CODEN [USA]: IAJPBB ISSN: 2349-7750

INDO AMERICAN JOURNAL OF
PHARMACEUTICAL SCIENCES

http://doi.org/10.5281/zenodo.3886830

Available online at: http://www.iajps.com *Research Article*

EVALUATION OF SAFETY MEASURES IN THE STEEL MILLS OF ISLAMABAD

Dr. Sana Shafique[1], Dr. Shazia Munawar[2]

[1] Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad

[2] DHQ Hospital, Jehlum

Article Received: April 2020 **Accepted:** May 2020 **Published:** June 2020

Abstract:

Background:

Health, safety practices in steel mill industry refers to better outcome of labor for which the world trade organization –WTO demands safer, healthier and environment friendly workplaces globally for labors so that quality products are made available without any kind of interruptions. This paper aims to study and evaluate the various occupational safety practices performed by the steel mills across Islamabad and we as researchers wants to enhance employee performance and engagement as well as the long-term sustainability of the work force especially in the industrial sector.

Methods:

A cross-sectional study was performed in Steel Mills of Islamabad for 3 months. Simple random sampling technique was used and sample size was obtained by using Krejcie & Morgan table for finite population i.e. 200 individuals keeping confidence interval 95%, margin of error 5% and population frame 50%. The questionnaire was adapted from research article (Knowledge and practices regarding safety information among textile workers in Adwa town, Ethiopia). We analyzed the data through IBM SPSS Version 20 to calculate the frequencies and percentages of our sample.

Results:

The findings of our study suggested that every 3 out of 5 workers were unaware of the personal protection equipment (PPE). Among the workers who had awareness and which are using personal protection equipment have following frequencies. Frequency of the workers wearing coverall was 63%. Frequency of the workers wearing protective gloves was 88(28%), only 45% wore protective boots. And half of the labor 48% working under the overhead crane system was wearing helmets. The frequency of workers using ear muffs was very low that is only 12 (6%). Overall the ventilation system was satisfactory.

Conclusion:

Detailed inspection of the Steel Mills revealed that out of every 5 worker, 3 of them were unaware of the personal protection equipment (PPE) and precautions required for safe handling in the mills. Adoption of safety measures by the workers was not satisfactory and more then half of the workers failed to follow the essential safety precautions.

Corresponding author:

Dr. Sana Shafique,

Shaheed Zulfiqar Ali Bhutto Medical University, Islamabad

QR code

Please cite this article in press Sana Shafique et al, ***Evaluation Of Safety Measures In The Steel Mills Of Islamabad.,*** *Indo Am. J. P. Sci, 2020; 07(06).*

INTRODUCTION:

The large number of occupational accidents in developing countries has significant human cost and severely affects the economic potential and productivity of the country. Genuine safety culture requires a change of mentality and a reliable commitment from the top management, where everyone participates and commits to occupational health and safety along with the stronger institutional pressure [1] (Fernández-Muñiz et al., 2009). Safe working conditions provide a plenty of benefits both to direct and indirect beneficiaries. Among the direct beneficiaries are the workers themselves and also the firm. Firms can cut down their losses and ultimately enhance their productivity. Generally consumers, contractor, insurers, families and society are the indirect beneficiaries of occupational safety [2] (Mossink, 2002). Managers of the firms are the key actors in the safety management systems of the firms as they can make the decisions to invest in the prevention or not. The workplace accident have not only financial costs [3] (Bestratén et al., 2003) but also reduce both the quality and quantity of production and leads the firm with productivity loss [4] (Hunter, 1999). Employees' morale is severely damaged due to unsatisfactory industrial climate. Such conditions force them to leave the firm and consequently firm has to face the loss of their skilled and technical persons. Sometimes it is very difficult for the firm to replace such technical and experienced persons on very short notice of time. In addition to that firms can lose their image and reputation very adversely due to workplace accidents [5] (Smallman and John, 2001), leading to poor public relationships

Steel manufacturing is an industry where safe working environment are important as workers face many risks due to nature of job. Work environment is often hot and noisy and work tasks regularly heavy and demanding on body, there is an always present risk for crushing injuries and burns. Hence Promotion of decent, safe and healthy working environment has been a constant objective of International Labor Organization (ILO) since 1919.

