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Prevalence of Low Back Pain among Rice Mill Workers in a Community of Purba Barddhaman, West Bengal

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Abstract **Original Research Article**

Musculoskeletal Disorders (MSDs) are a global problem and have a comprehensive impact on health and economy of a country. MSDs may affect people engaged in almost all the occupations. Working in rice mill is one such occupation, where musculoskeletal disorders, specifically Low Back Pain are very common. Purba Barddhaman being one of the most fertile areas for rice production in West Bengal, lots of rice mills are located in the outskirts of the district headquarters of Bardhhaman. So, the study was aimed to determine the prevalence of Low Back Pain among the Rice Mill Workers in Purba Barddhaman. Study was conducted in four rice mills in the outskirts of Barddhaman. Study was conducted in January 2017 to February 2017. A total of 140 workers were included in the study. The descriptive analysis showed that the mean age of the study subjects was 36.4 years (±9.22), 110 (78.57%) were males; the majority belonged to the 18 to 40 years of age group (70.91%). 95 (67.86%) persons had chronic low back pain. Among the 110 males, 74(67.27%) and out of 30 females, 21 (70%) had low back pain respectively. It was also seen that, ≥60 hour of activity per week is significantly associated with Low Back Pain. Rice mill workers in this area were especially affected in the low back pain that interfered with the occupational activities as well as daily routine activities of the workers. Health care system should provide emphasis on provision of necessary support services for the primary and secondary prevention of such occupational disorders.

Keywords: Low Back Pain, Rice Mill, Purba Barddhaman.

INTRODUCTION

Most of the data concerning Low Back Pain (LBP) are related to developed countries but little information about LBP is available for developing and low-income countries and specifically in relation to the rural communities [1]. Musculoskeletal Disorders (MSDs) are a global problem and have a comprehensive impact on health and economy of a country [2]. MSDs may affect people engaged in almost all the occupations. Working in rice mill is one such occupation, where musculoskeletal disorders, specifically Low Back Pain are very common.

India has the world's largest area where rice is being produced (44.0 million ha) and is the second largest producer (96.0 million tonnes - 2010) of rice next only to China. India contributes 21.5 percent of global rice production [3,4]. Rice mill workers are exposed to organic and inorganic dusts and chemicals; so, they may have adverse effects on respiratory health and suffer from certain lung diseases [3]. Load handling, i.e. lifting and carrying heavy load, like grain filled sacs is the major job component of these workers. Often, the workers have to adopt or fall into certain awkward postures to carry out this job. Working with heavy load in awkward posture leads to physiological strain and musculoskeletal problem, more specifically low back pains [3].

Purba Barddhaman being one of the most fertile areas for rice production in West Bengal, lots of rice mills is located in the outskirts of the district headquarters of Bardhhaman.

So, the study was aimed to determine the prevalence of Low Back Pain among the Rice Mill Workers in Purba Barddhaman.

MATERIALS & METHODS

Permission was obtained from four rice mills for conduction of the study. Study was conducted in January 2017 to February 2017. All the workers involved in lifting and moving heavy loads were included. 173 workers gave their consent for the study. Subjects with diagnosed congenital skeletal deformities or deformities due to fractures; subjects with any

diagnosed psychiatric illness; agricultural workers who were known to have spinal fracture resulting from tumours, infections or any major trauma to the spine or having diagnosed neurological problems were excluded. So, a total of 140 workers were included in the study. Standard consent forms (in English, Bengali and Hindi) were used in this study. The purpose and the procedure of the study were explained to each subject in-detail, assured about confidentiality and anonymity of information and informed consent were obtained before data collection. By using a pre-designed, pretested, semi-structured schedule, detailed socio-demographic data were collected.

RESULTS

The descriptive analysis showed that the mean age of the study subjects was 36.4 years (±9.22), 110 (78.57%) were males; the majority belonged to the 18 to 40 years of age group (70.91%). Among the study subjects 32.86% were Illiterates, 85.71% were Hindus by religion, 82.14% belonged to nuclear family and 58.57% to Socio-economic class IV according to modified BG Prasad scale updated for January 2017. Regarding the addiction pattern in the study subjects, 59.76% were addicted to tobacco smoking, 46.33% to tobacco chewing and 27.63% to alcohol.

Table-1: Socio-demographic characteristics of the study population (n=140)

Socio Demographic Factors	Male (n=110)		Female (n=30)		Total (n=140)	
	No.	(%)	No.	(%)	No.	(%)
Age in years						
18-40	78	(70.91)	18	(60)	96	(68.57)
41-50	22	(20)	10	(33.33)	32	(22.86)
51-60	10	(9.09)	2	(6.67)	12	(8.57)
Education						
Illiterate	32	(29.09)	14	(46.66)	46	(32.86)
Just literate	28	(25.45)	11	(36.67)	39	(27.86)
Primary	22	(20)	3	(10)	25	(17.86)
Mid-school	12	(10.91)	2	(6.67)	14	(10)
Secondary	10	(9.09)	0	(0)	10	(7.13)
HS & above	6	(5.45)	0	(0)	6	(4.29)
Type of Family						
Nuclear	93	(84.55)	22	(73.33)	115	(82.14)
Joint	17	(15.45)	8	(26.67)	25	(17.86)
Marital status						
Married	86	(78.18)	23	(76.67)	109	(77.86)
Unmarried	24	(21.82)	7	(23.33)	31	(22.14)
Religion						
Hindu	93	(84.55)	27	(90)	120	(85.71)
Muslim	17	(15.45)	3	(10)	20	(14.29)
Socio-economic class (BG Prasad SES)						
Class II	13	(11.82)	0	(0)	13	(9.29)
Class III	17	(15.45)	3	(10)	20	(14.29)
Class IV	70	(63.64)	12	(40)	82	(58.57)
Class V	10	(9.09)	15	(50)	25	(17.86)
BMI						
<25 kg/m^2	84	(76.36)	26	(86.67)	110	(78.57)
≥25 kg/m^2	26	(23.64)	4	(13.33)	30	(21.43)

According to the criteria, a total of 95 (67.86%) persons had chronic low back pain. Among the 110 males, 74(67.27%) and out of 30 females, 21 (70%) had low back pain respectively.

