

Health and Safety of Hyderabad Industries' Labor

Causes and Awareness

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Abstract—Labor's health and safety (H&S) is a matter of concern for all industries. Occurrence of accidents in industries is becoming a common issue. Both white collar and blue-collar workers are not shielded from materials that damage their health. This study identifies the critical factors affecting labor's H&S in Hyderabad, Pakistan industries. The awareness of labor regarding prevention and consequences that affect workers' H&S is also a matter of interest of this research. The severity of factors was determined through questionnaire survey from experts, H&S supervisors and managerial staff of industries. For the descriptive analysis the software SPSS 24.0 was used. This research also includes interviews from industry laborers about awareness regarding H&S critical factors. The results show that, Improper PPE use, operating machines that are poorly maintained, long term exposure to high intensity noise, working extended and irregular hours and lack of knowledge of working instruments are the critical causes of accidents. Also 60.9%, 73.9%, 69.6%, 78.3% and 89% of workers are not aware about these causes and their consequences. Thus, this research is a road map for industrial employers, law makers, local, provisional and federal Government of Pakistan in order to help minimizing the workplace accidents and the providing of safe and secure working environment for laborers.

Keywords—Health & Safety; accidents; Hyderabad industries; labor

I. INTRODUCTION

A labor force is a key stakeholder in every industry. Their health and safety is a prime concern as industries' entire output depends on their shoulders. Industries in Hyderabad, Pakistan are small and medium sized enterprises (SME). According to [1, 2], health and safety issues are more common in SME's as compared to larger industries. Unfortunately, no separate legislation regarding health and safety in Pakistan is available. The major law that governs all the issues of health and safety is

covered under Factory Act 1934 but it is not fully implemented and eventually labor is suffering. The International Labor Organization (ILO) assessed that every year universally, around 2.2 million individuals die from work related mishaps and sicknesses, while 270 million experience non-fatal wounds and diseases. According to ILO, accidents at site take around 2 million lives per year and their estimated cost is around \$1,250,000 M [3]. Industries which disregard health and safety may lose staff, increase product costs and thus have less profit. As authors in [4] found, there is expanding and convincing proof that giving a solid and safe workplace can increase labor productivity and enhances business profits. The major problem in such industries is the lack of awareness of the laborers regarding the consequences of working in unsafe environment i.e. on-site accidents, injuries, long term health issues, and several diseases like cancer, asthma, hearing loss, eye damage, reproductive disorder, mental illness etc. This condition is more severe in Pakistan. The labor force is less literate so they are less aware of the workplace health issues and have no idea about their legal rights of health & safety. A study conducted by authors in [5], showed that 69% of labor force from different industries of Hyderabad are suffering from severe health issues. A survey by the Centre for the Improvement of Working Conditions and Environment (CIWCE) in 2001 in Lahore found that the industries are lacking basic hygiene facilities. They have inadequate fire prevention, exhaust filters, emergency transport, hazard warning signs, medical facilities (even first aid) and waste disposal services. The survey also showed that most of the laborers are illiterate and don't know about protective measures [6].

In globalization of the world's economics, overworking is an issue. It affects a worker in both positive and negative ways, for example by working irregular and extended hours, a worker gets more money than normal but this affects his social life

along with severe negative impacts on his health. Many researches such as [7-9] claim that the demand of productivity influences the health issues of labor [7-9].

Health and safety issues are vital parts of risk management, quality management and corporate social responsibility. Labor is exposed in exceptionally hazardous situations in industries, like harmful radiations and pollution. The scope of health and safety has increased steadily and constantly considering monetary, technological, political, and social change. A well-developed health and safety framework is not just a duty of a couple of representatives. It is a mutual commitment of every single worker and, therefore, every one of them will be profited from a protected workplace. A major problem is the laborers' lack of knowledge and awareness of work hazards. This research is an attempt to discover the different potential hazards, which adversely affect labor health in industry. At later stage, the awareness of laborers regarding those potential hazards becomes a major concern of the study. Severity of factors on labor's health was analyzed based on the knowledge of field experienced health and safety experts.

