Delhi**

Date –

Time -

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S.no.	Section 1- SURVEY INFORMATION	
1.1	Shed No.	
1.2	Respondent Id.	

S.no.	Section 2- PERSONAL AND SOCIODEMOGRAPHIC INFORMATION	
2.1	Age (in completed years)	
2.2	Sex	<input type="radio"/> Male <input type="radio"/> Female
2.3	What is your highest level of Education you have completed?	<input type="radio"/> No formal schooling <input type="radio"/> Less than primary school <input type="radio"/> Primary school completed <input type="radio"/> Secondary school completed

		<input type="radio"/> High school completed <input type="radio"/> Degree/diploma/ITI completed <input type="radio"/> Post graduate and above
2.4	Family type	<input type="radio"/> Nuclear <input type="radio"/> Joint family/extended
2.5	Where do you belong to	<input type="radio"/> Delhi <input type="radio"/> Outside Delhi
2.6	Type of house	<input type="radio"/> Rent <input type="radio"/> Own House <input type="radio"/> Others Specify
2.7	What is your average monthly income?	
2.8	What is your marital status?	<input type="radio"/> Married <input type="radio"/> Unmarried <input type="radio"/> Others
2.9	How many children do you have?	-----

S.no	SECTION 3 – ANTHROPOMETRIC MEASUREMENTS (BY INVESTIGATOR)	
	<i>Participants should be asked to stand upright without footwear with their back against the wall, heels together and eyes directed forward. For measuring weight, participants are requested to remove footwear. Weight to be recorded in kilograms. The participants should be asked to stand erect in a relaxed position with both feet together.</i>	
3.1	Weight	_____ kg
3.2	Height	_____ cm

--	--	--

Acute morbidity – last 15 days

Admission – last 1 year

S.no	SECTION 4 -MEDICAL HISTORY INFORMATION						
4.1	Have you been diagnosed with any of these diseases in the last 1 year?						
	S.No.	Illness/disease	Affected		Last time affected: (date / month)	Duration	Status of disease (At present)
			Yes	No			Still sick Cured
	4.1.1	Hypertension					
	4.1.2	Diabetes					
	4.1.3	Cancer					
	4.1.4	History of fall					
	4.1.5	Varicose vein					
	4.1.6	Kidney/ bladder stones					
	4.1.7	Constipation					
	4.1.9	Others (please specify): -----					
4.2	Have you experienced any sudden or severe health problems or discomfort in last 15 days?(Except any acute illness like viral fever with myalgia/artralgias						

	or accidents unrelated to the workplace) If so, please specify	
--	--	--

S. No.	SECTION 5 - WORK RELATED INFORMATION	
5.1	How long have you been engaged in load-lifting-related activities?	
5.2	What type goods you usually lift?	<input type="radio"/> Gunny <input type="radio"/> Wooden Carton <input type="radio"/> Cartons <input type="radio"/> Others (<i>if others, please specify</i>)
5.3	How much time do you spend in a day related to jobs on a normal day?	
5.4	Do you have a fixed time for your work?	<input type="radio"/> Yes <input type="radio"/> No
5.5	On a normal day how, many hours do you work?	----- hrs.
5.6	Do you also work more than above mentioned?	<input type="radio"/> Yes <input type="radio"/> No
5.7	Do the operating hours of the 'mandi' change in accordance with different seasons and weather conditions? If so please specify.	
5.8	Do your work hours vary based on different seasons and weather conditions? If so please specify	

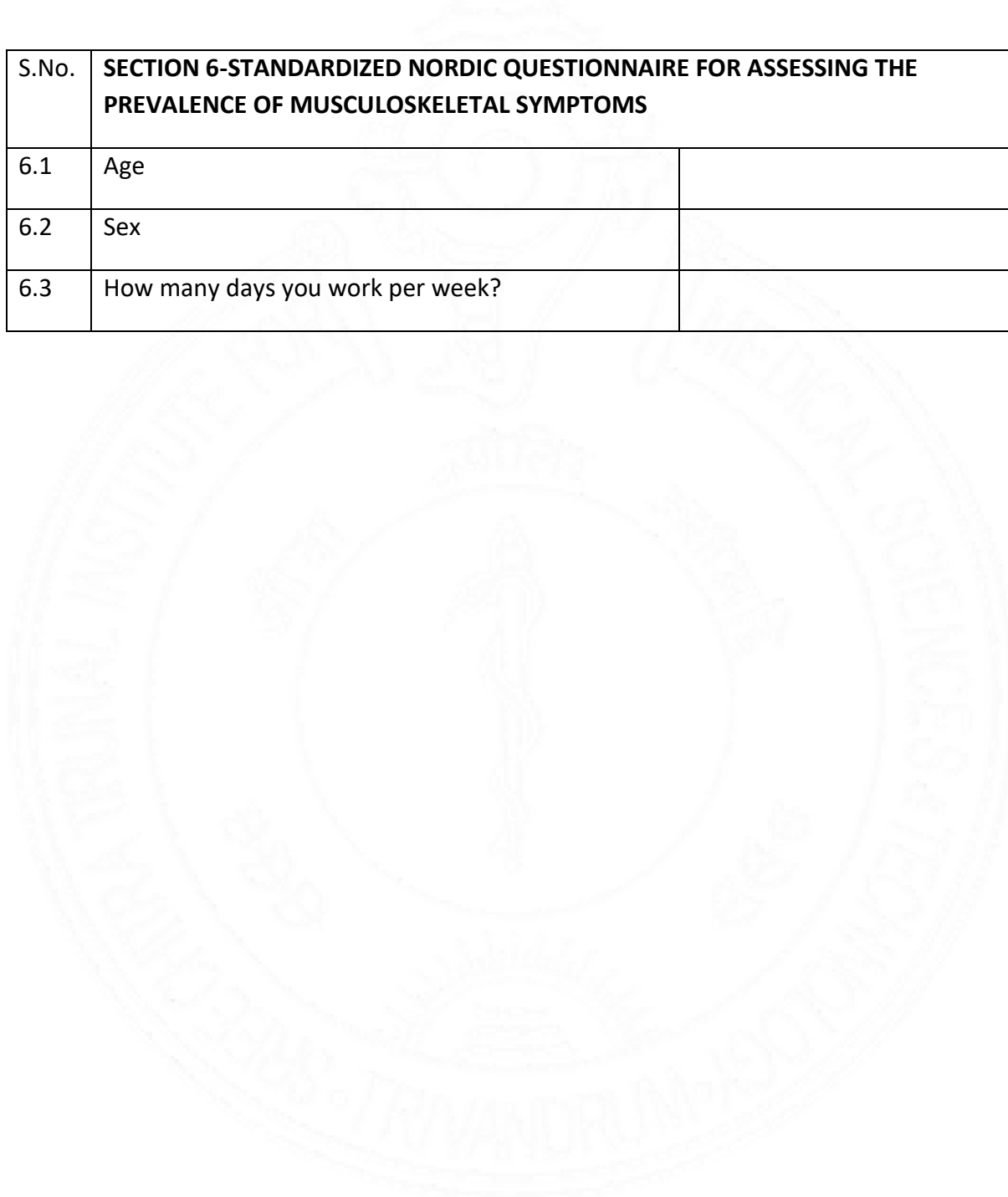
5.9	What kind of activities are you generally involved in while doing head loading? Can you also specify the duration of your engagement?	Head Loading	Time spent
		Unloading from truck	
		Placing all the sacks under the sheds	
		Making different-weight parcels for customers	
		Weighing parcels on the weighing machine	
		Marking on the parcel	
		Carrying the load on the head to the vehicle	
		Keeping the parcels on the vehicle	
		Others	
5.10	Any time of the day what is the maximum weight you generally carry?	----- Kg	
5.11	In an average how much distance you cover carrying the load?	----- m.	
5.12	Does your major activity require you to carry weight for more than 15 minutes?		

