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PREVALENCE OF WORK RELATED MUSCLOSKELETAL PAIN AMONG LABOURERS OF MARBLE FACTORIES IN INDUSTRY ROAD ABBOTTABAD

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Abstract

Aim: *This cross-sectional study aimed to determine the prevalence of work-related musculoskeletal pain (WMSP) among laborers in marble factories located on Industry Road, Abbottabad.*

Methodology: *A total of 132 laborers aged 20 to 60 years, working in these factories, were recruited through convenience sampling. Data collection utilized the Cornell Musculoskeletal Discomfort Questionnaire (CMDQ) to assess pain frequency, intensity, and interference in 18 body regions over the previous week. Data were analyzed using SPSS version23.*

Results: *WMSP was highly prevalent. The neck was the most affected region (77% reporting pain), followed by the wrist (76%), forearm (73%), thigh and knee (72% each), upper back (75%), shoulder (71%), upper arm (69%), and lower back (61%). The highest frequency of pain was reported in the 31-40 years age group. Most participants described their discomfort as slightly uncomfortable, with a smaller proportion reporting moderate or severe discomfort. Although the majority reported pain did not substantially interfere with work ability, a significant subset experienced mild to moderate interference.*

Conclusion: *Musculoskeletal pain is a significant occupational health problem among marble factory laborers on Industry Road, Abbottabad, predominantly affecting the neck and upper limbs. It is recommended that ergonomic interventions and education programs be implemented to reduce the burden of WMSP and improve worker well-being.*

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INTRODUCTION

Musculoskeletal pain is outline as acute or continual ache that effect bones, muscle groups, ligaments, tendons or even nerves and the pain related to musculoskeletal sickness is not an unusual scientific and socioeconomic trouble globally. [1]. Musculoskeletal pain is a regarded consequence of repetitive stress, overuse, and work-associated musculoskeletal problems. These accidents encompass a variety of issues that cause ache in bones/ joints/ muscle groups or in surrounding systems [2]. Problems associated with musculoskeletal diseases (MSDs) bobbing up from working environments are rising internationally and is accordingly perceived as one of the largest troubles encountered by workers [3]. Searching of work-associated musculoskeletal issues of the neck, shoulder, lower back, upper limbs, and locomotive organs found the hobby of employees, researchers and groups. This is because of the huge temporary or permanent disability of peoples with symptoms such as pain, numbness, tingling, time misplaced from paintings, reduced productiveness, growing worker's compensate price, and the growing number of related instances coming earlier than the courts[4] . Work-associated musculoskeletal issues (WMSDs) are organization of painful disorders of muscles, tendon and ligaments which caused by common and repetitive work activities or activities with awkward operating posture[5]. Due to that a massive number (81%) of employees complained of ache in one-of-a-kind body components. The essential proceedings worried have been low back pain (50%), neck pain (38%) and shoulder ache (29%). The people' body mass index famous that 28 % of them suffered from continual energy deficiency[6] . Studies found that the people appearing the industrial repetitive venture are exposed to the threat of Work related Musculoskeletal Disorders[7]. Evidence-based total researches have been identified WMSDs as the maximum steeply-priced occupational diseases within the workplaces[8].Main causes of musculoskeletal pain are Strenuous daily activities, Several Traumas, Musculoskeletal Diseases/ associated diseases[9]. May occurs with bone ache, osteoarthritis, tendinopathy and muscle ache troubles. These not unusual conditions that may affect any part of body[11]. Age ,Gender, Smoking, Low education, Low physical activity Poor social interaction, Low family income, Depression, Anxiety Sleep disorder, as well as performing Manual work being a recent immigrant and non-Caucasian and widowed ,separated or divorced [12]

The shoulder joint also known as a glenohumeral joint which is a ball and socket joint with a sizeable variety of motion within the human frame. The shoulder muscle groups have extensive variety of capabilities together with abduction, adduction, flexion, extension, inner and the muscular tissues have interred action. At the lateral aspect of the scapula is the articular surface of the glenohumeral joint, the glenoid cavity. The glenoid hollow space is peripherally surrounded and bolstered by the glenoid labrum, shoulder joint capsule, assisting ligaments and myotendinous attachment of the rotator cuff muscle groups [14]