Accidents and occupational diseases in work place are preventable through creation of safe work environment which is to be free of occupational hazards. The steel mills, like any other work places in Pakistan are expected to create a safe work environment and ensure works are not affected by work place hazards in operations

The strategy that is adopted by steel mills is demonstrated by formulation ,implementation and periodic review of organization policy on occupational safety and health, full participation at all levels of employer ,workers and other stake holders .the International Labor Organization in 2009 in their 98th session conference on occupational safety and health, promoting a safe and healthy working environment stated that there was a institutional responsibility on steel mills to provide knowledge, education and training and information to its workers on work place health hazards.

METHODS AND MATERIAL:

In this research, literature review techniques have been used with other methods. First, through literature review process all personal protection equipment (PPE) were enlisted followed by enlistment of all industrial safety rules according to the classification with the help of owners and the concerned line department in still mills. With the help of concerned line departments in still mills in which survey was conducted, risks was identified in industries w.r.t. safety precautions.

Quantitative technique was used to gather data by using questioner as instrument tool. A survey based cross-sectional study was performed to assess the steel mills in Islamabad for 3 months i.e. from 1st July 2016 to 1st October 2016. The population of this research is still mills working in Islamabad. Currently 12 still mills are working in Islamabad with total labor force of 400. Sample is selected from labor working in still mills of Islamabad through simple random sampling technique and the sample size was obtain by using Krejcie & Morgan table for finite population i.e. 200 individuals (labors) keeping confidence interval 95%, margin of error 5% and population frame 50%. Because of inconvenience only limited still mills of Islamabad was analyzed. At least 50 labors are chosen from each still mill for this study.

Sample Size formula for finite population

If the target population is finite, the following formula (Krejcie, R.V. and Morgan 1970) may be used to determine the sample size.

$$S = \frac{X^2 NP (1-P)}{d^2 (N-1) + X^2 P (1-P)}$$

Where

S = Sample Size

X = Z value (e.g. 1.96 for 95% confidence interval)

N = Population size

P = Population proportion (assumed to 0.5 (50%)

d = Degree of accuracy 5% expressed as proportion (.05); it is margin of error.

In order to rank the selected alternatives of safety risk a questionnaire survey will be managed. The questionnaire was adapted from research article (Knowledge and practices regarding safety

information among textile workers in Adwa town, Ethiopia).The questioner was pre tested to access if was suitable in regards to duration, language appropriateness, content validity and question comprehensibility. This questioner will use yes and no questions regarding safety and personal protection equipment to rank the safety risk. Data will be collected by survey and researcher will select alternatives on his/her judgment. Data will be gathered by questionnaire from sample of labors working in still mills of Islamabad. Data was gathered on yes and no alternatives and was analyzed on SPSS. Frequencies, percentages mean and standard deviation were calculated for quantitative variables.

RESULTS:

The most common safety measure used amongst the workers, was 'heat resistant clothing' with a frequency of 124 and percentage was (62%) as indicated by Fig 1.1. Comparing the data in Fig 1.2 it can be seen that more than half of the workers were unaware regarding the safety measures with a frequency of only 76 and percentage was (38%) being aware. Majority of the labor force i.e 78% comprised of males above 18 and among them 59% were doing over time (more than 8 hours a day). Among the 200 subjects 136 were working under the over head crane system. According to Fig 1.1 very few (only 6%) workers were wearing ear muffs. Frequency of awareness amongst the workers was only 38 and percentage was (38%) and only 12% of them were practicing all 4 of the safety precautions under our study, namely helmets, protective gloves, heat resistant clothing and ear muffs. The frequency of labor who attended the labor skill workshop was 40 and the percentage was (20%).