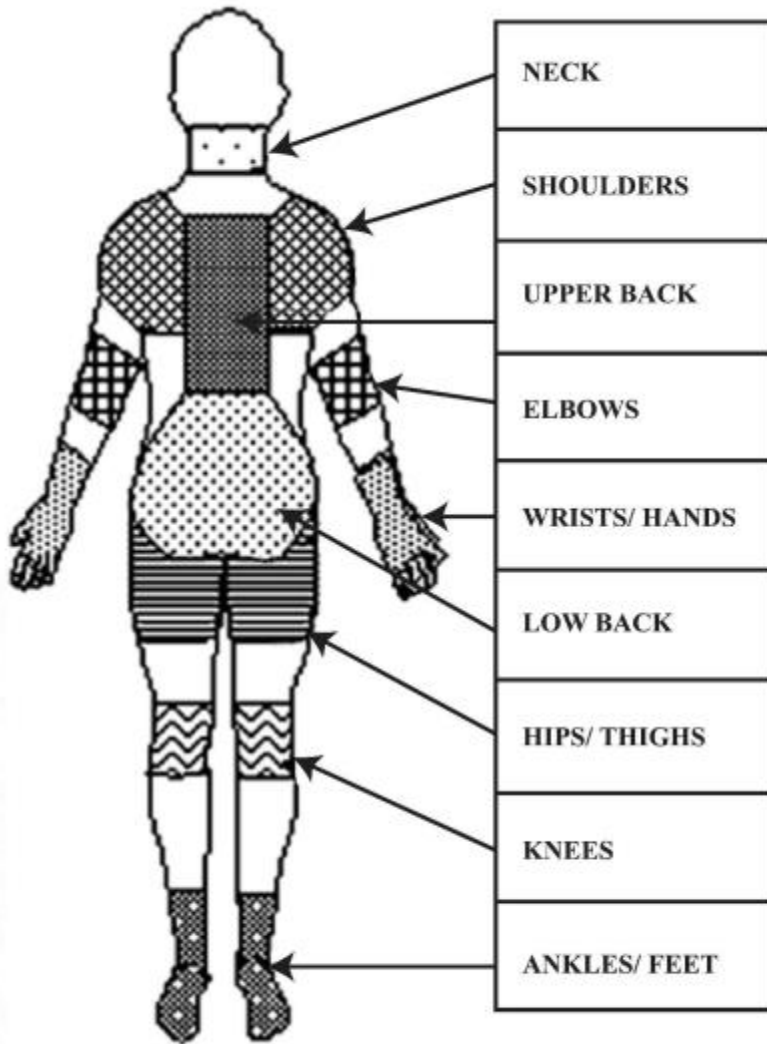
5.13	Have you been registered in the APMC council?	<input type="radio"/> Yes <input type="radio"/> No
5.14	In a normal week how many days you work?	
5.15	Do you have time to take rest in a normal day?	<input type="radio"/> Yes <input type="radio"/> No
5.16	If yes, how many hours?	----- hr.
5.17	Do you have any designated place to for rest at your place?	<input type="radio"/> Yes <input type="radio"/> No
5.18	Do you have any washroom facilities in this area?	<input type="radio"/> Yes <input type="radio"/> No
5.19	Do you use any type of personal protective equipment?	<input type="radio"/> Yes <input type="radio"/> No
5.20	If yes, who provides them?	
5.21	Did you ever fall at the workplace?	<input type="radio"/> Yes <input type="radio"/> No
5.22	Can you please specify the consequences of fall?	
5.23	Do you have any injury other than fall at workplace?	<input type="radio"/> Yes <input type="radio"/> No
5.24	If yes, please mention the causes of the injuries.	
5.25	What is the frequency of receiving your wages?	<input type="radio"/> Monthly <input type="radio"/> Weekly <input type="radio"/> Daily
5.26	Do you have any specific leaves?	<input type="radio"/> Yes <input type="radio"/> No

5.27	If yes, please mention.													
5.28	In last 6 months due to muscular pain have you ever been doing any of the following	<table border="1"> <thead> <tr> <th>S.no.</th> <th>Consequences</th> <th>Number of days</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>Absent from duty</td> <td></td> </tr> <tr> <td>2.</td> <td>Performed partial duty</td> <td></td> </tr> <tr> <td>3.</td> <td>Still performed the duty with illness.</td> <td></td> </tr> </tbody> </table>	S.no.	Consequences	Number of days	1.	Absent from duty		2.	Performed partial duty		3.	Still performed the duty with illness.	
S.no.	Consequences	Number of days												
1.	Absent from duty													
2.	Performed partial duty													
3.	Still performed the duty with illness.													
5.29	Do you experience persistent pain outside of work hours?	<input type="radio"/> Yes <input type="radio"/> No												
5.30	Does this pain impact your everyday activities and routines?	<input type="radio"/> Yes <input type="radio"/> No												
5.31	Are you also doing additional jobs other than mandi?	<input type="radio"/> Yes <input type="radio"/> No												
5.32	Are there any tools or things which you use to make it easier for you to lift heavy load? If so please specify.													
5.33	Did it have impact on your working?	<input type="radio"/> Yes <input type="radio"/> No												
5.34	If yes, please specify													
5.35	Are there any items that you use to make your physically demanding work easier?	<input type="radio"/> Carts <input type="radio"/> Wheel barrows <input type="radio"/> Turbans <input type="radio"/> Belt <input type="radio"/> Others (<i>if others, please specify</i>)												

5.36	In case you have to use such technology, do you prefer to use the same?	<input type="radio"/> Yes <input type="radio"/> No
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S.No.	SECTION 6-STANDARDIZED NORDIC QUESTIONNAIRE FOR ASSESSING THE PREVALENCE OF MUSCULOSKELETAL SYMPTOMS	
6.1	Age	
6.2	Sex	
6.3	How many days you work per week?	