The primary muscle tissue of mastication is temporalis, medial pterygoid, lateral pterygoid and masseter muscle mass. The four principal muscle mass of the mastication attach to the rami of the mandible and function to transport the jaw. The cardinal mandibular movements of mastication are elevation, despair, protrusion, retraction and aspect to side motion. To enhance the system of ingesting, the muscle groups of mastication also circulate the mandible in a side to facet movement to assist inside the grinding of meals. The muscle groups of mastication also help to open the jaws/ teeth. The superficial muscle of neck ,the platysma muscle, additionally assists with despair of the mandible against resistance.[15]

The elbow joint even though non-weight bearing, may be the maximum complicated joint within the human skeleton. The elbow is a synovial hinge joint made from articulation of especially the distal humerus and the proximal ulna. However, the articulation exists between proximal radius and ulna. The three articulations are known as ulno-humeral ,radio humeral and proximal radio ulnar joint respectively.[16] The thigh muscle tissue is divided in to corporations based totally on area and dynamic function. These institutions include the hip/thigh adductors, abductors, quadriceps, and hamstring muscle tissues. Expertise the primary characteristic of every institution of muscles along with the

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unique homes of muscle tissues inside a collection will assist discover one of a kind disorders based totally on bodily checks and patients records.[17]

Cross sectional study was conducted by A Chandrasakaran, H.I Chee, KG Rampal, G L E Tan at Malaysia in December 2003.A cross sectional observe conducted among 529 semiconductor workers. Overall had 83.4% had musculoskeletal signs in last one year Pain in back (57.8%), lower leg (48.4%), Shoulder (44.8%) have been the three most common place musculoskeletal problem. The prevalence price of musculoskeletal issues among semiconductor women turned into high and a clean courting between paintings-associated musculoskeletal ache and exposures to prolonged hours spent specifically postures and movements become confirmed. It is usually recommended that employer's behavior ergonomic chance tests with the intention to lessen the prevalence of musculoskeletal problems in their place of work.[18]

METHODOLOGY

A descriptive cross-sectional survey was conducted among laborers working in marble factories located on Industry Road, Abbottabad, where the total labor force was 200. Using the Raosoft sample size calculator, a sample size of 132 participants was determined. The participants were recruited through convenience sampling, with inclusion criteria specifying male laborers aged between 20 and 60 years who worked at least 3 hours per day, 3 days per week, for a minimum duration of 6 months. Individuals with systemic diseases causing musculoskeletal pain, recent joint dislocations, injury-related pain, or neurological disorders were excluded from the study. Data were collected using the validated Cornell Musculoskeletal Discomfort Questionnaire (CMDQ), a comprehensive tool which assesses pain frequency, severity, and interference with work across 18 anatomical body regions over the preceding week. Ethical approval for the study was obtained from the Institutional Research Committee of FIMS College, and written informed consent was secured from all participants, ensuring confidentiality and voluntary participation. Collected data were analyzed using SPSS version 23, with descriptive statistics including frequencies, percentages, and means used to summarize demographic characteristics as well as the prevalence and distribution of musculoskeletal pain. The results were illustrated using tables and bar graphs to provide a clear depiction of findings.

RESULTS:

Demographics

Participants' mean age was 27.7 years (range 20-60). The majority (43.9%) were aged 31-40 years. BMI classification indicated 65.9% had normal weight, 15.9% were underweight, 14.4% overweight, and 3.8% obese.

Table 1: Participant Demographic Characteristics

Category	Frequency	Percentage (%)
Age 20-30	56	42.4
Age 31-40	58	43.9
Age 41-50	14	10.6
Age 51-60	4	3.0
Underweight	21	15.9

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Category	Frequency	Percentage (%)
Normal weight	87	65.9
Overweight	19	14.4
Obese	5	3.8

Prevalence and Frequency of Musculoskeletal Pain

Pain prevalence in different body regions over the last week was as follows: neck (90.2%), shoulder (93.9%), upper back (92.4%), upper arm (90.9%), lower back (96.2%), forearm (95.5%), wrist (92.4%), thigh (95.5%), knee (91%). The most frequent pain experience was once daily in all regions.

Table 2: Frequency of Pain Experience Over the Past Week

Body Region	Never Experienced (%)	1-2 times (%)	3-4 times (%)	Once Daily (%)	Several Times Daily (%)
Neck	9.8	25.0	19.7	31.8	13.6
Shoulder	6.1	22.0	18.9	35.6	17.4
Upper Back	7.6	29.5	19.7	32.6	10.6
Lower Back	3.8	15.2	12.1	43.2	25.0
Wrist	6.1	23.5	18.2	39.4	12.1

Discomfort Severity

Most participants rated discomfort as slightly uncomfortable (58.3% for neck, 53.8% shoulder), with fewer reporting moderate (28.8% neck, 34.1% shoulder) or very uncomfortable pain (9.8% neck, 9.8% shoulder).