II. LITERATURE REVIEW

A. Factors Affecting Health & Safety in Industries

The arrangement of health and safety has become a critical factor in industry, it affects socially and economically both employers and workers. Health and safety conditions can be enhanced by recognizing potential hazards something that significantly reduces the safety and health risks. Most of the potential industry hazards are due to large size of machines, heavy operated tools and complex operation [10]. Authors in [11] identified fungi, bacteria and viruses as biological factors, dust, fumes, heavy metals and smoke as chemical factors and temperature, mechanical vibrations, radiations and noises as physical factors affecting workforce health and safety. Encyclopedia of Occupational Health and Safety (1998) has identified repetitive motion, force, and mechanical vibrations etc. as health affecting causes [12]. Modernization in technology and economic development has also increased the occupational injury rate [13]. All deaths, injuries and diseases are caused due to poor health and safety framework which significantly damages national economy and industry reputation. According to authors in [4] a healthy and safe workplace with very low potential hazards improves significantly the labor efficiency, industry reputation and profits. Authors in [14] also propose that company productivity increases when health, safety, precautionary measures and workforce working conditions are improved.

It is evident that noise has a significantly negative impact on labor's health. It has become an attention seeking issue due to its potential hazards on human health and environment [15]. Noise in a manufacturing industry is generated from numerous sources [16]. Long term exposure to noise leads to psychological and physical stress to human beings [17]. Workforce is more exposed to perils as compared to other people. They may experience physiological problems. Labor may experience severe respiratory problems due to dust and smoky workplace conditions. They are more exposed to

harmful radiations and heavy metals which increase their vulnerability to cancer and reproductive problems [8]. It is found in a study conducted by (NIOSH 2007) that 82% hearing impairment cases were reported from workforce in manufacturing industries [18].

According to authors in [19], the worker who smokes cigarette at work, doubles the severity of different hazards affects, because some of the poisonous constituents found in cigarette tobacco (e.g. benzene) may interact with toxic elements found at workplace while doubling its severity than alone exposure (e.g., asbestos). The heat produced by burning tobacco may also enhance the reactivity and toxicity of other chemicals inhaled. It is found that white collar workers are more exposed to hazards and problems caused by burning tobacco than blue-collar workforce. According to The National Institute for Occupational Safety and Health (NIOSH), working in a place where ventilation is poor or at place where temperature is high, can also be a health hazard [20]. Working in high heat zone can lead workers to suffer from serious illnesses, heat strokes, skin rashes, heat cramps, fatigue and dehydration in labor's body which is fatal in most cases [21]. Authors in [22], investigated work health and safety in cotton ginning industries of Pakistan. The research presented that sustaining crush injuries, injuries due to working at heights, injuries due to collision with electrical objects and vehicles are very common. Authors in [23], showed that exposure to chemicals, risks associated with working at heights, heavy lifting, dust, pressurized devices, excessive, objects falling from overhead, heat, noise, risk of fire and steam are the major causes of health issues [23].

The literature covers sufficient factors of health and safety for labor working in different industries. However, this research work includes more factors, depending upon the condition of H&S in industries of Hyderabad, Pakistan.

B. Labor's Awareness Issues in Industries

The industries are attempting to remain profitable and usually have no moral respect for their labor, which is a key element for their business. In the world of globalization, the labor is still less or not educated hence is less aware of potential workplace hazards. The global occupational hygiene community has worked diligently to develop ways to protect laborers. Also, numerous standards and guidelines have been developed to help them. Laws and regulations may refer to certain standards and compliance with them is compulsory. According to author in [24], occupational injuries are caused when dangerous conditions are consolidated with hazardous activities that start from the deficiencies of people due to lack of knowledge regarding hazards. The lack of knowledge and awareness contributes to 80 – 90% of all industrial accidents. It was observed in a research survey conducted in a manufacturing industry by Kimberly-Clark Professionals in 2008 that 89% of the laborers were not aware about the proper use of personal protection equipment (PPE) and 6 % were reluctant to use PPE which put their lives in danger [25]. Authors in [23], did a comprehensive research on risk assessment in North Cyprus' small and medium sized enterprises. According to their research 75% of laborers were

unaware about existing Occupational Safety & Health (OSH) laws, 3.3 % were fully unaware and 21.7% knew about laws but were unaware about employer obligations as written in law. Moreover, 23% of employees were fully unaware about the problems at workplace that cause serious harm to them. Authors in [26] reported regarding H&S in food production factory Biyagama that nearly 28 % of employees had very low awareness of the importance of H&S at workplace.