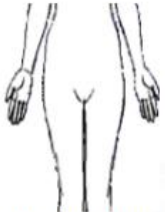








In this picture, you can see the approximate position of the parts of the body referred to in the questionnaire. Limits are not sharply defined, and certain parts overlap. You should decide for yourself in which part you have or have had your trouble (if any)*

<p>Have you at any time during the last 12 months had trouble (ache, pain, discomfort) in:</p>	<p>Have you at any given time during the last 12 months been prevented from doing your normal</p>	<p>Have you had trouble at any time during last 7 days?</p>
--	---	---

	work (at home or away from home) because of the trouble:	
 <p>NECK</p> <p>NO YES</p>	<p>NO</p> <p>YES</p>	<p>NO</p> <p>YES</p>
 <p>SHOULDER</p> <p>NO YES, IN RIGHTHOULDER YES, IN LEFT SHOULDER YES, IN BOTH SHOULDERS</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>ELBOW</p> <p>NO YES, IN RIGHT ELBOWS YES, IN LEFT ELBOWS YES, IN BOTH ELBOWS</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>WRIST/HANDS</p> <p>NO YES IN RIGHT WRISTS YES, IN LEFT WRISTS YES IN BOTH WRISTS</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>

 <p>WRIST/HANDS</p> <p>NO YES IN RIGHT WRISTS YES, IN LEFT WRISTS YES IN BOTH WRISTS</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>UPPER BACK</p> <p>NO YES</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>LOWER BACK</p> <p>NO YES</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>ONE OR BOTH HIPS/THIGHS</p> <p>NO YES</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>
 <p>ONE OR BOTH KNEES</p> <p>NO YES</p>	<p>No</p> <p>Yes</p>	<p>No</p> <p>Yes</p>

 ONE OR BOTH ANKLES NO YES	No	No
	Yes	Yes

S.No.	SECTION 7- PAIN NUMERIC RATING SCALE																						
7.1	<p>On a scale of 0 to 10, with 0 being no pain at all and 10 being the worst pain imaginable, how would you rate your pain RIGHT NOW</p> <div style="text-align: center;">  </div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> <tr> <td>No Pain</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>Worst imaginable</td> </tr> </table>	0	1	2	3	4	5	6	7	8	9	10	No Pain										Worst imaginable
0	1	2	3	4	5	6	7	8	9	10													
No Pain										Worst imaginable													
7.2	<p>On the same scale, how would you rate your WORST level of pain during the last week?</p> <div style="text-align: center;">  </div> <table border="1" style="width: 100%; text-align: center;"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> </table>	0	1	2	3	4	5	6	7	8	9	10											
0	1	2	3	4	5	6	7	8	9	10													

No Pain												Worst imaginable
---------	--	--	--	--	--	--	--	--	--	--	--	------------------

7.3 On the same scale, how would you rate your BEST level of pain during the last week.



0	1	2	3	4	5	6	7	8	9	10
No Pain										Worst imaginable
















7.4 On the same scale, how would you rate your USUAL level of pain during the last week?



0	1	2	3	4	5	6	7	8	9	10
No Pain										Worst imaginable

SECTION- 8

Which of the following postures you follow for each activity?

S.no	Activity	Figure				
8.1	Lifting	<p>1</p>  <p>straight</p>	<p>2</p>  <p>bent</p>	<p>3</p>  <p>straight and twisted</p>	<p>4</p>  <p>bent and twisted</p>	<p>5</p> 
8.2	Carrying - upper limb	<p>1</p>  <p>both limbs on or below shoulder level</p>	<p>2</p>  <p>one limb on or above shoulder level</p>	<p>3</p>  <p>both limbs above shoulder level</p>	<p>4</p> 	<p>5</p> 
8.3	Loading - Lowe limb	<p>1</p>  <p>loading on both limbs, straight</p>	<p>2</p>  <p>loading on one limb, straight</p>	<p>3</p>  <p>loading on both limbs, bent</p>	<p>4</p> 	<p>5</p> 

Annexure 4
Information sheet (Hindi)

**अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज,
श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी,
त्रिवेन्द्रम, केरल, भारत- 695011**

प्रतिभागी सूचना पत्रक

मैं काजल प्रजापति हूं, वर्तमान में अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज (ए एम सी एच एस एस), श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी, तिरुवनंतपुरम, केरल से मास्टर ऑफ पब्लिक हेल्थ (एम.पी.एच.) कर रही हूं। मैं ए.एम.सी.एच.एस.एस में सार्वजनिक स्वास्थ्य के प्रोफेसर और एसोसिएट डीन डॉ. के. श्रीनिवासन के मार्गदर्शन में आजादपुर मंडी, दिल्ली के हेडलोड श्रमिकों के बीच पेशी कंकाली विकारों और संबंधित कारकों की व्यापकता पर एक अध्ययन कर रही हूं।

आपको इस शोध अध्ययन में भाग लेने के लिए आमंत्रित किया जा रहा है। इससे पहले कि आप यह निर्णय लें कि इस अध्ययन में भाग लेना है या नहीं, यह महत्वपूर्ण है कि आप समझें कि शोध क्यों किया जा रहा है और इसमें क्या शामिल होगा। कृपया सूचना पत्रक और सहमति प्रपत्र को ध्यान से पढ़ें और यदि आपके पास कोई स्पष्टीकरण लेना हो तो बेझिझक पूछें।

अध्ययन का उद्देश्य

इस अध्ययन का उद्देश्य आजादपुर मंडी, दिल्ली के भारी-भार उठाने वाले श्रमिकों के बीच मस्कुलोस्केलेटल विकारों की व्यापकता और वजन को संभालने और माल लोड करने और उतारने के लिए प्रभावी तकनीक के बारे में जागरूकता के स्तर का अनुमान लगाना है। अध्ययन शरीर के विभिन्न हिस्सों में दर्द से जुड़े श्रमिकों द्वारा अपनाई जाने वाली विभिन्न मुद्राओं का भी पता लगाएगा और मस्कुलोस्केलेटल विकारों में योगदान देने वाले कारकों की पहचान करेगा जिन्हें प्रणालीगत और व्यक्तिगत दोनों क्रियाओं से बदलाया प्रभावित किया जा सकता है।

प्रक्रिया

यदि आप अध्ययन में भाग लेने के इच्छुक हैं, तो आपसे एक साक्षात्कार कार्यक्रम पूरा करने के लिए कहा जाएगा जिसमें व्यक्तिगत और सामाजिक नसांखिकीय जानकारी, चिकित्सा इतिहास, काम से संबंधित जानकारी और मांसपेशियों में दर्द से संबंधित प्रश्न शामिल होंगे। साक्षात्कार में आपका लगभग 20-25 मिनट का बहुमूल्य समय लगेगा। इसके अतिरिक्त, हम आपकी ऊंचाई और वजन जैसे कुछ मान वशास्त्रीयमाप भी करेंगे।

अध्ययन से लाभ

अध्ययन से आपको सीधे तौर पर कोई लाभ नहीं होगा, अध्ययन में भाग लेने के लिए किसी भी रूप में कोई प्रोत्साहन नहीं दिया जाएगा। हालाँकि, अध्ययन के परिणाम आगे के शोध और नीति निर्माण में सहायक होंगे जिससे समग्र रूप से समाज को लाभ हो सकता है।

संभावित जोखिम और असुविधाएँ

अध्ययन में भाग लेने से आपके स्वास्थ्य को कोई खतरा नहीं है। लेकिन अगर आपको इंटरव्यू के दौरान कोई असुविधा महसूस होतो बेझिझक साक्षात्कार छोड़ दें।

गोपनीयता

इस अध्ययन में प्राप्त जानकारी को पूर्णतः गोपनीय रखा जाएगा। प्रत्येक प्रतिभागी को एक प्रतिभागी पहचान संख्या सौंपी जाएगी जो एकत्र किए गए डेटा की सख्त गोपनीयता बनाए रखने में मदद करेगी। जो भी जानकारी एकत्र की जाएगी उसका उपयोग केवल अनुसंधान के लिए किया जाएगा। प्रकाशनों या रिपोर्टों में सूचना देने में आपके नामका उपयोग नहीं किया जाएगा। अध्ययन के नतीजे सार्वजनिक मंचों पर प्रकाशित और प्रस्तुत किये जायेंगे।

