

Assessment of Occupational Safety and Health among Sugar Industry Workers in Dera Ismail Khan: A Descriptive Study

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Abstract

Background: A work-related danger is normally a circumstance that can possibly harm labourers. Occupational Safety and Health (OSH) was enacted to help all employers and their workers decrease job accidents, injuries, and medical illnesses. In Pakistan, no recent regional study had focused on the health issues of labourers in sugar industries, so the present study focused on the health issues being faced by the labourers in sugar industries of Dera Ismail Khan.

Objective: To assess the workplace hazards and medical problems related to sugar industry workers.

Study type, settings & duration: A Descriptive cross sectional study was conducted in sugar industries of D.I. Khan from April to September 2023.

Methodology: Data was collected through a structured questionnaire and work place health and safety questionnaire, from 265 individuals working in different departments of Chashma and Meerun Sugar Industry of Dera Ismail Khan. A simple random sampling technique was used for sample selection.

Results: Two sugarcane industries of the location were approached, and data was collected from n=265 workers working in different units of sugar mills. The maximum working time, observed was 8 hours (25.5%) and 12 hours (74.5%). Labourers and Labourers in-charge both were made indulged in the study and data was collected from both of them. 89% of the respondents were suffering from the musculoskeletal knee problems, 67% from shoulder problems, 84% from lower back pain and 45% suffering from arm problems respectively.

Conclusion: It can be concluded from the present study that the majority of the respondents were suffering from the musculoskeletal problems like knee problems, shoulder and arm problems due to prolonged physical duty hours.

Key words: Occupational safety & health (OSH), hazards, sugar.

Introduction

A work-related danger is normally a circumstance that can possibly harm labourers. There are two kinds of work related risks for example, wellbeing dangers and security risks. Some work-related wellbeing and security perils are normal in sugar factories including wellbeing

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Authors Contribution

AI conceptualized the project. AI & FR did the data collection. AI, AG & MS performed the statistical analysis. AI, FR & AG did the literature search. Drafting, revision & writing of manuscript were done by AI, FR & FA.

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aggravations like high clamor, bagasse residue, and fly debris. In Pakistan, standards of occupational safety are poor. Majority of the ventures in the coordinated areas don't have knowledge of Occupational Safety and Health (OSH) related dangers and perils, and similarly they don't see the significance and direness of tending to the occupational dangers and risks. In Baldia, Karachi, a company came on huge fire in 2012, which destroyed the lives of more than 250 specialists. Many industrial areas specifically Research and Development (R & D), mining, fishing and horticulture face huge problems as far as OSH dangers and perils.¹

In Pakistan, the record system of accidents was not being followed as many of the laborers don't report their injuries to labor departments, so there was no data about the injuries being faced by laborers in the sugar industries.² Two million individuals kick the bucket each year because of sickness/illness due to work hazards, greater than

270 million labourers got injured and an expected 160 million people have occupational ailments.³ The DWCP focuses on the execution of OSH measures for fisheries, agriculture, and small businesses. International Labour Organization (ILO) helped Pakistan to reach and meet the standards of OSH in the country.³

In Pakistan, a study conducted on sugar industry workers by taking into account 2 variables i.e., ergonomics and its impact on the occupational health status of the workers.⁴ Sugar industry is a major agro-based enterprise of Pakistan. Researchers reported that there were regular wounds and injuries in industry, however, ergonomics were ignored as part of the training of the workers. For this reason, the data was collected both 'subjective and quantitative' from different sugar industries in Pakistan.⁴ The alteration in the current plan is additionally recommended for safe working. Outcomes of the study explored that 15 to 20% specialists were harmed in sugar industries of Pakistan. The study reported that 40 percent of the absolute working staff was outfitted with security supplies. The level of noise was higher in sugar industries (85 to 112 dB) and this level influences human wellbeing severely. It was tracked down that about half of the labourers were not outfitted with security measures. The outcomes showed that functioning conditions existed in the sugar factories were not palatable with respect to ergonomics and word related wellbeing. The examination proposes that there is a need to select the talented labor to limit the wounds in sugar industry of Pakistan.⁵

An examination showed the parts affected in the sugar industry. Mostly the parts affected are hands and fingers. Most of the mishaps in the event of lower limit were on the toe, foot, and afterward leg.⁶⁻⁸

In Pakistan, no recent regional study focused on the health issues of laborers of sugar industries, so the present study focused on the health issues being faced by the labourers in sugar industries in Dera Ismail Khan (DIK).

Methodology

A simple descriptive study was done to find out the health status of workers in sugar mills of DIK, having a Sample size $n=265$.⁴ Data was collected randomly from representative sample of $n=265$ from different sugar industries of DIK through a simple random sampling technique. The duration of the study was from April 2023 to September 2023. Data was collected through a structured questionnaire and workplace health and safety

questionnaire.² Data was collected after informed written consent of the participants.

In our study, some of the questions were as follows:

1. Manually push or lift items that are more than 20 kg.
2. Do repetitive movements with your hands for at least 3 hours during the day.
3. Perform tasks that you are not familiar with.
4. Interact with chemicals or inflammable substances.
5. Work in awkward positions (bend, twist, heavy manual labor).
6. Work at a height that is more than 5 meters.
7. Work in high decibel levels.
8. Stand for more than 3 hours a day.

Answers to these questions were calculated on a five point Likert scale.

