

Prevalence of Lumbar Spine Dysfunction in Sugar Industry Workers of Karad Taluka

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Abstract

Background: From past few years, in most of the industrialized world there has been increase in number of individuals having problem in musculoskeletal system. The term spinal dysfunction refers to an abnormal increase or decrease in spinal movement (mobility). Sugar industry workers are directly involved in the production process that's why some existing studies shows that the sugar industry work is characterized by repetitive movement, heavy load movement, wrong or awkward posture, forceful activity which causes cumulative trauma to the spine due to increase variability in weights.

Repetitive bending movement causes backache, prolonged working hours causes feeling of fatigue, long hour movement of hand causes numbness of fingers and strenuous activities all these activities put workers at risk for work related musculoskeletal disorders. There was hardly any literature available on the prevalence of spinal dysfunction in sugar industry workers in rural Maharashtra. Hence this observational study is to find out prevalence of spinal dysfunction in sugar industry workers in karad taluka.

Methods: This is an observational study which included 100 subjects. Then they were screened and distributed according to their age, gender, BMI and were asked to fill the modified oswestry low back pain disability Questionnaire. Later the subjects were assessed using modified oswestry low back pain disability Questionnaire.

Result: In this study 100 sugar industry workers (68 males and 32 females) were taken for study. It was found that 59 sugar industry workers had a lumbar spine dysfunction. The age is from 30-above 50 years of workers were taken in this study, which was found to be more prevalent in male(63%) than in female(50%), although this difference was not statistically significant.

Conclusion: This study has provided the evidence to support the increase in lumbar spine dysfunction in sugar industry workers of karad taluka.

Keywords: Lumbar spine dysfunction, sugar industry workers, modified oswestry low back pain disability Questionnaire.

Introduction

From past few years, in most of the industrialized world there has been increase in number of individuals

having problem in musculoskeletal system.

Musculoskeletal disorders are defined as a group of disorder that affect the musculoskeletal system including the nerve, tendon, muscle supporting structure such as intervertebral disc.¹

The term spinal dysfunction refers to an abnormal increase or decrease in spinal movement (mobility). The term may use to describe a spinal segment, a spinal region or the whole spine. Spinal dysfunction includes prolapsed discs, degeneration, sciatica, referred leg

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pain.⁷

Sugar industry workers are directly involved in the production process that's why some existing studies shows that the sugar industry work is characterized by repetitive movement, heavy load movement, wrong or awkward posture, forceful activity which causes cumulative trauma to the spine due to increase variability in weights.^{1,4}

Repetitive bending movement causes backache, prolonged working hours causes feeling of fatigue, long hour movement of hand causes numbness of fingers and strenuous activities all these activities put workers at risk for work related musculoskeletal disorders.²⁻³

Here are some examples of physical hazards which sugar industry workers are facing everyday includes lifting and carrying heavy weights, working with frequently flexed trunk, risk of slips and falls on slippery and uneven surfaces, risk of accident caused by any unpredictable activity.⁴

There was hardly any literature available on the prevalence of spinal dysfunction in sugar industry workers in rural Maharashtra.

Hence this observational study is to find out prevalence of spinal dysfunction in sugar industry workers in karad taluka.

Material and Method

An observational study of Analytical study design was used to investigate the prevalence of spinal dysfunction in sugar industry workers in karad taluka. An approval for the study was obtained from the Protocol committee and Institutional Ethical Committee of Krishna Institute of Medical Sciences Deemed To Be

University and written consent was obtained from each participant.

Participants

Participants were approached from karad taluka. It is an observational study which included 100 subjects. The subjects were screened and those fulfilling the inclusion and exclusion criteria were distributed according to their age, gender, BMI and were asked to fill the modified Oswestry low back pain disability Questionnaire. Inclusion Criteria: 1.Sugar industry Workers, 2.both males and females, 3.sugar industry workers working for overtime/extra time. Exclusion Criteria: 1.Intervertebral disc prolapsed, 2.Recent spinal surgeries, 3.Patient undergone laminectomy, 4.Any secondary complications. Later the subjects were assessed using modified Oswestry low back pain disability Questionnaire.

Assessment procedure

Before the assessment, demographic data of all participants were recorded. Then the participants were screened and those fulfilling the inclusion and exclusion criteria were distributed according to their age, gender, BMI and were asked to fill the modified Oswestry low back pain disability Questionnaire. Modified Oswestry low back pain disability Questionnaire was used to assess the participants.

Statistical Analyses

Statistical analysis was done manually and by using the statistics software INSTANT so as to verify the results derived. The statistical analysis of parametric data was done by using chi square test.

