Original Research Paper

Volume - 14 | Issue - 04 | April - 2024 | PRINT ISSN No. 2249 - 555X | DOI : 10.36106/ijar

Physiotherapy

TO STUDY COMMON MUSCULOSKELETAL PROBLEMS IN WORKERS OF THE MAT INDUSTRY

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ABSTRACT **Aim: -** To study common musculoskeletal problems in Workers of the Mat Industry. **Methodology:-** A cross sectional survey was conducted on 100 plastic industry workers by administering the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) to quantify the musculoskeletal pain. Additionally, a self-designed questionnaire was given out to gather data on the different musculoskeletal issues that the employees experienced, risk factors associated with their jobs, different postures they maintained, and daily activities they engaged in. **Results:-** A total of 100 participants were analysed in this study. Individuals aged 20 to 30 appear to experience discomfort primarily in the knee (18.5%) and foot (19.2) areas, while those aged 31 to 40 report notable discomfort in the knee (24.5%) and foot (20.1%). In the 41 to 50 age group, lower back (19.3%) and knee (22.9%) discomfort are particularly prominent and awkward postures were highly associated with musculoskeletal disorders. **Conclusion: -** The most often affected body part was the knee, which was followed by the lower back, foot, and shoulder. The majority of the workforce was expected to perform duties that frequently required bending and prolonged sitting, which has led to a high frequency of musculoskeletal problems associated with the workplace in this population. The research findings indicate that the adoption of ergonomic intervention strategies in the workplace has the potential to eradicate ergonomic risks and reduce the likelihood of musculoskeletal illnesses associated with labour.

KEYWORDS : Work-related musculoskeletal disorders, Workers of mat industries, Cornell Musculoskeletal Discomfort Questionnaire

INTRODUCTION

A group of musculoskeletal conditions resulting from occupational exposures are referred to as work-related musculoskeletal disorders, or WMSDs.[1] Traumatic occurrences or a series of cumulative overuse injuries can result in WMSDs, which encompass a wide range of inflammatory and degenerative disorders affecting the musculoskeletal systems. As a result, among those who work, this category of illnesses represents one of the most prevalent occupational health issues.[1]. MSDs (musculoskeletal diseases) remain a major cause of disability and missed work. The search for the root cause of MSD has gotten more and more attention in the last several years.[2]. One of the biggest issues with public health in both developed and developing nations is musculoskeletal problems.[3]. Over the past 20 years, musculoskeletal illnesses have been repeatedly highlighted in worldwide literature as important public health issues.[4]. The majority of work-related musculoskeletal problems occur in industries with high worker density and complicated ergonomic hazards.[5]

A hard workload and uncomfortable postures are two of the most frequent ergonomic variables that contribute to musculoskeletal diseases.[1] Incorrect body alignment and a high workload [1]. Musculoskeletal diseases can be brought on by poor posture and high physical demands when completing a task. This is especially true for jobs requiring lifting and tugging or pushing in a variety of industries, like the industrial industry.[1].

Workplace risk factors that are psychological, psychophysical, and physical have all been identified. Physical risk factors have been widely recognized and include high forces, high repetition, working with arms aloft, prolonged static postures, vibration, and local contact forces.[2]. India is a nation known for its exquisite handicrafts and crafts. One of the top producers and exporters of PP (polypropylene)/ PVC mat weaving is Maharashtra. One of the oldest forms of human art is weaving. We all know that tactile production is so vital that it plays a significant part in creating jobs and has a unique presence in our customs, language, and culture.[6]

The art of weaving and producing high-quality, colourful mats, such as Deluxe quality mats, Namaz mats, campaigning mats, etc., with attributes like durability, attractiveness, affordability, and much more, was actually first developed in Japan. Our state has since recreated this skill. Taiwan and Japan are the birthplaces of mat technology. Prior to this, mats were produced and woven using traditional techniques, which excluded the use of looms and machinery. Japanese technology has been transformed by our Indian labour force. during the Industrial Revolution, in 1990–1991, into our Indian technology.[6]

Dr. Alan Hedges is the creator and user of the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ).[7]. For industrial workers to avoid musculoskeletal issues, education and training are also crucial.

There is few research worldwide that look into the musculoskeletal issues that industrial workers experience, but few studies are conducted in India on this topic.[4]

Therefore, the goal of the research is to determine how common musculoskeletal issues are among industrial workers. In order to supplement our understanding of the severity of work-related disorders, the study also attempts to gather data that could be helpful in creating workable plans to reduce industrial injuries.

Need Of Study

There are various reasons why it is imperative to investigate musculoskeletal (MSK) issues in material handling (mat) personnel. Occupying manual labourers who lift, transport, and move things is a major risk factor for MSK disorders in material handling jobs. In order to increase worker productivity and health, lower healthcare expenses related to occupational injuries, and improve workplace safety, it is imperative that these challenges be recognized and addressed.

Because of the physical demands of their jobs, which include heavy lifting, repetitive motions, and extended standing or bending, workers are significantly more likely to develop MSK diseases. Researching these issues enables focused interventions by identifying the body parts most impacted, such as the knees, shoulders, and back.