Data analysis was done using SPSS version 21. Frequency and distribution were applied for descriptive data analysis of the variables. Inferential statistics was performed using the Pearson Chi-square test to find out the p -values and the relationship of variables. Sample selected from both male and female workers from different sugar industries in DIK, through a simple random sampling method. Workers having injuries other than workplace were not included in the sample.

The ethical approval was obtained from the Ethical Review Committee of Gomal Medical College, Dera Ismail Khan vide letter no. 28/GJMS/ER.

Results

Two sugarcane industries of the location were approached and data was collected from $n=265$ workers, working in different units of sugar mills. Only male gender was noticed in the mills and no female was observed. $n=133$ were taken from 'Meran Syed Mill DIK' and $n=132$ were taken from 'Chashmaa sugar factory/mill'. The maximum working time observed was 8 hours (25.5%) and 12 hours (74.5%), so maximum workers were working for 12 hours in the industry. Labourers and Labour in-charge both were made indulged in the study and data was collected from both of them.

The 89% of the respondents were suffering from the musculoskeletal knee problems, 67% from shoulder problems, 84% from lower back pain and 45% from arm problems respectively (Figure-1). Musculoskeletal problems were common complaints of the workers. The frequency of accidents among workers of sugar industries was the second most common complaint with a prevalence of 17.96%.

Accidents in the industry occurred due to faulty machinery, carelessness and interruptions during work.

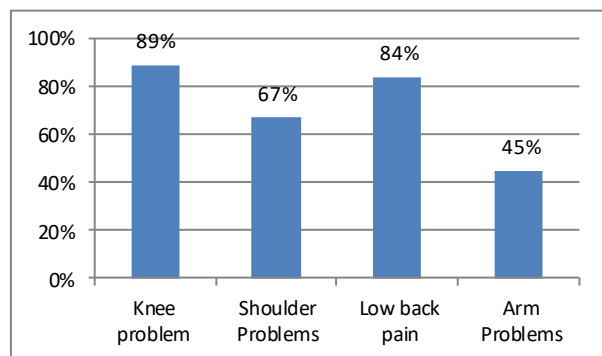


Figure 1: Prevalence of musculoskeletal problems among the workers.

Table represents age distribution of the workers. Majority of the workers were found in the age group of 20-30 years (38%) and 31-40 years (35%).

Table: Age distribution of respondents.

Age (in years)	Frequency	Percentage (%)
20-30	103	38.57
31-40	95	35.58
41-50	44	16.47
51-60	25	10.00
Total	267	100

Figure-2 expresses frequency of accidents among workers. 17% workers got injuries during work, most of the injuries were of upper limbs, like hands, fingers, boiling material accidents, face, and a few have full body injured.

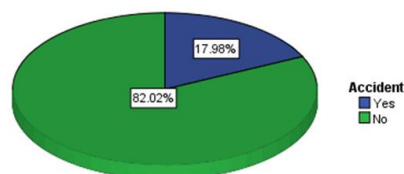


Figure 2: Frequency of accidents among workers.

Discussion

In Pakistan, ventures assume a fundamental part in monetary turn of events. Significant issues present for labourers because of awful ecological conditions in businesses. The examination was done in Bhalwal sugar factory to notice the effects of that modern climate on

specialist's wellbeing. Different labourers were chosen to gather survey information. Results showed that physical just as friendly climate of the business was influencing the labourer's wellbeing status. Sadness and anxiety was found among labourers.⁹

A word related danger is generally a circumstance that can possibly hurt specialists. There were two sorts of work related risks for example wellbeing dangers and security risks. In the event that any specialist experiences ailment because of dangers, this risk would be wellbeing peril. On other hand assuming dangers truly harm workers because of any mishaps, it is called wellbeing risks.¹⁰

In Pakistan, extremely less information is accessible on work related infections and mishaps in light of the fact that the vast majority of the mishaps were not detailed. Instances of wounds differ from minor to major. About 40% of sugar industry labourers experienced various issues, as indicated by report of 2011. Labourers of other non-industrial nations are additionally confronting more working environment wellbeing related issues.¹¹

There are some significant ecological concerns related with sugar's preparation in industry for instance air contamination, commotion contamination, water contamination what's more, strong waste. For sugar stick preparation a lot of water is utilized which can cause water contamination if not treated as expected. Also, water contamination can be delivered because of the emanations which are created during hardware cleaning.¹²

The present study shows that majority of workers suffer from musculoskeletal problems either once in life during their working experience. An investigation was conducted in an Iranian sugar factory to evaluate the predominance of musculoskeletal issues and openness level to that danger among creation labourers. Haphazardly, 116 workers from industry were chosen for study. Musculoskeletal problems were found among 87.1% specialists. 58.6% pervasiveness was recorded in the knees of laborers and it was considerably more pervasiveness. Musculoskeletal problems had expanded in non-industrial nations because of nonattendance of good working conditions. In the Iranian sugar plant, lifting of weighty burden was normal; such countless specialists endured from musculoskeletal problems.¹³

The present study evaluates the health hazards and policies of safety and health in the industries. A similar study was done by Fatima et al (2017) to assess health and safety risks in the sugar industry in Pakistan. Results of the study correlate with the results of the present study.¹⁴

It can be concluded from the present study that the majority of the respondents were suffering from the musculoskeletal problems i.e Arm, shoulder, knee and lower back pain due to prolonged physical duty hours. They had to work in a noisy environment, so loud sounds affected their listening ability. Minor accidents were common in the industry.

Conflict of interest: None declared.

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