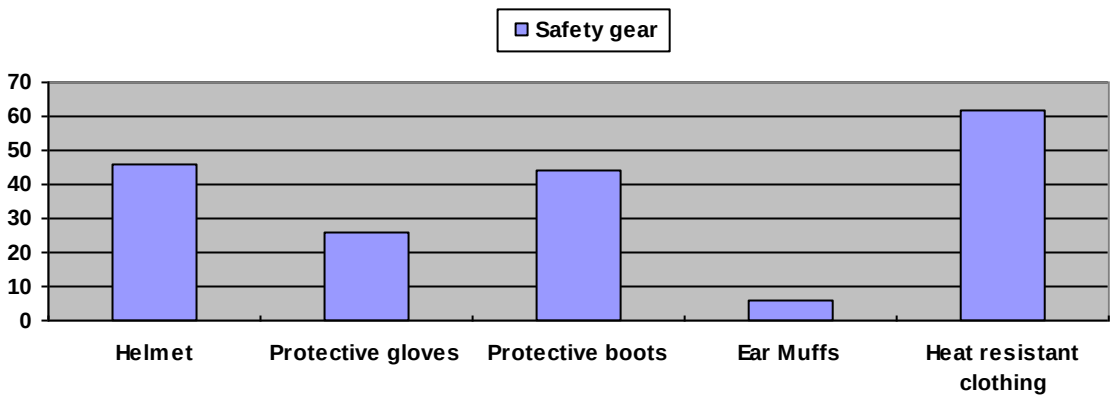

Fig 1.1 Comparison between different safety gears in percentage %

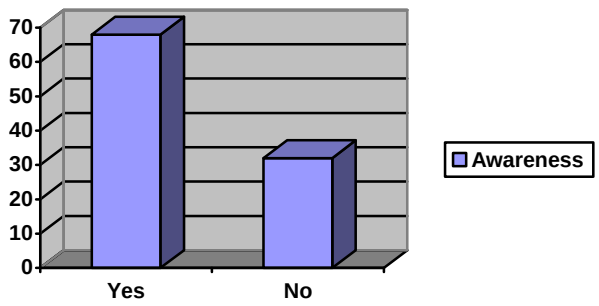

Fig 1.2 Comparing awareness in terms of percentage %

DISCUSSION:

Pakistan is a country with a very low literacy rate of 57.7% (Farooq, 2011) and because this low literacy rate is coupled with a lack of legislation; there is no sense of a safety culture. Furthermore, high occupational casualties have time and again proved that Pakistan has so far failed to reduce occupational hazards and accidents. While on one hand, the lack of legislation has contributed to the ineffectiveness on the other hand, the workers upon it to follow the rules set by the WHO with respect to occupational health hazards, yet, there is no improvement in the status of the health of workers in industry. The reasons are aplenty which include lack of commitment to the health of workers by the industry owners, little or no awareness, and no proper laws in place.

The industrial environment poses many health hazards to the workers. The hazards include work design hazards, physical hazards, slips and falls, overhead cranes and manual handling of heavy load. These hazards in turn, have direct implications on the health of an individual working in those industries. The ILO's Code on practice of safety and health in the iron and steel industry identify a set of hazards which are due to conditions in these industries which in result, may cause injuries, incidents, death, ill health and diseases.

In his study, "Revitalizing Labor Inspection System in Punjab" Awan has found out that not only are occupational hazards caused by the carelessness of employers, the employees are to be blamed as well. Awan (2007) has identified that while whenever workers in an industry were given gloves to use, they refused to use them initially because they were uncomfortable with the use of gloves. Furthermore, they refused the use of masks etc. only because they thought of them as s hurdle in their work. In our study, we have found the same. Even though a huge chunk of workers, almost about 38% were unaware, yet, more than half of those who were aware of the dangerous repercussions of not following OHS guidelines were also not following them because they saw them as some kind of hindrance in their work process.