Laborers especially in Pakistan are working at low wages most of the time and since they want to earn more, they do overtime duties hence their health is affected. Also, sometimes due to increase in productivity demand and competitive environment, workers experience extra workload which leads them to suffer from stress and depression [7, 9]. According to a survey conducted by Government of Pakistan in 2013, Pakistan has a workforce of 54.9 million and 41 laborers out of 1000 receive injuries every year in occupational accidents. A large portion of the Pakistan workforce is not aware of the proper use of the protective equipment; they have limited awareness and information regarding health, safety, emergency and preventive measures [18]. A survey conducted in Lahore by CIWCE in 2001, found that most of the laborers were illiterate and unaware about protective measures [6]. Another study conducted in Pakistan concludes that on textile industries of Lahore, the laborers are not aware about the significance on H&S. The research further investigated that the workers are not aware about their legal rights. Moreover, the use of PPE was too low at those industries [10]. Pakistan has very poor laws and legislation for H&S and also poor infrastructure to promote it. In industries, many uneducated laborers are being employed regularly. Also, children and women work in the industry while having no basic know how of H&S protection. Hence the toll of injuries and fatalities is increasing. This research investigates the awareness of Hyderabad industries' labor. The investigated figures would help to notify the employers, H&S practitioners, law makers, local, provisional and federal Government regarding the miserable situation of H&S of Hyderabad industries' labor.

III. METHODOLOGY

This study aims to determine potential hazards that affect health and safety of labor in industries of Hyderabad and the awareness of workforce in those industries regarding critical hazards. From literature and safety standards, various critical factors related to health and safety were identified. The factors then were discussed with various field experienced H&S experts of Pakistan for their suitability in industries of Hyderabad. A questionnaire was then designed in order to know the severity of these factors. The data was collected from rich experienced H&S experts and managerial staff in those industries. In order to determine the labor awareness, a second questionnaire was designed. The information was only collected from laborers working in industries and not less than 6 months in same industry. The laborers were asked about the awareness of critical factors obtained from the analysis of first questionnaire in the form of 'Yes/No'. Hence the study investigated the awareness of laborers about the potential hazards that can affect their health adversely.

IV. RESEARCH OBJECTIVES

1. To identify factors influencing labor's H&S of Hyderabad, Pakistan industries.
2. To explore the causes for critical issues of H&S factors for laborers.
3. To investigate the awareness of labor regarding critical causes of H&S factors.

V. DATA COLLECTIONS AND ANALYSIS

For the first round of data collection, 90 questionnaires were distributed among health and safety experts, managerial staff and H&S supervisors of visited industries. Around 65 questionnaires were received that were valid for analysis. A five-point Likert scale was adopted for questionnaire as 1= Not severe, 2 = Slightly severe, 3 = Moderately severe, 4 = Severe, 5 = Extremely severe [27]. The collected data was then analyzed in SPSS 24.0. For the ranking of factors in SPSS, average index technique is used [28]. Figure 1 illustrates the factors with their respective ranking. For the second round of data collection, around 230 laborers from different industries were targeted. They were asked about their awareness of those potential hazards and the consequences on their health.

VI. RESULTS AND DISCUSSION

A. Critical Factors of Worker's Health & Safety

The study highlights the top ten factors as major hazards of H&S for Hyderabad industries. The causes are illustrated in Figure 1 with their respective mean. From the analysis of questionnaire data, "improper PPE use" is top ranked factor with 4.83 mean value. There are several causes. The industries are not focusing on worker's H&S, and mainly ignore the importance of PPE. Also, the safety supervisors are not ensuring that, the laborers have their proper PPE whether they are using it or not. Another important reason in Hyderabad is the lack of safety culture. The second top factor is "Operating machines that are poorly maintained". Most of the machinery is very old in these industries. Employers are not interested to properly maintain those machines. Also, most of the labor is illiterate and have no technical knowledge to handle those machines properly. The third top factor is "Long term exposure to high intensity noise". Sound is the most common issue in every type of industry, however the condition in Hyderabad industries is more critical. The sound level is beyond the maximum allowable range most of the working hours. Also, the noise of various operations is extremely more than the usual due to improper maintenance. Here the proper use of PPE is the only solution, which is already low in such industries. This long-term exposure to sound creates adverse effects on laborers. "Working extended & irregular hours" is ranked fourth. Laborers are forced to work for longer time due to employers' harsh attitude and eagerness to earn high profits. Employers are only interested in their outcome. Also, another major cause is irregular working. When the demand is more, the employers are forcing the laborers to work overtime. The fifth critical factor is "Lack of knowledge of instrument working". This is more common in Pakistan industries, due to

poor laborer education. The laborers are very poor and sometimes agree to work in a tuff environment. The employers

are not giving properly training, and in result many workplace injuries occur.