Results

Table no.1. Gender Wise distribution

Gender	No of patient present with low back pain	No. of patient	Percentage
Male	43	68	63%
Female	16	32	50%
total	59	100	59%

Table no.2. Age Wise Distribution

Age(years)	No. of patient present with low back pain	Total No. of patient	Percentage
30-39	29	50	58%
40-49	22	39	56%
50 or more than 50	9	11	81%
total	51	100	51%

Table no.3. Physical parameters for sugar industry workers

PARAMETERS	MEAN	SD	P-VALUE	T-VALUE
AGE	40.630	7.205	<0.0001	56.391
HEIGHT	5.509	0.2495	<0.0001	22.082
WEIGHT	65.410	7.161	<0.0001	91.347
MODIFIED OSWESTRY LOW BACK PAIN DISABILITY INDEX	24.580	7.289	<0.0001	33.720

Ns: Considered as non significant

Discussion

The industrial work of heavy lifting and carrying those heavy weights from one place to other increases the mechanical work load on the workers body is the one of the main cause of having the low back pain in industrial workers.

Working with carrying heavy weights repeatedly causes the musculoskeletal pain in the worker's body and in that pain low back pain is the most common and most severe musculoskeletal pain workers experienced at the workplace. This low back pain is caused due to the lumbar spine dysfunction.

Sugar industry workers have to lift heavy weights of sugarcane on their shoulder and back that causes the musculoskeletal pain and most common is low back pain due to the repeated bending activity with the heavy stress on the back. This occurs in with workers who have poor ergonomic knowledge about handling the heavy load on their shoulders and back. The pain is very severe sometimes that is affecting the day to day life of

the workers.

In this study 100 sugar industry workers (68 males and 32 females) were taken for study. It was found that 59 sugar industry workers had a lumbar spine dysfunction. The age is from 30-above 50 years of workers were taken in this study, which was found to be more prevalent in male(63%) than in female(50%), although this difference was not statistically significant.

This study was conducted in KIMS, where subjects were selected as per the criteria and underwent a study where they had to answer the questions of Oswestry low back pain questionnaire. Subjects were informed about the study and prior consent was taken.

The results of this study showed are based on statistical analysis that there was significant increase in low back pain in sugar industry workers of karad taluka.

CONCLUSION

The present study based on statistical analysis showed that there was significant increase in low back pain in sugar industry workers thus providing evidence

to support the increase in lumbar spine dysfunction in sugar industry workers of the karad taluka.

Acknowledgement

I would like to thank respected Dean Dr. G. Varadharajulu, Dean, Faculty of Physiotherapy, KIMSDU for his inspiration, motivation, valuable guidance and suggestions throughout this project. I wish to express my sincere thanks to Dr. S. V. Kakade, Department of Biostatistics, KIMSDU for helping to carry out statistical analysis. I would also like to express my sincere thanks to Dr. JAVID H SAGAR, Professor, department of cardiopulmonary sciences, Faculty of Physiotherapy, KIMSDU. I express my sincere thanks to the volunteers who participated in my project for their kind cooperation in my project work.

Conflict of Interests: There were no conflict of interests in this study

Ethical Clearance : Ethical clearance was taken from institutional ethical committee of Krishna institute of medical sciences, Deemed to be university, Karad.

Funding : No funding.

References

1. Miss. Smita Yashvants Vasave, Dr. Deepak B. Anap. Prevalence of musculoskeletal disorders among sugarcane workers – a cross sectional study. *Indian Journal of Basic and Applied Medical Research*; September 2016: Vol.-5, Issue- 4, P. 752-758
2. Baxi MS, Sant SS, Hande DN. Prevalence of musculoskeletal disorders among sugar factory Workers of Ioni: an ergonomic study. *IOSR Journal of Nursing and Health Science (IOSR-JNHS)*, e-ISSN.:2320-1959.
3. Singh A, Singh M, Kaur A. Musculoskeletal disorders in repetitive manual lifting and carrying of 50 kg load: a case study of sugar mill. *Int J Engine Tech Res.* 2014;2(4):146-9.
4. Marras WS. Occupational low back disorder causation and control. *Ergonomics.* 2000 Jul 1;43(7):880-902.
5. Fritz JM, Irrgang JJ. A comparison of a modified Oswestry low back pain disability questionnaire and the Quebec back pain disability scale. *Physical therapy.* 2001 Feb 1;81(2):776-88.
6. Fairbank JC, Couper J, Davies JB, O'brien JP. The Oswestry low back pain disability questionnaire. *Physiotherapy.* 1980 Aug;66(8):271-3
7. Desale, N. (2019). Spinal stenosis - Symptoms and causes. [online] Mayo Clinic. Available at: <https://www.mayoclinic.org/diseases-conditions/spinal-stenosis/symptoms-causes/syc-20352961> [Accessed 28 Nov. 2019].