Khan and Amjad in 2009 did a comprehensive study on the OHS practice in steel re rolling mills in Islamabad, titled: "A Case study on OHS practices in steel re rolling mills in Islamabad." In their study, they found out that employees and employers were equally responsible for the lack of implementation of OHS practices. Our study were in consistence with their study. We found out that only 38% of the workers were aware of these practices. The lack of awareness wasn't their fault but was in principle the fault of the employers, who are the least interested in the awareness of the workers, since it is against their own interests. No safety workshops were conducted by them to make the workers aware of the importance of using safety measures, as they weren't aware that is why, 38% i.e. 3 out of every 5 workers were not aware of the fact that using protective equipment could save their lives. The ones who were, out of them only half of the followed the rules, signaling to a very grave issue, the lack of proper SOPs and rules at the top tier. The top tier needs to put down rules to be followed by all employees, the lack of implementation of rules in such a sensitive aspect, shows that the top management is not interested in the safety and security of its employees.

Amjad and Khan, felt that both the employers and the employees should be trained because the factories lacked basic safety measures like fire exits, letting workers work without any kind protective equipment, bad housekeeping, excessive noise, heat etc. Our study was in consistency with their study in the same aspect. Excessive heat and noise were present. No measures were in place to save the workers from any kind of heat and noise pollution. The workers were in direct contact with excessive heat which causes life threatening diseases in the future. There was no con. In one aspect in which our study differed from Amjad et. al. study were the fact that the steel re rolling they went in to at least had first aid and the one we went to lacked even that. The workers had no access to first aid which is such an important protective measure in case of an emergency. So, this shows that the life and health of workers in industries are of little or no importance to the employers. In some instances however, due to the redundant policies and the lack of awareness even at the top level suggests that, even the top management may be unaware of the hazardous nature of work and may not be fully aware of the importance of the implementation of OHS practices. So, Khan and Amjad suggested that both the employees and the employers should be made aware and workshops for both of them should be conducted in order to make both of them cognizant of the need to implement OHS safety practices.

In "Denial and Discrimination: Labor rights in Pakistan" Hisam states that while there have been little or no improvement across various industries in OHS practices and implementation and this is all due to negligence on part of the government. The government of Pakistan, although a member of the ILO and a signatory of various ILO conventions has yet to undertake any practical steps with regards to improving working conditions in industries across Pakistan. Our study agrees with the findings as, with our interactions with the management of industries, we realized that due to

absence of interest at the state and legislative levels, the companies are lethargic in implementing their own company specific laws. This, in turn, has resulted in the menace of occupational work hazards and the subsequent spread of life-threatening diseases amongst workers of these industries.

So, our study was in consistence with the studies made before. The lacks of OHS practices in a serious concern which is rearing its head across all industries and has a long-term impact on the lives of the workers and in return on the company and products itself. The world trade organization – WTO demands safer, healthier and environment friendly workplaces globally so that quality products are made available without any kind of interruptions. The situation in Pakistan is grave as workplaces are not only insecure and unhealthy but with no lack of concern for the environment. The blame lies on all the three parties involved: the government, the employers and the employees. The ILO identifies that the implication lies on the employee, government, the employers and their representatives.

The government has failed to take action with regards to implementation of OHS practices, there is no regulatory body to look into and improve the lives of workers. The lethargy on part of the government is made full use of by the employers. To save their costs they are least interested in implementing OHS practices, as was evident from the ground situation of the factories, even something as basic as a first aid was missing. More than 60% employees were made to work overtime with minimal pay, which itself is a hazard for the health of the employees. On the other hand, most employers themselves are unaware too.

Similarly, the employees on one hand are a victim of lack of legislation and disinterest at the top levels of the management, but, they themselves are to be blamed. As lack of education, awareness and personal factors make them avoid the use of protective equipment. They look at protective equipment as a hindrance in their work and almost about less than half of the employees who were aware of the perils of workplace hazards were not using protective equipment. Thus, very much contributing to the grim scenario. The representative of the workers or the unions made for their protection has failed to play their part as well. These unions are mostly controlled by certain groups who work for their own interests and the general interests of the employees and their safety is a minimal concern.