Fig. 1. H&S factors & their Average Index (A.I) values

“Working near naked electrical wires” is also ranked fifth. “Smoking cigarette in poor ventilated or close room” is the sixth critical factor. These issues are found to be very common. Due to poor planning and monitoring, electrical wires are often spread over the working platform in the industries and workers are not paying attention. Proper ventilation is another issue. Smoking is not prohibited in the industries, and its ill effects are very common to the laborers. “Stress due to workload” is another major cause. Due to large productivity demands from employers, laborers work in extremely stressed conditions. “Exposure to heavy metals”, “Exposure to carbon monoxide” are ranking next. The industries have no proper guidance to labor for working with heavy metals and exposure to smokes

such as carbon monoxide. Thus, they have no knowledge for its ill effects.

B. Worker's Awareness About Critical Causes

It is found from the research that 60.9% of the laborers were not aware about the proper use of PPE. 73.9% said that there is no safety issue in operating poorly maintained machines. 69.6% were not aware about the potential health and safety hazards of high intensity noise. Only 21.7% of the laborers agreed with the point that working extended and irregular hours can cause stress and health problems while 78.3% weren't aware about the stress and its hazards. 89% of the laborers said lack of knowledge regarding instrument working can lead to accident but 11% said

lack of knowledge cannot cause any harm. 69.5% answered that there is no safety risk in working near naked wires. Only 35% agreed that smoking in poorly ventilated zones can lead to accidents and ill health effects. Around 60% agreed that workload can lead to mental sickness. 95.7% of the laborers don't have any knowledge regarding heavy metals & carbon monoxide and its hazards. Table I illustrates the awareness of

laborers for above discussed factors. The study also extended to investigate the awareness of basic elements inside the industry and found that 69.6% of the laborers were not aware of the directions and importance of emergency exit gates. 78.3% were not aware of the meaning of different health and safety symbols posted in their industry.

TABLE I. LABOR'S AWARENESS FOR CRITICAL H&S FACTORS

Awareness Factor	Yes (%)	No (%)
Awareness for hazards of lack of use of PPE	39.10	60.90
Awareness for hazards of Poorly maintained machines	26.10	73.90
Awareness for hazards of long term exposure to high intensity noise	30.40	69.60
Awareness for hazards of extended & irregular working hours	21.70	78.30
Awareness for hazards of Lack of knowledge of instrument working	11.00	89.00
Awareness for hazards of Lack of knowledge of instrument working	30.50	69.50
Awareness for hazards of Smoking cigarette in poor ventilated or close room	35.00	65.00
Awareness for hazards of Stress due to workload	40.00	60.00
Awareness for hazards of Exposure to heavy metals	04.00	96.00
Awareness for hazards of Exposure to carbon monoxide	04.00	96.00

VII. CONCLUSION, RECOMMENDATION AND FUTURE DIRECTIONS

Occupational health and safety is a matter of concern that all manufacturing industries are facing. Accidents in industries are increasing day by day. There are several factors affecting labor H&S. This study incorporates initially the potential factors that affect labor's health and safety issue in Hyderabad's industries and then the labor awareness about those factors. The results showed that, there is absence of PPE among most of the laborers. Employers and their upper staff like managers and H&S supervisors do not ensure that the laborers are wearing their PPE before working. Lack of proper machine maintenance and noise due to various operations are also among the important causes of H&S risk. Laborers are not working proper hours and usually they are lacking the knowledge of different operations and equipment in the industry. The research concludes that, H&S principles are not well integrated in the industries of Hyderabad. The laborers are mostly illiterate and have lack of awareness regarding potential hazards. Also, they are unaware about the most common operations and their effects on H&S. Most of the laborers have no knowledge about basic elements, symbols, arrow directions inside the industry. Due to these causes, H&S issues are arising among the laborers. The issue of H&S of labor in Hyderabad can be resolved by creating proper awareness among labor through guidance, training, seminars, small courses, motivation etc.

The research can be prolonged to investigate further the H&S issues of Hyderabad industrial area. Various data can be collected regarding accidents, injuries, sicknesses and diseases in each industry separately. A comprehensive study can be conducted to resolve each issue exclusively.

ACKNOWLEDGEMENT

The authors are deeply thankful to Mr. Aziz Mahar in helping data collection and conducting interviews from the

industry's labor. We also acknowledge the efforts of Dr. Ashfaq Pathan in directing the research work.

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