अध्ययन से निकासी

अध्ययन में आपकी भागीदारी पूर्णतः स्वैच्छिक होगी। आप स्वतंत्र हैं और आपको अध्ययन के दौरान किसी भी समय नाम वापस लेने का अधिकार है। अध्ययन से हटने या भाग न लेने पर कोई जुर्माना नहीं होगा।

संपर्क जानकारी

यदि आपके पास शोध संबंधी कोई प्रश्न है या आप मेरी साखसत्यापित करना चाहते हैं, तो आप संपर्क कर सकते हैं

काजल प्रजापति

प्रमुख अन्वेषक

डॉ. श्रीनिवासजी

सदस्य सचिव, संस्थागत आचार समिति,

एम पी एच 2022, एम सी एच एस एस,
एससीटीआईएमएसटी

संपर्कनंबर: 9990907661

ईमेल: jal.prajapativg@gmail.com

श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल
साइंसेज एंड टेक्नोलॉजी (एस.सी.टीआई एम एस
टी), तिरुवनंतपुरम 695011 केरल,

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ई-मेल: iec.mem.sec@sctimst.ac.in

क्या आप अध्ययन में भाग लेने के इच्छुक हैं? - हां / नहीं।

यदि हाँ – कृपया भरें और प्रदान की गई सूचित सहमति पर अपने हस्ताक्षर करें/ कृपया अंगूठे का निशान लगाएं

यदि नहीं – क्या आप कृपया मुझे अध्ययन में भाग न लेने का कारण बता सकते हैं?

Annexure 5
Informed Consent (Hindi)

अच्युता मेनन सेंटर फॉर हेल्थ साइंस स्टडीज,
श्री चित्रा तिरुनल इंस्टीट्यूट फॉर मेडिकल साइंसेज एंड टेक्नोलॉजी,
त्रिवेन्द्रम, केरल, भारत- 695011

सूचित सहमति

मैं पुष्टि करता/ करती हूँ कि मैंने प्रतिभागी सूचना पत्र में दिए गए अध्ययन "आजादपुर मंडी, दिल्ली के हेडलोड श्रमिकों के बीच पेशीकंकाली विकारों और संबंधित कारकों की व्यापकता" के बारे में जानकारी पढ़ी /सुनी और समझी है। इस अध्ययन से संबंधित मेरे सभी प्रश्नों का उत्तर दे दिया गया है और इस अध्ययन के सभी संभावित नुकसान, असुविधाएं और लाभ (यदि कोई हों) के बारे में मुझे बताया गया है। मैं यह भी समझता/ समझती हूँ कि मेरी पहचान और व्यक्तिगत जानकारी गोपनीय रखी जाएगी। मैं समझता/ समझती हूँ कि मेरी भागीदारी स्वैच्छिक है और मैं बिना कोई कारण बताए और बिना किसी परिणाम के किसी भी समय पीछे हटने के लिए स्वतंत्र हूँ। इस फॉर्म पर हस्ताक्षर करके, मैं इस अध्ययन में अपनी स्वैच्छिक भागीदारी की पुष्टि करता/ करती हूँ। यदि कोई छूटी हुई जानकारी या अतिरिक्त स्पष्टीकरण की आवश्यकता हो तो मैं दोबारा संपर्क करने के लिए सहमत हूँ। मैं बिना किसी बाधता के किसी भी समय साक्षात्कार से हटने के अपने अधिकार को समझता/ समझती हूँ। इस फॉर्म की एक प्रति मुझे दी गई है।

दिनांक:

स्थान:

प्रतिभागी का नाम

गवाह का नाम

प्रतिभागी के हस्ताक्षर/अंगूठे का निशान

गवाह के हस्ताक्षर/अंगूठे का निशान

Annexure 6
Interview Schedule (Hindi)

साक्षात्कार कार्यक्रम

आज़ादपुर मंडी, दिल्ली में हेडलोड श्रमिकों के बीच पेशी कंकाली विकारों की व्यापकता और संबंधित कारक

दिनांक:

समय:

--	--	--	--	--	--

क्र.सं.	अनुभाग 1- सर्वेक्षण सूचना	
1.1	शेडनं.	
1.2	प्रतिवादीआईडी.	

क्र.सं.	अनुभाग 2- व्यक्तिगत और सामाजिक – जनसांख्यिकीय जानकारी	
2.1	आयु (पूर्णवर्षोंमें)	
2.2		<input type="radio"/> पुरुष <input type="radio"/> महिला

2.3	आपने अपनी शिक्षा का उच्चतम स्तर क्या पूरा किया है?	<input type="radio"/> कोई औपचारिक स्कूली शिक्षा नहीं <input type="radio"/> प्राइमरी स्कूल से भी कम <input type="radio"/> प्राइमरी स्कूल पूरा हुआ <input type="radio"/> माध्यमिक विद्यालय पूरा हुआ <input type="radio"/> हाई स्कूल पूरा हुआ <input type="radio"/> डिग्री/डिप्लोमा/आईटीआई <input type="radio"/> पूर्ण, स्नातकोत्तर और उससे ऊपर
2.4	पारिवारिक प्रकार	<input type="radio"/> एकल परिवार <input type="radio"/> संयुक्त परिवार/विस्तृत परिवार
2.5	आप कहाँ के रहने वाले हैं	<input type="radio"/> दिल्ली <input type="radio"/> दिल्ली के बाहर
2.6	घर का प्रकार	<input type="radio"/> किराया <input type="radio"/> अपना घर <input type="radio"/> अन्य स्पष्ट करें
2.7	आपकी औसत मासिक आय क्या है?	
2.8	आपकी वैवाहिक स्थिति क्या है?	<input type="radio"/> विवाहित <input type="radio"/> अविवाहित <input type="radio"/> अन्य
2.9	आपके कितने बच्चे हैं?	-----

क्र. सं.	अनुभाग 3 – मानव मितिमाप (अन्वेषक द्वारा)	
	प्रतिभागियोंको बिनाजूते चप्पलोंके दीवारसे पीठ सटाकर, एड़ियाँ एकसाथ रखकर और आँखें आगेकी ओर करके सीधे खड़े होनेके लिए कहा जाना चाहिए। वजन मापनेके लिए प्रतिभागियोंसे जूते उतारनेका अनुरोध किया जाता है। वजन किलोग्राममें दर्ज किया जाए। प्रतिभागियोंको दोनों पैरोंको एकसाथ मिलाकर आरामदायक स्थितिमें सीधे खड़े होनेके लिए कहा जाना चाहिए।	
3 1	वजन	_____ किग्रा
3 2	ऊंचाई	_____ सेमी

तीव्ररुग्णता - पिछले 15 दिन

प्रवेश - पिछले 1 वर्ष

क्र.सं.	अनुभाग 4 – चिकित्सा इतिहास की जानकारी
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4.1	क्या आपको पिछले 1 वर्ष में इनमें से किसी बीमारी का पता चला है?						
क्र.सं.	बीमारी/रोग	प्रभावित		पिछली बार प्रभावित: (तारीख/माह)	अवधि	रोग की स्थिति (वर्तमान में)	
		हाँ	नहीं			अभी भी बीमार	ठीक हो गया है
4.1.1	उच्चरक्तचाप						
4.1.2	मधुमेह						
4.1.3	कैंसर						
4.1.4	गिरने का इतिहास						
4.1.5	वैरिकाजनस						
4.1.6	गुर्दे/मूत्राशयकीपथरी						
4.1.7	कब्ज						
4.1.9	अन्य (कृपया निर्दिष्ट करें) : -----						
4.2	क्या आपने पिछले 15 दिनों में किसी अचानक या गंभीर स्वास्थ्य समस्या या असुविधा का अनुभव किया है ? (किसी भी तीव्र बीमारी को छोड़कर जैसे वायरल बुखार के साथ मायलजिया / आर्थ्राल्जिया या कार्यस्थल से असंबंधित दुर्घटनाएं) यदि हां, तो कृपया निर्दिष्ट करें						