Impact on Work Ability

Majority indicated pain did not interfere with work (73.5% for neck pain). However, 20.5% reported slight interference, and 6.1% substantial interference.

DISCUSSION

This study reveals a high prevalence of WMSP among marble factory laborers, with neck and upper limbs most frequently affected, consistent with global research in labor-intensive industries. The predominance of slight discomfort highlights early WMSD stages, underscoring the need for timely interventions. Work interference reported by a minority suggests that pain may eventually hinder productivity and quality of life. Risk factors such as repetitive manual work, poor ergonomics, and age potentially contribute to this high burden.

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Preventive approaches including ergonomic modifications, worker education, and regular health monitoring are imperative to reduce WMSP-related morbidity.

CONCLUSION

Work-related musculoskeletal pain is widespread among marble factory laborers in Abbottabad, predominantly involving the neck and upper extremities. The burden affects mainly adults aged 31-40 years. Ergonomic and preventive strategies should be prioritized in these industrial settings to alleviate pain prevalence and improve occupational health outcomes.

REFERENCES

1. El-Tallawy, S.N., et al., *Management of musculoskeletal pain: An update with emphasis on chronic musculoskeletal pain.* 2021. **10**(1): p. 181-209.
2. Craig, K.D.J.P.R. and Management, *Global year against musculoskeletal pain.* 2010, Hindawi. p. 284-284.
3. Baek, H., et al., *Musculoskeletal diseases of heavy industrial workers.* 2017. **6**(2): p. 71-76.
4. Gallis, C.J.I.J.o.I.E., *Work-related prevalence of musculoskeletal symptoms among Greek forest workers.* 2006. **36**(8): p. 731-736.
5. Balakrishnan, R., et al., *Prevalence of work-related musculoskeletal disorders among non-healthcare working population in different gender at Selangor.* 2016. **3**(2): p. 30-34.
6. Mikrani, T., et al., *Musculoskeletal Symptoms among the Brick Kiln Workers of Kathmandu Valley: A Cross Sectional Study.* 2017. **7**(1): p. 7-11.
7. Nur, N.M., S.Z. Dawal, and M. Dahari. *The prevalence of work related musculoskeletal disorders among workers performing industrial repetitive tasks in the automotive manufacturing companies.* in *Proceedings of the 2014 international conference on industrial engineering and operations management Bali, Indonesia.* 2014.
8. Ekpenyong, C.E., U.C.J.I.J.o.O.S. Inyang, and Ergonomics, *Associations between worker characteristics, workplace factors, and work-related musculoskeletal disorders: a cross-sectional study of male construction workers in Nigeria.* 2014. **20**(3): p. 447-462.
9. Spearing, N., et al., *Management of acute musculoskeletal pain.* 2005. **8**(1): p. 5-15.
10. Mourão, A.F., et al., *Generalised musculoskeletal pain syndromes.* 2010. **24**(6): p. 829-840.
11. Leino, P. and G.J.P. Magni, *Depressive and distress symptoms as predictors of low back pain, neck-shoulder pain, and other musculoskeletal morbidity: a 10-year follow-up of metal industry employees.* 1993. **53**(1): p. 89-94.
12. McBeth, J., K.J.B.p. Jones, and r.C. rheumatology, *Epidemiology of chronic musculoskeletal pain.* 2007. **21**(3): p. 403-425.
13. Clarke, B.J.C.j.o.t.A.S.o.N., *Normal bone anatomy and physiology.* 2008. **3**(Supplement 3): p. S131-S139.
14. McCausland, C., et al., *Anatomy, shoulder and upper limb, shoulder muscles.* 2018.
15. Basit, H., M.A. Tariq, and M.A. Siccardi, *Anatomy, head and neck, mastication muscles*, in *StatPearls [Internet].* 2021, StatPearls Publishing.
16. Card, R.K. and J.B. Lowe, *Anatomy, shoulder and upper limb, elbow joint.* 2018.
17. Attum, B. and M. Varacallo, *Anatomy, bony pelvis and lower limb, thigh muscles.* 2018.
18. Chandrasakaran, A., et al., *The prevalence of musculoskeletal problems and risk factors among women assembly workers in the semiconductor industry.* 2003. **58**(5): p. 657-666.