METHODOLOGY

Study Design: - Cross Sectional survey design.

Study Tools & Techniques/Materials: -

- Self-made demographic Questionnaire.
- Cornell Musculoskeletal Discomfort Questionnaire (CMDQ).

Inclusion Criteria

- Age group – 20 to 50 years.
- Both Genders.
- Having one year of job experience.

Exclusive Criteria

- Those who are not willing to participate.
- Subjects with a recent trauma.
- Subjects having any Neuro-musculoskeletal problems.
- Subjects having less than 1 year of experience.

Duration of the Study: - 6 months

Sample Size: - N=100

Material:- Self-made Demographic Questionnaire, Cornell Musculoskeletal Discomfort Questionnaire (CMDQ).

CMDQ Scoring: -

- Dependent Variable was MSD which is categorized as mild, moderate and severe discomfort (when discomfort was reported) and no discomfort (when no discomfort was reported) in the CMDQ screening tool.
- Mild discomfort: The CMDQ score 1.5 was considered as mild discomfort.
- Moderate discomfort: The CMDQ score 1.6-10.5 was considered as moderate discomfort.
- Severe discomfort: The CMDQ score >10.5 was considered as severe discomfort.
- No discomfort or discomfort absent: The CMDQ score 0 was considered as no discomfort.

RESULTS

Age groups	Number	Percentage
20-30 years	32	32%
30-40 years	37	37%
40-50 years	31	31%
Total	100	100%

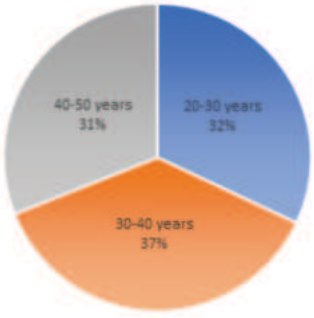

Figure 1: - Age Wise Distribution

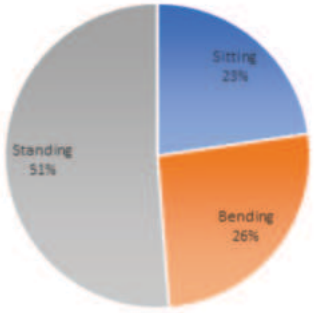

Figure 2: - Commonly Adapted Posture While Working

Interpretation: The above graph interprets that out of a total of 100 subjects, 51% have Standing posture, 23% have Sitting posture and 26% have Bending posture.

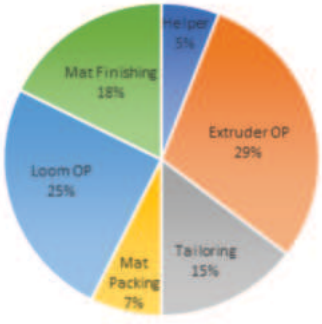

Figure 3: - Occupation Of Workers

Interpretation: The above graph interprets that out of a total of 100 subjects, Workers' occupations in the several departments of the mat industries are: 18% are Mat finishing, 5% are Helpers, 29% are Extruder operator, 15% are Tailoring, 7% are Mat packing, 25% are Loom Operator.

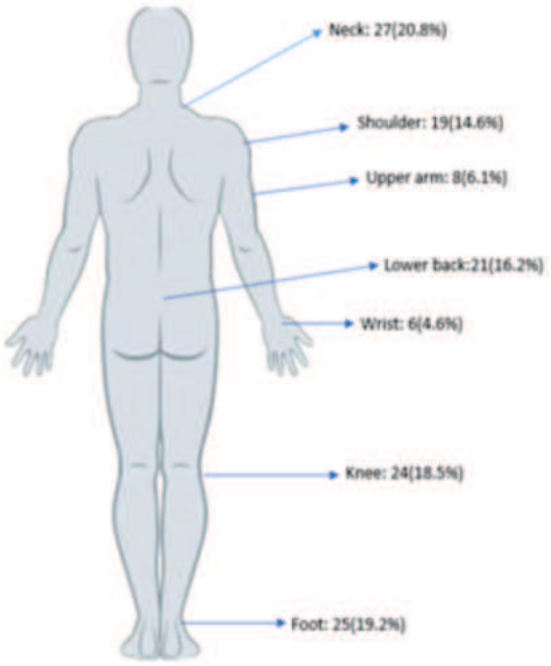

Figure 4: - Distribution of Body is Wise Musculoskeletal Discomfort According to CMDQ Tool(N=100). Age Group: - 20 to 30

Interpretation: The above graph interprets that out of a total of 100 subjects, Individuals aged 20 to 30 appear to experience discomfort in Neck 27(20.8%), Shoulder 19(14.6%), Upper arm 8(6.1%), Lower Back 21(16.2%), Wrist 6(4.6%), Knee 24(18.5%), Foot 25(19.2%) respectively.

