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Prevalence of Work Related Musculoskeletal Disorders in Construction Workers.

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Abstract

Background: Musculoskeletal Disorders are the conditions which involve nerves, tendons, muscles and supporting structures to human body. Work related Musculoskeletal Disorders are caused due to increased physical work load on the individual while working. Work related Musculoskeletal Disorders constitute majorly in employee disability and lost wages. The various type of equipment, type of physical activity, type of environment of the workplace all may contribute to Musculoskeletal Disorders in Workers.

Methodology: There were 60 subjects aged 35-55 years. As per inclusion criteria subject had more than 2 years of working experience and working for more than 5 hours a day. Subjects were given Nordic scale questionnaire and the area of pain was marked by them on the scale. The data was taken on the excel sheet and data analysis was done then results were calculated.

Results: The prevalence of 78% was obtained in construction workers. The most common part being involved is lower back with 28.3% which is followed by knees and neck which are 23.3%. The least affected are elbows and thighs.

Conclusion: It concluded that there is a high prevalence of work related musculoskeletal disorders i.e. about 78%. The Highest body part being affected is lower back followed by knees and neck. The least being affected are thighs and elbows. Thus, there is increased risk of musculoskeletal disorders in construction workers.

Keywords: Construction workers, Nordic Scale questionnaire, Work related musculoskeletal disorders, pain, NPRS scale.

1. Introduction.

Musculoskeletal Disorders are the conditions which involve nerves, tendons, muscles and supporting structures to human body¹. Work related Musculoskeletal Disorders are caused due to increased physical work load on the individual while working. Work related Musculoskeletal Disorders constitute majorly in employee disability and lost wages². Musculoskeletal problems are a major cause of morbidity in the working population Internationally, an estimated 40% of all injury at the workplace are due to musculoskeletal disorders². Construction Workers such as masons have to do heavy physical activity.

Construction Worksite have been recognized as hazardous than those working in other Because construction tasks regularly involve forceful exertions that are excessive or prolonged Industries⁴, that these types of Musculoskeletal Disorders, injuries are common for those working in the field⁴. The longer fixed or awkward body position used by the construction workers, the more likely to develop work related musculoskeletal disorders⁴. Also, there are some ergonomic issues which are also vulnerable to degenerative disorders⁴.

Work-related injuries and illnesses, Work-related musculoskeletal disorders and injuries are among the most frequently reported causes of lost or restricted work time, accounting for 33% of all injury and illness cases (OSHA, 2015)⁵. The body parts most commonly injured are the axial skeleton and shoulder, here back sprains, simultaneous sprains to the back and neck, and shoulder strains occur frequently (Lipscomb, Dement, Gaal, et al., 2000). For example, home building is physically demanding work and manual material handling may be the most difficult part of the job.⁵ There is an increased development of construction sector in India causing to the increased work force and manpower. The majority of studies on work-related musculoskeletal symptoms focused on the office, service or manufacturing industries, but in the construction, sector is most commonly affected by musculoskeletal disorders⁶. Early Symptoms of Work-related Musculoskeletal Disorders are Low back pain, discomfort, Fatigue, postural changes, etc. The Researchers found that the constructionworkers have high risk of 50% for musculoskeletal injuries higher than industrial workers⁷. Globally musculoskeletal disorders are the single largest cause of work-related illness causing increased reporting of occupational illness in general population. Irrespective of the of the fluctuations in the economy of India, the construction industry is growing faster.⁷ Due to this developed industry the workers are attracted to join the industry. They are victims of backache, joint pains, skin diseases, lung disorders like silicosis, other muscular skeletal disorders.⁹

Construction workers are mainly workers who have migrated from different regions and states, leaving their native villages for employment.¹² These workers travel from one area to other area along with their families. They usually live in accommodation provided by the contractor of the construction industry company or sometimes they build a temporary shelter on the site.¹²

Apart from this, in most of construction projects the workers employed are unorganized in nature and often not guided by the legislations made for the health and welfare of the workers and hence are not eligible for free or subsidized care¹².

