

**HEALTH HAZARDS AND RISKS IN MANUAL SAND EXTRACTORS OF JEHLUM: A
CROSS SECTIONAL SURVEY****G. H. Yattoo¹, Mubashar Mashqoor Mir*², Mohammad Sarwar Mir³, Ghulam Mustafa Malik⁴ and Ruksana Hamid⁵**¹Associate Professor and Head of Department from Additional Professor and Head of Department, SKIMS, Srinagar.²Post Graduate Resident, Post Graduate Department of Dermatology, Government Medical College, Jammu.³Senior Resident, Department of Hospital Administration, SKIMS, Srinagar.⁴DNB Ophthalmology Resident, GMERS, Gandhi Nagar, Gujarat.⁵Medical Officer and Anesthesiologist, Directorate of Health Services Kashmir.***Corresponding Author: Mubashar Mashqoor Mir**

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ABSTRACT

Introduction: Boom in the construction sector worldwide has led to increase in demand of raw materials including sand. The nature of work and working environment involved in manual sand extraction exposes the workers to many occupational hazards and risks. **Aim:** To study the health risks and occupational hazards involved in manual sand extraction from a river bed. **Materials and Methods:** A cross sectional study was conducted to identify various health risks and occupational hazards. A total of 50 manual sand extractors were recruited from one extraction site selected randomly on Jehlum River bed, Srinagar. Socio -Demographic Profile, Type and nature of work done and other data were collected using predesigned and pretested proforma. A detailed clinical history was taken and clinical examination was conducted. **Results:** The musculoskeletal pain and discomfort was prevalent in 84.0% of workers. Prevalence of eye complaints was 72.0% respectively. All the workers examined had skin problems. Inadequate personal protective devices and lack of social/employment schemes was there. Only 28% of the workers used any personnel protective measures. **Conclusion:** There was high prevalence of various health related issues in manual sand extraction workers.

KEYWORDS: Occupational, Prevalence, Workers, Hazards, Sand.**INTRODUCTION**

An increased demand for urbanization and generous schemes for housing have led to an acceleration of constructions all over India. This has posed an increased need for sand dredging. Increased demand but less supply has amplified the problem by making sand a lucrative commodity thereby increasing the market need for manual dredgers.^[1]

Riverbed sand dredging provides 30%-35% of total sand required for construction.^[2] Manual sand dredging involves mining of sand manually from the riverbed and transporting it to the trucks for delivery at construction sites. The job involves workers utilizing country boats and hand tools for rowing, underwater diving, dredging and manual material handling thereby increasing the risk for work-related disorders.^[3] The working environment being river water and sand, there might be risk of exposure to hazardous materials.^[4] Furthermore, unavailability of Personal Protective Devices (PPD) and social security measures may increase exposure to occupational hazards.^[5,6]

The present study was conducted to identify the various health risks and occupational hazards among manual sand extraction workers. It will help in framing preventive strategies and ultimately improving health of the workers.

METHODS

It was a cross-sectional survey conducted during a health camp at a site of manual site dredging in Srinagar during the month of July 2017. The site was selected randomly. All the workers present at the site were examined. The structured questionnaire designed and pretested. It had following points:

1. Socio-Demographic Profile, which included: age, gender, ethnicity, years of experience, duration of working hours and tasks involved.
2. Clinical diagnosis via General examination, history taking and clinical local examination with special attention directed to skin, eyes and musculoskeletal system.

In addition workers were asked regarding availability of personnel protective kits and social/employment security schemes.

Data Entry and Statistical Analysis

Data was collected, coded and analyzed using SPSS software (Version 20) on Windows 7, and a simple descriptive analysis in the form of means and standard deviations was calculated for numerical data.

RESULTS

Out of total 58 workers present at the dredging site, 50 workers gave informed consent to participate in the study and were subjected to history taking and clinical examination.

Demographic Profile

It was observed that only male workers are involved in sand dredging. The workers were majority local Kashmiri and some seasonal migrants from Northern states of India. (Table 1 & 2).

Table 1: Genderwise Distribution.

Gender	Frequency	Percentage
Male	50	50.0%
Female	0	0.0%
Total	50	100.0%

Table 2: Ethnicity of workers.

Ethnicity	Frequency	Percentage
Kashmiri	42	84.0%
Migrant	8	16.0%
Total	50	100.0%

Table 7: Medical Conditions.

All the workers examined had skin diseases. 84% of the patients had musculoskeletal problems while as 72.0% patients had problems like redness and itching of eyes.

Medical conditions	Frequency	Percentage
Musculoskeletal pain and discomfort	42	84.0%
Ophthalmic Symptoms(redness/itching)	36	72.0%
Ear Discharge/Pain	32	64.0%
Skin problems (dermatitis,Callosities)	50	100.0%
Trench Foot	13	26.0%
Others (including bowel and bladder discomfort)	4	8.0%

Table 8: Worker welfare provisions.

No worker benefited from any social security scheme and only 28% of the workers had personal protective measures.

Variable	Frequency	Percentage
Employment /Social security schemes	0	0.0%
Availability of personal protective measures	14	28.0%
Total	50	100.0%

DISCUSSION

This study is a basic research on work-related disorders among manual sand extraction workers. Manual sand dredging is an economic non-market activity with no

Table 3: Age Wise Distribution.

Majority of the workers (58%) belonged to the age group of 26-35 years.

Age	Frequency	Percentage
16-25	6	12.0%
26-35	29	58.0%
36-45	7	14.0%
>45	8	16.0%
Total	50	100.0%

Table 4: Work Experience of workers.

The majority of workers were working as sand extractors for more than five years.

Work experience in years	Frequency	Percentage
< 1 years	3	6.0%
1-5 years	19	38.0%
>5 years	28	56.0%
Total	50	100.0%

Table 5: Duration of working hours.

Fifty six percent of workers worked for between 10-12 hours daily.

Working hours	Frequency	Percentage
8-10 hours	16	32.0%
10-12 hours	28	56.0%
>12 hours	6	12.0%
Total	50	100.0%

Table 6: Distribution of Tasks.

Tasks involved	Frequency	Percentage
Unloading	12	24.0%
Rowing	8	16.0%
Dredging	30	60.0%
Total	50	100.0%

fixed workplace and temporary employment. A high demand for production, legal constraints on the use of machinery and poor working environment may pose a

heightened risk for work related disorders among the manual sand workers.

Manual sand dredging involves heavy physical work, awkward postures, forceful movements, continuous work hours and substantial work demands which are established risk factors for musculoskeletal fatigue, pain and discomfort. These risk factors cause micro-trauma thus resulting in pain and inflammation. Low back, neck and shoulder were the most prevalent sites of musculoskeletal pain and discomfort. Postural risk analysis using REBA showed rowing and unloading as very high risk tasks requiring static muscle activity, repetitive movement and awkward posture. Static loading and repetitive activity cause lactic acid accumulation leading to micro-trauma and inflammation. These tasks require immediate implementation of an ergonomic measure. Similar findings regarding factors influencing musculoskeletal have been reported on workers involved in manual material handling.^[7,8]

A high prevalence of redness, itching of eyes and ear pain might be probably due to diving and exposures to chemicals dissolved in water. The workers complained of increased lacrimation, itching, gravel like sensation and redness which disappeared within few hours. There was no change in visual acuity which was suggestive of mild conjunctival irritation.^[9]

CONCLUSION

Workplace exposure to hazards and resultant injuries have a complex multifaceted relation which calls for a multi pronged strategy to address the problem. This study shows a high prevalence of health disorders in manual sand extraction workers. Significant lack of health and safety measures were also identified.

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