क्र. सं.	अनुभाग 5 – कार्य संबंधी जानकारी	
5.1	आपकबसेवजनउठानेसेसंबंधितगतिविधियोंमेंलगेहुएहैं?	
5.2	आपआमतौरपरकिसप्रकारकासामानउठातेहैं?	<ul style="list-style-type: none"> ○ बोरियां ○ लकड़ीडिब्बे ○ डिब्बे ○ अन्य (यदिअन्यहोंतोकृपयानिर्दिष्ट करें)
5.3	सामान्यदिनोंमेंआपनौकरियोंसेसंबंधितएकदिनमेंकितनासमयव्यतीतकरतेहैं?	
5.4	क्याआपकेपासअपनेकामकाकोईनिश्चितसमयहै?	<ul style="list-style-type: none"> ○ हाँ ○ नहीं
5.5	एकसामान्यदिनमेंआपकितनेघंटेकामकरतेहैं?	----- घंटे.
5.6	क्याआपकभीऊपरबताईगईबातोंसेज्यादाकामकरतेहैं?	<ul style="list-style-type: none"> ○ हाँ ○ नहीं
5.7	क्या 'मंडी' केसंचालनकेघंटेअलग-अलगमौसमऔरमौसमकीस्थितिकेअनुसारबदलतेहैं? यदिऐसाहैतोकृपयानिर्दिष्टकरें.	
5.8	क्याआपकेकामकेघंटेअलग-अलगमौसमोंऔरमौसमकीस्थितियोंकेआधारपरअलग-अलगहोतेहैं? यदिऐसाहैतोकृपयानिर्दिष्टकरें	

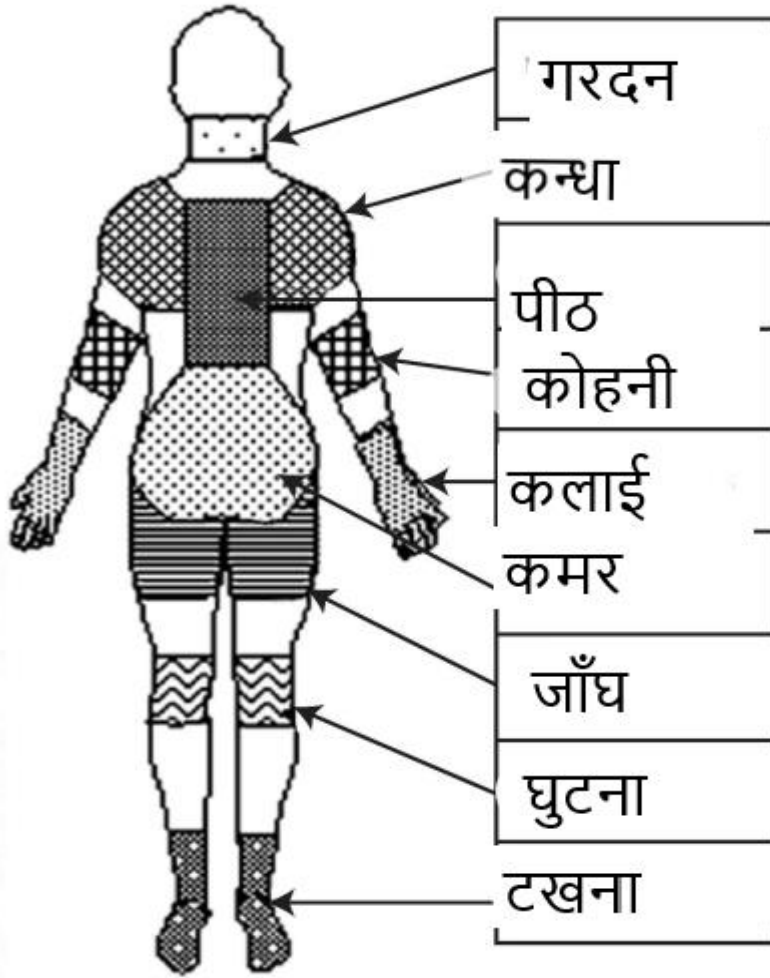
5.9	सिरपरवजन उठाने के दौरान आप आमतौर पर किस प्रकार की गतिविधियों में शामिल होते हैं? क्या आप अपनी संलग्नता की अवधि भी बता सकते हैं?	सिरपरवजन	बितायाग या समय
		ट्रक से सामान उतारना	
		सभी बोरियों को छप्पर के नीचे रखना	
		ग्राहकों के लिए अलग-अलग वजन के पार्सल बनाना	
		तौल मशीन पर पार्सल तौलना	
		पार्सल पर अंकन	
		सिरपर बोझ उठाकर वाहन तक ले जाना	
		पार्सल को वाहन पर रखना	
5.10	दिन के किसी भी समय आप आमतौर पर अधिकतम कितना वजन उठाते हैं?	----- किग्रा	
5.11	औसतन आप भार उठाकर कितनी दूरी तय करते हैं?	----- मी.	
5.12	क्या आपकी प्रमुख गतिविधि के लिए आपको 15 मिनट से अधिक समय तक वजन उठाना पड़ता है?		
5.13	क्या आप ए.पी.एम. सी परिषद में पंजीकृत हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं	
5.14	एक सामान्य सप्ताह में आप कितने दिन काम करते हैं?		

5. 15	क्या आपके पास सामान्य दिन में आराम करने का समय है?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 16	यदि हाँ, तो कितने घंटे?	----- घंटे.
5. 17	क्या आपके पास विश्राम के लिए कोई स्थान निर्धारित है?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 18	क्या आपके पास इस क्षेत्र में शौचालय की कोई सुविधा है?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 19	क्या आप किसी भी प्रकार के व्यक्तिगत सुरक्षा उपकरण का उपयोग करते हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 20	यदि हाँ, तो उन्हें कौन उपलब्ध कराता है?	
5. 21	क्या आप कभी कार्यस्थल पर गिरे हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 22	क्या आप कृपया गिरने के परिणाम बता सकते हैं?	
5. 23	क्या कार्यस्थल पर गिरने के अलावा आपको कोई चोट लगी है?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 24	यदि हाँ, तो कृपया चोटों के कारणों का उल्लेख करें।	
5. 25	आपकी मजदूरी प्राप्त करने की आवृत्ति क्या है?	<input type="radio"/> मासिक <input type="radio"/> साप्ताहिक <input type="radio"/> दैनिक
5. 26	क्या आपकी कोई विशेष छुट्टियाँ हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं
5. 27	यदि हाँ, तो कृपया उल्लेख करें।	