2. Methodology.

2.1 Study Design – Observational Study.

2.2 Sample size – 60. (By Epidata software).

2.3 Study Setup – Latur District.

2.4 Sampling Method – Convenient Sampling

2.5 Study Duration - 6 months.

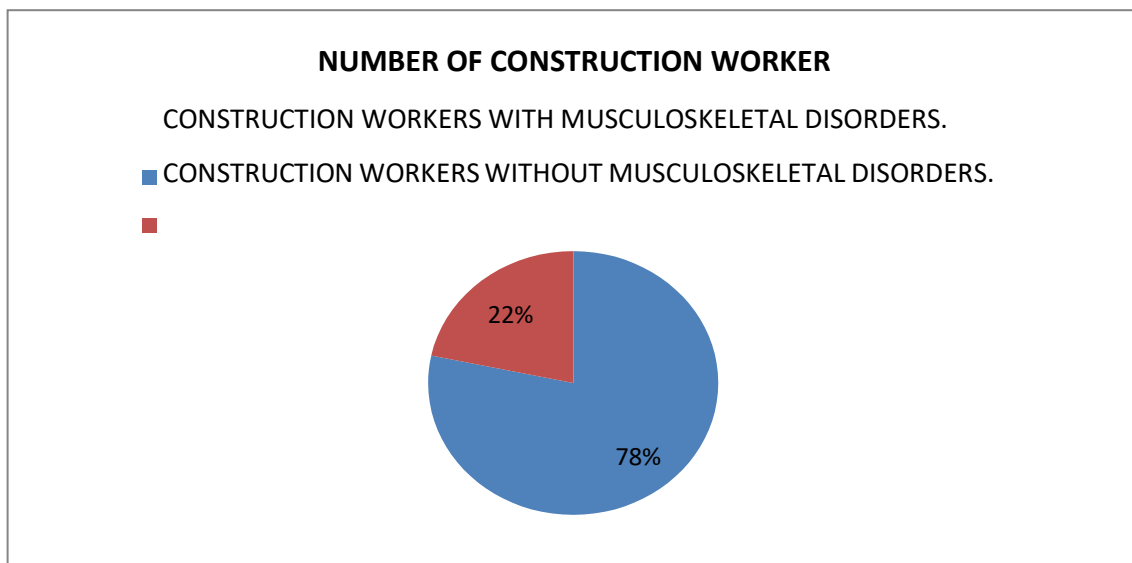
Ethical committee approval was obtained from the institute ethical committee. 60 subjects were categorized as per inclusion and exclusion criteria. Procedure was explained to the subjects. Subjects were given written informed consent in language understood by them. Subjects were given Nordic Musculoskeletal Questionnaire with numerical pain rating scale and was filled accordingly They were told to mark the area of pain in last 12 months and in last 7 days. Data was collected and was put on master chart in Excel sheet and statistical analysis was done. The Percentage of workers with musculoskeletal disorders was obtained. Results were calculated and prevalence was obtained.

3. Result

3.1 Table Shows prevalence of work related musculoskeletal disorders in construction workers.

CATEGORY	NUMBER OF CONSTRUCTION WORKER	PERCENTAGE
CONSTRUCTION WORKERS WITH MUSCULOSKELETAL DISORDERS.	47	78%
CONSTRUCTION WORKERS WITHOUT MUSCULOSKELETAL DISORDERS.	13	22%

3.1 PREVALENCE OF WORK RELATED MUSCULOSKELETAL DISORDERS IN CONSTRUCTION WORKER.

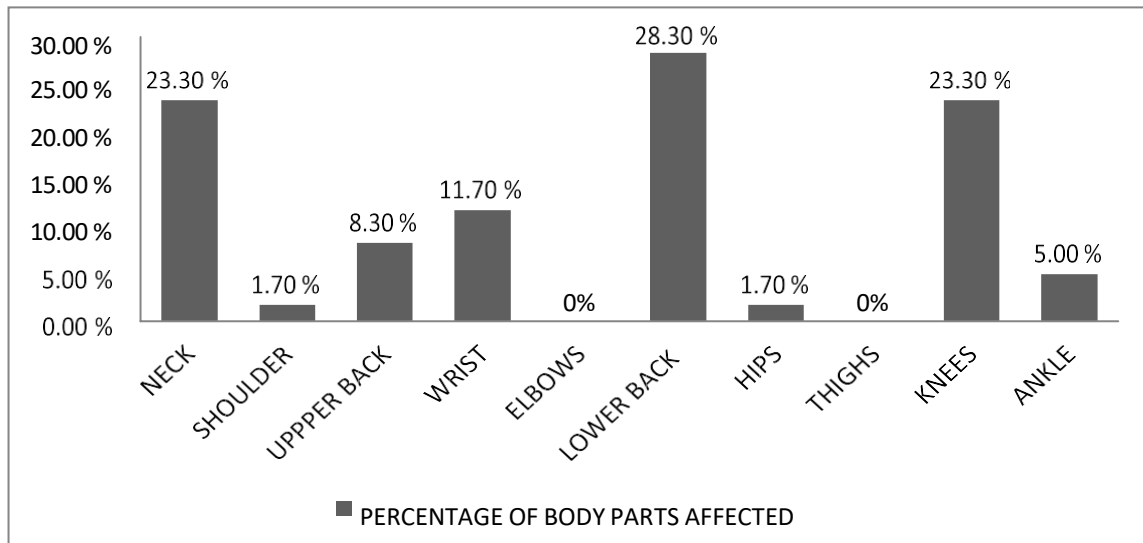


Interpretation- Graph shows prevalence of musculoskeletal disorders in construction workers. It states that there is 78% prevalence and the 22% do not have any disorders