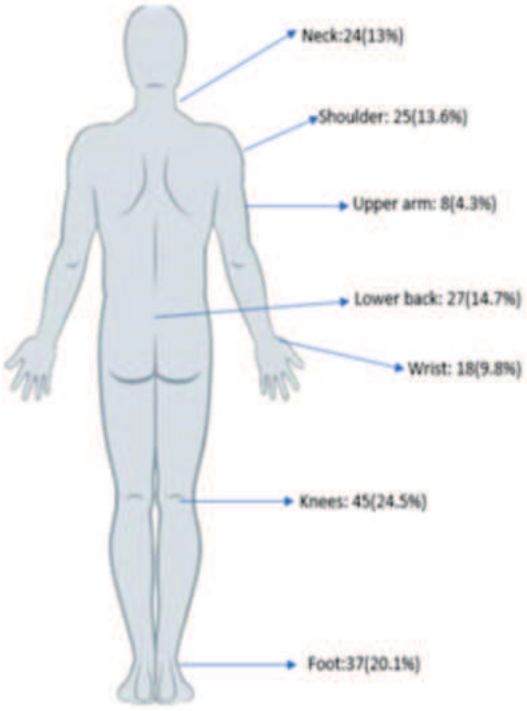

Figure 5: -Distribution of Body is Wise Musculoskeletal Discomfort According to CMDQ Tool(N=100). Age Group: - 31 to 40

Interpretation: The above graph interprets that out of a total of 100 subjects, Individuals aged 31to 40 appear to experience discomfort in Neck 24(13%), Shoulder 25(13.6%), Upper arm 8(4.3%), Lower Back 27(14.7%), Wrist 18(9.8%), Knee 45(24.5%), Foot 37(20.1%) respectively.

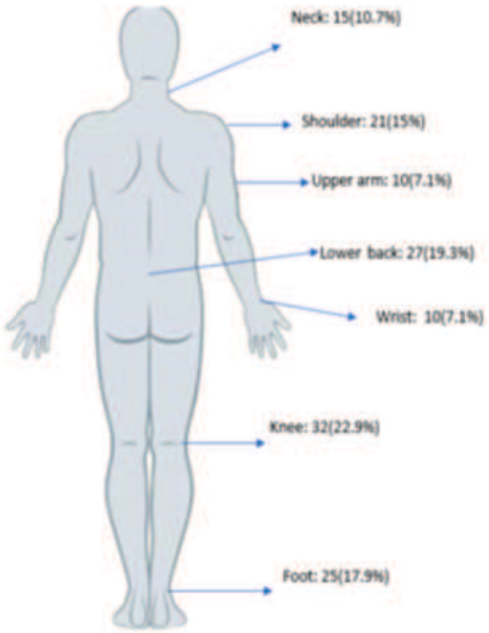

Figure 6: - Distribution of Body is Wise Musculoskeletal Discomfort According to CMDQ tool(N=100). Age Group: - 41 to 50

Interpretation: The above graph interprets that out of a total of 100 subjects, Individuals aged 41 to 50 appear to experience discomfort in Neck 15(10.7%), Shoulder 21(15%), Upper arm 10(7.1%), Lower Back 27(19.3%), Wrist 10(7.1%), Knee 32(22.9%), Foot 25(17.9%) respectively.

DISCUSSION

The purpose of our study was to find the prevalence of common musculoskeletal problems among workers in the mat making industry. The study was done based on the data collection done through the questionnaire from the workers of mat manufacturing industries. This survey was performed on a one-to-one interview basis. This study analysed data collected from 100 workers.

The musculoskeletal discomfort reported by the 100 individuals working in the mat making industry in India can be attributed to a combination of occupational factors. This industry typically involves repetitive and physically demanding tasks, such as bending, lifting, and handcrafting mats, often requiring prolonged hours of work. These activities can place excessive strain on various body parts, leading to discomfort and potential musculoskeletal issues.

Additionally, ergonomics in the workplace may not always be optimal, which can contribute to poor posture and physical stress. Furthermore, the age-wise distribution of discomfort highlights that the risk and severity of musculoskeletal issues may increase with age, possibly due to cumulative strain over time. To mitigate these concerns, it is essential for employers in the mat making industry to focus on ergonomic improvements, worker training, and periodic health assessments to ensure the well-being of their employees. To our knowledge this is the first study on mat industry workers, there is no research done on this skilful and challenging task.

Thus, a lack of evidence led to the execution of this study. Most of the workers reported that the symptoms slightly reduced their ability to work, still these were neglected or left untreated. This can be attributed to their socio-economic status, since they cannot afford to take a break from work for their treatment.

CONCLUSION

In conclusion, the survey conducted among 100 individuals in the mat making industry in India reveals valuable insights into the prevalence of musculoskeletal discomfort within this occupation. The data illustrates that such discomfort is a significant concern, with variations across age groups.

Younger individuals aged 20 to 30 appear to experience discomfort primarily in the knee and foot areas, while those aged 31 to 40 report notable discomfort in the knee and foot areas. In the 41 to 50 age group, lower back and knee discomfort are particularly prominent.

These findings underscore the need for targeted workplace interventions, including improved ergonomics and training, to reduce the risk of musculoskeletal issues among mat industry workers.

Overall, this survey highlights the importance of addressing occupational health concerns to enhance the well-being of those employed in physically demanding industries like mat making.

The awareness generation among all the mat industrial workers is also needed to lead an MSD free life

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