5. 28	पिछले 6 महीनों में मांसपेशियों में दर्द के कारण क्या आप कभी भी निम्न में से कोई भी काम कर रहे हैं?	क्र. सं.	परिणाम	दिनोंकी संख्या
		1.	कार्यसेअनुपस्थित रहना	
		2.	आंशिककार्यकि या	
		3.	बीमारीकेबावजूद भीकियाकाम	
5. 29	क्या आप काम के घंटों के अलावा लगातार दर्द का अनुभव करते हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं		
5. 30	क्या यह दर्द आपकी रोज मर्चा की गतिविधियों और दिनचर्या को प्रभावित करता है?	<input type="radio"/> हाँ <input type="radio"/> नहीं		
5. 31	क्या आप मंडी के अलावा अतिरिक्त काम भी कर रहे हैं?	<input type="radio"/> हाँ <input type="radio"/> नहीं		
5. 32	क्या ऐसे कोई उपकरण या चीजें हैं जिनका उपयोग आप भारी भार उठाना आसान बनाने के लिए करते हैं? यदि ऐसा है तो कृपया निर्दिष्ट करें.			
5. 33	क्या इसका असर आपके कामकाज पर पड़ा?	<input type="radio"/> हाँ <input type="radio"/> नहीं		
5. 34	यदि हां, तो कृपया निर्दिष्ट करें			
5. 35	क्या ऐसी कोई वस्तु है जिसका उपयोग आप अपने शारीरिक रूप से कठिन कार्य को आसान बनाने के लिए करते हैं?	<input type="radio"/> ठेला <input type="radio"/> ट्राली <input type="radio"/> पगड़ी <input type="radio"/> बेल्ट		




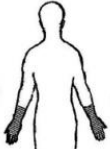

		<input type="radio"/> अन्य (यदि हों तो कृपया निर्दिष्ट करें)
5.36	यदि आपको ऐसी तकनीक का उपयोग करना है, तो क्या आप उसी का उपयोग करना पसंद करेंगे?	<input type="radio"/> हाँ <input type="radio"/> नहीं



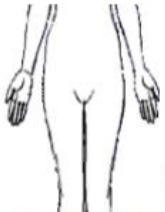


क्र.सं.	अनुभाग 6- मस्क्युलोस्केलेटल लक्षणों की व्यापकता का आकलन करने के लिए मान कीकृत नॉर्डिक प्रश्नावली	
6.1	आयु	
6.2	लिंग	
6.3	आप प्रति सप्ताह कितने दिन काम करते हैं?	






इस चित्रमें, आप प्रश्रावली में उल्लिखित शरीर के अंगों की अनुमानित स्थिति देख सकते हैं। सीमाएं स्पष्ट रूप से परिभाषित नहीं हैं, और कुछ हिस्से ओवर लैप होते हैं। आपको स्वयं निर्णय लेना चाहिए कि आपको किस भाग में परेशानी है या हुई है (यदि कोई हो)*

<p>क्या आपको पिछले 12 महीनों के दौरान किसी भी समय परेशानी (दर्द, असुविधा) हुई है:</p>	<p>क्या पिछले 12 महीनों के दौरान किसी भी समय आपको किसी परेशानी के कारण अपना सामान्य काम (घर पर या घर से दूर) करने से रोका गया है:</p>	<p>क्या आपको पिछले 7 दिनों के दौरान किसी भी समय परेशानी हुई?</p>
---	---	--


 <p>गरदन</p> <p>NO YES</p>	<p>नहीं</p> <p>हाँ</p>	<p>नहीं</p> <p>हाँ</p>
 <p>SHOULDER</p> <p>NO YES, IN R YES, IN L YES, IN BOT</p>	<p>नहीं</p> <p>हाँ</p>	<p>नहीं</p> <p>हाँ</p>
 <p>ELBOW</p> <p>NO YES, IN R YES, IN L YES, IN</p>	<p>नहीं</p> <p>हाँ</p>	<p>नहीं</p> <p>हाँ</p>
 <p>WRIST/HANDS</p> <p>NO YES IN RIGHT YES, IN LEFT YES IN BOTH</p>	<p>नहीं</p> <p>हाँ</p>	<p>नहीं</p> <p>हाँ</p>
 <p>WRIST/HANDS</p> <p>NO YES IN RIGHT YES, IN LEFT YES IN BOTH</p>	<p>नहीं</p> <p>हाँ</p>	<p>नहीं</p> <p>हाँ</p>

 <p>UPPER BACK NO YES</p>	<p>नहीं हाँ</p>	<p>नहीं हाँ</p>
 <p>LOWER BACK NO YES</p>	<p>नहीं हाँ</p>	<p>नहीं हाँ</p>
 <p>ONE OR BOTH HIPS/THI NO YES</p>	<p>नहीं हाँ</p>	<p>नहीं हाँ</p>
 <p>ONE OR BOTH KNEE NO YES</p>	<p>नहीं हाँ</p>	<p>नहीं हाँ</p>
 <p>ONE OR BOTH ANKLES NO YES</p>	<p>नहीं हाँ</p>	<p>नहीं हाँ</p>

क्र.सं.	अनुभाग 7-दर्दसंख्यात्मकरेटिंगस्केल																						
7.1	<p>0 से 10 के पैमाने पर, जिसमें 0 बिल्कुल भी दर्द नहीं है और 10 सबसे खराब दर्द है जिसकी कल्पना की जा सकती है, आप अभी अपने दर्द का मूल्यांकन कैसे करेंगे?</p>  <table border="1" data-bbox="354 751 1367 907"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> <tr> <td>कोई दर्द नहीं</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>सबसे बुरा कल्पनीय दर्द</td> </tr> </table>	0	1	2	3	4	5	6	7	8	9	10	कोई दर्द नहीं										सबसे बुरा कल्पनीय दर्द
0	1	2	3	4	5	6	7	8	9	10													
कोई दर्द नहीं										सबसे बुरा कल्पनीय दर्द													
7.2	<p>उसी पैमाने पर, आप पिछले सप्ताह के दौरान अपने दर्द के सबसे खराब स्तर का मूल्यांकन कैसे करेंगे?</p>  <table border="1" data-bbox="354 1381 1367 1537"> <tr> <td>0</td><td>1</td><td>2</td><td>3</td><td>4</td><td>5</td><td>6</td><td>7</td><td>8</td><td>9</td><td>10</td> </tr> <tr> <td>कोई दर्द नहीं</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>सबसे बुरा कल्पनीय दर्द</td> </tr> </table>	0	1	2	3	4	5	6	7	8	9	10	कोई दर्द नहीं										सबसे बुरा कल्पनीय दर्द
0	1	2	3	4	5	6	7	8	9	10													
कोई दर्द नहीं										सबसे बुरा कल्पनीय दर्द													
7.3	<p>उसी पैमाने पर, आप पिछले सप्ताह के दौरान अपने दर्द के सर्वोत्तम स्तर का मूल्यांकन कैसे करेंगे।</p> 																						

	0	1	2	3	4	5	6	7	8	9	10
	कोई दर्दनहीं										सबसेबुराकल्पनीयदर्द































7.4 उसीपैमानेपर, आपपिछलेसप्ताहकेदौरानअपनेदर्दकेसामान्यस्तरकोकैसेआंकेंगे?