Association of Low Back Pain with Age, Gender, Literacy, Socio-economic Status, Religion and BMI were not statistically significant.

Data were also collected regarding years of such work in rice mill and also total number of hours of work per week.

Table-2: Prevalence of Low Back Pain according to activity

	Low Back Pain		
	Present	Absent	
	No. (%)	No. (%)	

Duration of work in rice mill (years)			
<20years (n1=57)	44 (77.2)	13 (22.8)	Odds Ratio 2.12 p=0.0654, (Fisher's exact test)
≥20years (n2= 83)	51 (61.4)	32 (38.6)	
Total hours of activity in rice mill in a week			
<60hours (n3=44)	23 (52.3)	21 (47.7)	Odds Ratio 0.36 p=0.01 (Fisher's exact test)
≥60 hours (n4=96)	72 (75)	24 (25)	

Figures in parentheses indicate row percentages. As it can be seen from Table 2, a ≥60 hour of activity per week is significantly associated with Low Back Pain.

DISCUSSION

There is existence of several studies that document the prevalence of various musculoskeletal disorders in varied occupation like mine workers, stone cutters, sanitary workers, shoe factory workers, goldsmiths *et al*.[5]. But documentation of Low Back Pain anther MSDs in rice mill workers is scanty. As the occupational exposure in agriculture is markedly different from that of other physically demanding occupations, the results of those studies could not be generalized to the agricultural workers, as evident from findings in the present study.

In the study by Darbastwar *et al*. in Karimnagar, 125 out of 273 subjects had musculoskeletal disorders since last 12 months. Among them predominantly pain in the low back ache is common in 27.1% followed by Knee Pain in 25%, Ankle/Feet pain in 20.5%, Hips/Thigh pain in 17.6%, Upper Back pain in 15%, Shoulder pain in 25.6%, Elbow in 22.4%, Neck pain in 20.8% and pain in Wrist/Hands in 11.7% [3]. 27.1 % had low back pain as compared to 67.27% in this study [3].

A study done by Pradhan *et al*. 2007 in West Godavari district in Andhra Pradesh, found similar findings of 61.5% suffering from low back pain [6]. The occupational work of handling loads requires muscular effort in some odd and awkward postures, which often give rise to musculoskeletal strains and low back signs and symptoms [7]. Turning, twisting and bending are also associated with increased incidence of low back disorders like pain, ache and discomfort [8]. It was found that most of the activities of these workers are moderate to very heavy [9]. Observation of persistence of pain threw lights on the facts that, once Low Back Pain developed, it was bound to remain over a long time and became chronic. These could have happened because of negligence or unavailability of proper health care facilities as well as lack of ergonomic education among farmers [10].

CONCLUSION

Rice mill workers in this area were especially affected in the low back pain that interfered with the occupational activities as well as daily routine activities of the workers. Health care system should provide emphasis on provision of necessary support services for the primary and secondary prevention of such occupational disorders.

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REFERENCES

1. Inbaraj LR, Haebar OJ, Saj F, Dawson S, Paul P, Prabhakar AK, Mohan VR, Alex RG. Prevalence of musculoskeletal disorders among brick kiln workers in rural Southern India. Indian J Occup Environ Med. 2013 May-Aug;17(2):71-5.
2. Woolf AD, Pfleger B. Burden of major musculoskeletal conditions. Bull. World Health Organ. 2003; 81: 646-656.
3. Darbastwar MA, Kumar B, Ravinder A. A study of prevalence of musculoskeletal disorder among the rice mill workers in Karimnagar. J. Evolution Med. Dent. Sci. 2016;5(21):1106-1110,
4. Food and agriculture organisation. FAOSTAT. http://www.fao.org/corp/satistics. 2010.
5. Hemalatha K, Bharanidharan G, Anusha T. Prevalence of musculoskeletal disorders among agricultural workers in rural area of Tamil Nadu: A cross-sectional study. HECS International Journal of Community Health and Medical Research. 2017; 3(3):26-31
6. Chandan K Pradhan, Sridhar Thakur, Amal R Chowdhury. Physiological and subjective assessment of food grain handling workers in West Godavari district, India. Kolkata: Journal of Industrial Health, ROHC, ICMR. 2007;45:165-169
7. Ghosh SN, Nag PK. Muscular strains in different modes of load-handling. Ahmadabad: Elsevier Ltd. 1986; 1:64–70.
8. CHRISTENSEN* HA, Pedersen MB, SJøGAARD GI. A national cross-sectional study in the Danish wood and furniture industry on working postures

and manual materials handling. Ergonomics. 1995 Apr 1;38(4):793-805.
9. Chatterjee BB, Samanta A. Energy expenditure in manual load carriage. Industrial Health. 1981;19:145-154.
10. Paul SP, Mitra K, Chakrabarty A, Das DK. Prevalence of Musculoskeletal Disorders and its Correlates among Agricultural Workers in Bhatar Block of Purba Bardhaman District, West Bengal." IOSR Journal of Dental and Medical Sciences (IOSR-JDMS). 2019: 18(1):22-28.