3.2 Table Shows the prevalence of different areas affected.

Areas affected	Number of Construction workers.	Percentage
NECK	14	23.30%
SHOULDER	1	1.70%
WRIST	7	11.2%
UPPPER BACK	5	8.30%
ELBOWS	0	0%
LOWER BACK	17	28.30%
HIPS	1	1.70%
THIGHS	0	0%
KNEES	14	23.30%
ANKLE	3	5%

3.2 Prevalence of the most affected body part in construction workers.



Interpretation- Graph shows prevalence of areas affected in construction workers. The low back being the highest of 28.30% members followed by knees and neck.

4. Discussion.

The study was done to observe the prevalence of muscular disorders in the construction workers. As per data by using Nordic scale questionnaire the study shows that there is high prevalence of 78% of the work related musculoskeletal disorders in the construction workers of which the highest prevalence is to be present in the lower back i.e. is 27.4% and which is followed by knees and neck with 22.5%. As per the data analysis the prevalence of low back pain is high due to the prolonged bending, inappropriate posture². As per the Nordic scale musculoskeletal disorders in the neck is due to lifting of the heavy objects on the head and also in knees due to continuous weight bearing and prolonged standing, the chances of musculoskeletal disorders increases. Repetitive or prolonged duration of motions, static and awkward postures, hands and arms in continuous work, lifting of the heavy objects, mechanical stresses and combination of the risk factors increases this risk of the muscular skeletal disorders². The effect of the physical load factors can be exaggerated by workplace also by the intense load low level of the social support at work⁷ In work related musculoskeletal disorders, the sites of likely tissue damage are most commonly tendon, ligaments, joints, muscles, etc.¹ The least affected body parts based upon Nordic scale questionnaire are thighs and elbows because the shearing forces are taken by other areas.

The lower back is most effected due to problem muscle spasm in lower back, continuous wear and tear causing spondylosis like conditions in later age also intervertebral disc prolapse, these all problems lead to low back disorders¹³. The knees and ankle are also affected due to the inappropriate posture for a longer period. The least affected body parts are elbows and thighs, the reason can be there is no as such weight bearing and Mechanical loading on this part being compared to other body parts affected. The shoulders, upper back, wrist, ankle has moderate prevalence of musculoskeletal disorders. The prevalence of the musculoskeletal disorders in the region might high due to variety of reasons like the quality of life the workers have is far more less comfortable compared to other countries, other countries have good socioeconomic status than the workers of the other countries thus there would be variation in the prevalence of the other countries.⁷

Also, the working hours plays a vital role in the occurrence of the disorders, a study by Telaprolu N., Lal B. and Cheri S. "Work Related Musculoskeletal Disorders Among Unskilled Indian Women Construction Workers" says that The risk of WRMSDs is about 4 times more among workers with greater than 20 years of work experience than those with 11-20 years and is about 2 times more in those with 1-10 years of work experience respectively¹¹. The inclusion criteria also is considered as more than 6 hours a day thus, the risk of musculoskeletal disorders is high.

The Study "Musculoskeletal disorders among construction workers: a one-year follow-up study." Concluded that at baseline, two thirds of the bricklayers (67%, 179/267) reported one or more regular or long-lasting musculoskeletal complaint in the previous six months. The three body regions with highest prevalence were the back, knee and shoulder/upper arm. A Recent Study from Oude Hengelo et al. says that in a population of currently working construction workers, more than half suffered from occasional or frequent musculoskeletal complaints. These complaints reduce the workers ability and willingness to continue to remain in their job until retirement.¹⁴

5. Conclusion.

The study was done to study the work related musculoskeletal disorders among construction workers. It concluded that there is a high prevalence of work related musculoskeletal disorders i.e. about 78%. The Highest body part being affected is lower back with 28.3%, followed by knees and neck of 23.3%. The least being affected were thighs and elbows and shoulder, wrist, ankle was moderately affected

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