0	1	2	3	4	5	6	7	8	9	10
कोई दर्दनहीं										सबसेबुराकल्पनीयदर्द

अनुभाग - 8

आपप्रत्येकगतिविधिकेलिएनिम्नलिखितमेंसेकिसआसनकापालनकरतेहैं

क्र.सं.	गतिविधि	आकृति					
8.1	उठानेकी	<table border="1"> <tr> <td>1  straight</td> <td>2  bent</td> <td>3  straight and twisted</td> <td>4  bent and twisted</td> <td>5 </td> </tr> </table>	1  straight	2  bent	3  straight and twisted	4  bent and twisted	5 
1  straight	2  bent	3  straight and twisted	4  bent and twisted	5 			
8.2	लेजाना- ऊपरीअंग	<table border="1"> <tr> <td>1  both limbs on or below shoulder level</td> <td>2  one limb on or above shoulder level</td> <td>3  both limbs above shoulder level</td> <td>4 </td> <td>5 </td> </tr> </table>	1  both limbs on or below shoulder level	2  one limb on or above shoulder level	3  both limbs above shoulder level	4 	5 
1  both limbs on or below shoulder level	2  one limb on or above shoulder level	3  both limbs above shoulder level	4 	5 			

						
8.3	भारउठाना - निचलेअंग	1  loading on both limbs, straight	2  loading on one limb, straight	3  loading on both limbs, bent	4 	5 

Annexure 7

Analysis for Nordic Questionnaire- for particular body regions having pain anytime in past 12 months - Pearson Chi square test

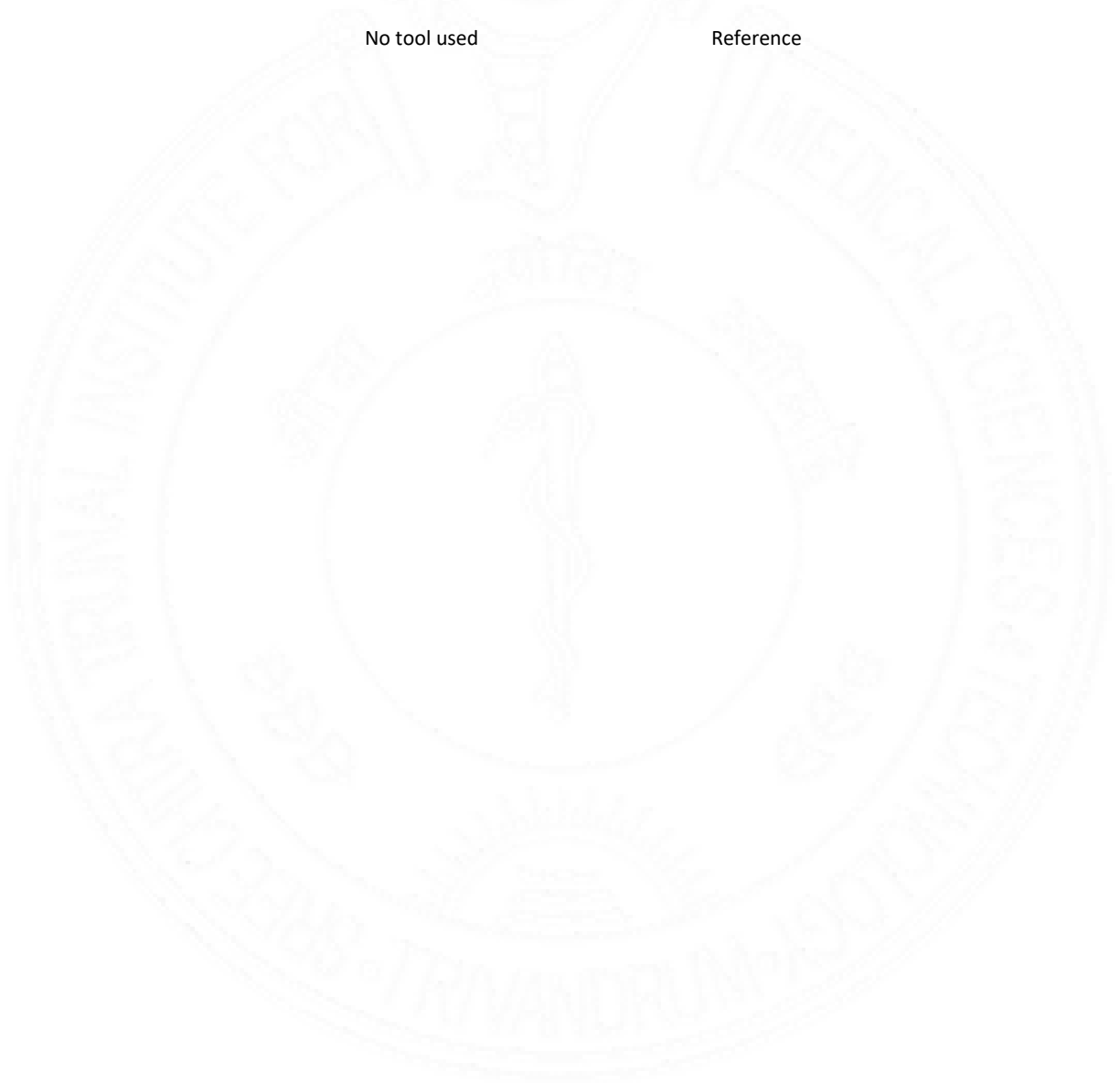
Variables	Category	N = 270	Neck pain present (12 months) n (%)	No neck pain (12 months) n (%)	P value
Max. Weight carried	Below 45 kg	127	6 (4.7)	121(95.3)	0.07
	45 kg and above	143	15(10.5)	128(89.5)	
Working days	6 days	97	12(12.4)	85 (87.6)	0.035
	7 days	173	9 (5.9)	164 (94.8)	
Variables	Category	N = 270	Shoulder pain present	Shoulder pain absent	P value
BMI	25 and below	189	27 (14.5)	159 (85.5)	0.02
	Above 25	84	4 (4.8)	80(95.2)	
Frequency of wages	Daily wagers	97	17(17.5)	80 (82.5)	0.020
	Weekly/ monthly wagers	173	14 (8.1)	159 (91.9)	
Variables	Category	N= 270	Upper back pain present	Upper back pain absent	P value
Distance travelled with load	Shed distance	144	8 (5.6)	136 (94.4)	0.03
	Beyond shed distance	126	1 (0.8)	125 (99.2)	
Variables	Category	N= 270	Low back pain present	low back pain absent	P value
Sex	Male	228	133 (58.3)	95 (41.7)	0.013
	Female	42	33 (78.6)	9 (21.4)	
History of fall	History of fall present	124	87(70.2)	37 (29.8)	0.007

	History of fall absent	146	79 (54.1)	67 (45.9)	
Average income	12000 and below	202	131(64.9)	71(35.1)	0.05
	Above 12000	68	35 (51.5)	33 (48.5)	
Variables	Category	N= 270	Knee pain present	Knee pain absent	P value
Working Days	6 days	229	105(45.9)	124(54.1)	0.018
	7 days	41	27(65.9)	14(34.1)	
Frequency of wages	Daily	97	55(56.7)	42(43.3)	0.057
	Weekly/ monthly	173	77 (44.5)	96 (55.5)	
Variables	Category	N= 270	Hips/ thighs pain present	Hips/ thighs pain absent	P value
Sex	Male	228	11 (4.8)	217 (95.2)	0.005
	Female	42	7 (16.7)	35 (83.3)	
Max. Weight carried	45 kg and below	127	12 (9.4)	115 (90.6)	0.084
	Above 45 kg	143	6 (4.2)	137(95.8)_	
Variables	Category	N= 270	Ankles pain present	Ankles pain absent	P value
Working Days	6 days	229	49 (21.4)	180(78.6)	0.035
	7 days	41	15 (36.6)	26(63.4)	
Type of house	Rent	196	53(27)	143 (73%)	0.036
	Mandi/others	74	11 (14.9)	63(85.1)	
Distance travelled	Shed Distance	144	28 (19.4)	116 (80.6)	0.079
	Beyond shed distance	126	36 (28.6)	90 (71.4)	

Binary logistic regression with independent variable.