OHS practices are for the safety of employees and the lack thereof, results in the having long-term negative consequences on the life, health and work of employees, with direct consequences on the company and the employers themselves. The human resource is a vital resource for the companies as well as the country and their wellbeing should be a priority. Strict SOPs should be defined by the top management with the help of proper legislative actions. Workshops should be conducted in order to create awareness amongst both the employees and the employers. The government should make an independent regulatory body which overlooks and ensures a smooth transition into a healthier and safer work places for all, the ILO has defined this body as a labor inspectorate and a body along those lines defined by the ILO should be in place.

CONCLUSION:

The research in this paper reveals the role and importance of safety measures and their proper implementation in the steel mills. Detailed inspection of the Steel Mills revealed that out of every 5 worker, 3 of them were unaware of the protective steps and precautions required for safe handling in the mills. Failure to adopt or properly implement the safety practices endangers the health and sometimes even the life of the worker in the form of serious health and occupational hazards suffice to say there is a dire need for prompt government intervention to bring about the well being of the labors intern encouraging a positive work force environment.

REFERENCES:

[1] Fernández-Muñiz et al., Relation between occupational safety management and firm performance. 20091;5(2):93-106.
[2] Mossink, The cost and effects of work place accidents 2002 Jun 1;7(2):133-40.
[3] Bestratén et al., Impact of health and safety investment on construction 2003 Jul;5(3):347.
[4] Hunter, Migration and Environmental hazards 1999 Jul;5(3):347.
[5] Smallman and John, Occupational health and safety management in Organizations 2001 Jul;5(3):347.
[6] Farooq, Impact of training and development on employee performance, 201130;46(4):566-84.
[7] Hira Amjad, A case study on OHS practices in steel re- rolling mill, Islamabad, 20121;72(1):40-5.
[8] Awan Health, Safety and Environment practices in the Construction sector of Pakistan, 2007 Jul;5(3):347.
[9] Amjad, Investigation of Work place environment- International Journal of Engineering, 2009.
[10] Cox S, Cox T. The structure of employee attitudes to safety: A European example. Work & stress. 1991 Apr 1;5(2):93-106.

[11] Langford D, Rowlinson S, Sawacha E. Safety behaviour and safety management: its influence on the attitudes of workers in the UK construction industry. Engineering Construction and Architectural Management. 2000 Jun 1;7(2):133-40.
[12] Griffin MA, Neal A. Perceptions of safety at work: a framework for linking safety climate to safety performance, knowledge, and motivation. Journal of occupational health psychology. 2000 Jul;5(3):347.
[13] Gomes J, Lloyd OL, Revitt DM. The influence of personal protection, environmental hygiene and exposure to pesticides on the health of immigrant farm workers in a desert country. International archives of occupational and environmental health. 1999 Jan 1;72(1):40-5.
[14] Choudhry RM, Fang D. Why operatives engage in unsafe work behavior: Investigating factors on construction sites. Safety science. 2008 Apr 30;46(4):566-84.
[15] Zohar D. A group-level model of safety climate: testing the effect of group climate on micro accidents in manufacturing jobs. Journal of applied psychology. 2000 Aug;85(4):587.
[16] Lingard H. The effect of first aid training on Australian construction workers' occupational health and safety motivation and risk control behavior. Journal of Safety Research. 2002 Aug 31;33(2):209-30.
[17] Hanson MA. Development of a draft British standard: the assessment of heat strain for workers wearing personal protective equipment. Annals of Occupational Hygiene. 1999 Jul 1;43(5):309-19.
[18] Lombardi DA, Verma SK, Brennan MJ, Perry MJ. Factors influencing worker use of personal protective eyewear. Accident Analysis & Prevention. 2009 Jul 31;41(4):755-62.
[19] Mohamed S, Ali TH, Tam WY. National culture and safe work behaviour of construction workers in Pakistan. Safety Science. 2009 Jan 31;47(1):29-35.
[20] Lingard H, Holmes N. Understandings of occupational health and safety risk control in small business construction firms: barriers to implementing technological controls. Construction Management & Economics. 2001 Mar 1;19(2):217-26.