Body regions (in past 12 months)	Independent variable	Category	P value	Crude OR	CI 95%
Neck Pain	Working Days	6 days	0.021	3.162	1.191, 8.397
		7 days		Reference	
	Frequency of wages	Daily	0.040	0.389	0.158, 0.958
		Weekly/ monthly		Reference	
	Max. weight carried	45 kg and below	0.085	2.363	0.888, 6.28
		Above 45 kg		Reference	
Shoulder Pain	BMI	25kg/m ² and below	0.02	0.294	0.100, 0.870
		Above 25kg/m ²		Reference	
	Frequency of wages	Daily	0.022	0.414	0.0194, 0.883
		Weekly/ monthly			
Low back Pain	Sex	Male	0.016	2.619	1.197, 5.729
		Female		Reference	
	History of fall	H.O.F present	0.007	0.501	0.303, 0.830
		H.O.F absent		Reference	
	Avg. Income	12000 and below	0.051	0.575	0.330, 1.003
		Above 12000		Reference	
Knee Pain	Working Days	6 days	0.020	2.278	1.136, 4.568
		7 days		Reference	

	Frequency of wages	Daily	0.055	0.613	0.37, 1.011
		Weekly/ monthly		Reference	
Hips/ Thighs	Sex	Male	0.008	3.945	1.433, 10.861
		Female		Reference	
Ankle pain	Working days	6 days	0.038	2.119	1.042, 4.309
		7 days		Reference	
	Tools used	Tools used	0.017	0.50	0.28, 0.885
		No tool used		Reference	



Annexure 8

**श्री चित्रा तिरुनाल आयुर्विज्ञान और प्रौद्योगिकी संस्थान, त्रिवेन्द्रम**
तिरुवनन्तपुरम - ६९५०११, केरल, इंडिया
SREE CHITRA TIRUNAL INSTITUTE FOR MEDICAL SCIENCES AND TECHNOLOGY, TRIVANDRUM
Thiruvananthapuram - 695 011, Kerala, India
(An Institute of National Importance under Govt. of India)

Grams : Chitramet, Phone : +91-471-2443152, Fax : +91-471-2550728 / 2446433, E-mail : sct@sctimst.ac.in, Website : www.sctimst.ac.in

Institutional Ethics Committee

CDSCO Registration No: ECR/189/Inst/KL/2013/RR-21
DHR Registration No:EC/NEW/INST/2022/2775

SCT/IEC/2176/DECEMBER/2023

12.01.2024

Ms. Kajal Prajapati
MPH Student, AMCHSS
SCTIMST, Thiruvananthapuram

Dear Dr. Kajal Prajapati,

The Institutional Ethics Committee held on 30th December, 2023, reviewed and discussed your application to conduct the study titled "PREVALENCE OF MUSCULOSKELETAL DISORDERS AND ASSOCIATED FACTORS AMONG HEAD LOAD WORKERS OF AZADPUR MANDI, DELHI" (IEC /2176) "

Principal Investigator	Ms. Kajal Prajapati, MPH Student, AMCHSS, SCTIMST
Co-Principal Investigator(s)	Dr. K. Srinivasan, Professor, Associate Dean, AMCHSS, SCTIMST
Duration of the study	3 months

The following members of the Ethics Committee were present at the meeting held on 30th December, 2023

SL. No.	Member Name	Highest Degree	Gender	Scientific /Non Scientific	Affiliation with Institution(s)
1.	Smt. Sathi Nair	MA (English Literature)	Female	Lay Person	No
2.	Dr. Kala Kesavan P	MBBS,MD	Female	Basic Medical Scientist	No
3.	Adv. Priya Kaimal	LLM, MBL	Female	Legal Expert	No
4.	Dr. P. Manickam	BSMS, MSc (Epid),PhD	Male	Health Science Expert/ Social Scientist	No
5.	Dr. Christina George	MD Psychiatry	Female	Clinician	No
6.	Dr. Narayanan Namboodiri. K K	MBBS,MD,DM	Male	Clinician	Yes
7.	Dr. Biju Soman	MBBS,MD, DPH, MSc, DLSHTM	Male	Basic Medical Scientist	Yes

The following documents were reviewed:

Original submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 30.11.2023
3. Responses /amendments made based on the Reviewer's comments
4. IEC Application Form
5. Declaration Form
6. Research Proposal
7. Participant Information Sheet English and Hindi
8. Informed Consent Form in English and Hindi
9. Interview Schedule in English and Hindi
10. CV of Principal Investigator and Co-PI
11. SRC Recommendation Letter

Revised submission

1. Checklist Form
2. Covering letter addressed to the Chairman, IEC, SCTIMST dated 10.01.2024
3. Responses /amendments made based on the Reviewer's comments
4. Copy of IEC Recommendation letter dated 09.01.2024
5. Responses /amendments made based on the Reviewer's comments
6. IEC Application Form
7. Declaration Form
8. Research Proposal
9. Participant Information Sheet English and Hindi
10. Informed Consent Form in English and Hindi
11. Interview Schedule in English and Hindi
12. CV of Principal Investigator and Co-PI

IEC Decision

The IEC approved the conduct of the study in the present form.

Remarks:

The Institutional Ethics Committee expects to be informed about the progress of the study, any SAE occurring in the course of the study, any changes in the protocol and patient information/informed consent and asks to be provided a copy of the final report.

There was no member of the study team / Guide who participated in voting / decision making process. The ethics committee is organized and operated according to the requirements of Good Clinical Practice and the requirements of the Indian Council of Medical Research (ICMR).

Sincerely,



Dr. G. Srinivas
Member Secretary, IEC

MEMBER SECRETARY
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Annexure 9



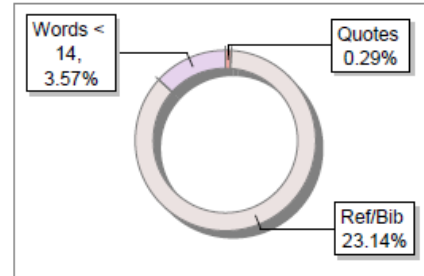
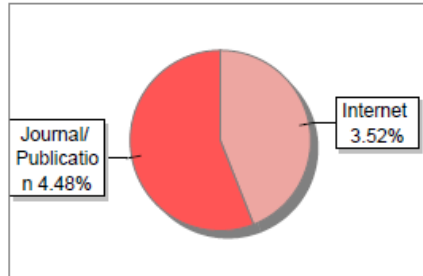
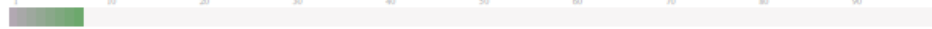
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