Evaluating the Occupational Safety and Health Performance in Pakistan: Evidence from Food Industry

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Abstract: The intent of the present study is twofold; first to assess the level of compliance of occupational safety and health practices and second to measure the perception of employees on occupational health and safety performance of Food sector in Pakistan. An Engro Foods Limited is targeted for this study. Data were accumulated from the workers of Engro Foods in order to measure their perception regarding OSH practices currently running in the company. An instrument used for the sake of data gathering was questionnaire adapted from previous studies and sent to the employees of three cities (Sahiwal, Jhang and Haweli Lakha). The study used descriptive statistics and Pearson correlation analysis. Descriptive statistics highlighted that safety performance of Engro Foods with a mean value of 4.753 showed that safety performance is “fabulous” and Engro Foods complies all OSH standards due to having ISO 18001 as well as employees have positive perception about OSH performance so, no deficiency is found. As far as correlation analysis is concerned, the findings of the study depicted that all the predictor variables are positively associated with safety performance of Engro Foods. But “safety climate” is strongly correlated with safety performance than other variables. The study concludes that as employees are highly satisfied with working environment so Engro Foods Limited keep focusing or more strengthen their policies regarding safety concerns.

Key words: Occupational Safety and Health • Safety Performance

INTRODUCTION

In the early times, employers were not concerned with employee’s safety and health at workplace and not provided them personal protection equipment that prevents them from illness and injuries at site. In countries like U.S where the injured employees had to litigate and get compensation but sometimes it was not enough and it was done due to preventing the employees from being filed a case against employer [1]. International labor organization has been established and it promotes the wellbeing of the employees at workplace, by pursuing the lasting peace and conducive workplace that leads them to prosperity [2] OSHA was passed to prevent the employees from fatalities and serious injuries at work. The OSHA developed OSH administration to set and enforce the protective safety policies and standards at workplace. The OSHA provides a valuable information, training and aid to both employers and workers.

Safe working environment increases the morale of the employees so they can exploit their full potential and provides the improved and better services in terms of productivity; and all of this, could be possible only with proper implementation of safe and sound practices in the organization. Like many developing countries, Pakistan has poor occupational safety and health legislation [3]. So, the injuries and illness rate is very high because thousands of employees are exposed to hazardous chemicals and poor working conditions on daily basis. According to [4] no regulatory body in Pakistan who has effective enforcement policy of legislation and strict instructions on details about ailments and injuries.
As Pakistan has joined WTO, so the foreign investors and the importers required that product should meet WTO standards (ISO). The question arise here is; Does the compliance of occupational safety and health Act leads to prosperity? Yeah, definitely because employees are versatile resource of the organization and conducive working conditions keep them motivated that ultimately leads to success. Do the perception of employees regarding occupation safety and health practices or performance matters a lot? Off course, employees holding positive and negative perception about OSH influence their performance and ultimately the productivity of the company.

The present study contains 8 sections. The 1st section is Introduction that described the history or background of the research and an overview about all sections contained in the paper. Section 2 is about literature review on OSH its evolution and different scholarly studies on OSH across different sectors in different contexts. Section 3 described the research problem that raised the need of this study and objectives that study achieved. Section 4 described the methodological design that has been used in the study, target population, sampling technique, instrument and also data analysis tools. Section 5 discussed the findings of the study. In sections 6, 7 and 8 conclusion was drawn on the basis of obtained results, practical implications and the limitations of the present study have been discussed.

Literature Review: Advanced learner dictionary of Cambridge [5] defines the welfare as “wellbeing”. Welfare is one of the vital aspects of safety and health of the individual. According to [6] safety hazards at workplace is all the work related activities that exposed harm to the worker, including burns, electric shocks, loss of hearing and cuts etc. In 19th or 20th employer had no concern with employee safety and health. With the passage of time, OSH got importance and national safety council had been established [7] and [8] stated that employers are responsible to provide all precautionary measures that ensures their safety and health at workplace. Later on [1] International Labor Organization had been established that worked for employee welfare at workplace.

Numerous scholarly researches have been conducted on OSH in different sectors across different contexts. A study carried out on investigation of construction injuries by Nishgaki in [9] found that major causes of OSH failure are inadequate safety education, inadequate instruction to workers and also found that management commitment plays a significant role in “human ware” problem. Research by [10] showed that management should take active part in safety programs and in the performance evaluation of these programs superintendents plays an important role. Another study [11] found that effectiveness of the safety programs depends upon two-way communication---between workers and managers (safety talks) because sometimes management do not have complete knowledge regarding the true needs of the workers on site.

The injury rates can be reduced by wearing protective clothing and with use of safe equipment and it could be possible when upper management is committed to lower down the injuries at workplace through effective enforcement of policies related to safety concerns. A study conducted by Lin [12] to measure the occupational, safety and health performance of construction companies in Australia. An instrument used for data collection was questionnaire based on six performance levels (sustaining best practice, high level of continuous improvement, committed to improvement beyond minimum regulatory requirements, satisfies regulatory requirements, adequate understanding of duty of caring, awareness of need and in process of changing inadequate understanding of duty of care and total ignorance) and CIDA’s Health and Safety Continuous Improvement Matrix an in order to measure the respondents own OSH performance within their company. The study found that key factors influencing safety performance were; company size and management & employee commitment to OSH.

In [13] chemical industries of India Vinod and Kumar viewed the safety climate factors by using components of principle factors through verimax rotation. Another research carried out by [14] with an aim to assess the perception of safety officers on occupational, safety and health norms in Indian industries. Neural network approach has been used in this research that is effectively measuring the human cognitive process. Data were collected from three major industrial sectors (steel, construction and refractory) through questionnaire survey. The study found the deficient items sectors-wise that are most sensitive i-e injury level and material damage that impose the cost to the company.
Another research [15] on health status and occupational hazards in steel or iron industries of India found that health issues related to gastrointestinal system, musculoskeletal system, hypertension, respiratory system and another minor illness were found to be high among workers. The findings of the study suggested that safe climate is influential to lessen the health related issues and fatalities. While measuring the perception about risk or hazards in chemical industries with an objective of lessen the accident rates, management hazards plans have been proposed by [16].

Every organization has its own policy that should be clear to every worker. It is suggested by Davies and Tomas in [17] that policy statements revealed that how one’s company is arranged with respect to safety and health concerns and also stated that how managers is committed in providing the safety information, give training or safety orientation to new incumbents and arranged safety talks on continuous basis with their employees. It increased the ability of employers and employee to identify the potential hazards or severity of hazards associated with all job positions. Effective health and safety policies provide a clear direction to organizational members to follow. While, impact of ineffective policies is negative on the firms as well as workforce. Therefore, it is vital to understand the need of occupational safety and health at work place and one’s role to make the workplace safer. An occupational risk factors and personal lifestyle interact in several that can heighten the adverse outcomes at work place. So, training is required to address personal health protection at worksite and to safeguards the workers. One of the elements of hazard control programming is OSH training and in (1983) the hazard communication standard required a planned written training statement that showed and described the nature of instruction given to workers related to hazards exposed to him at worksite. The safety performance factors have been proposed by [18] for manufacturing firms through the mean of questionnaire are; safety climate, management of risk at jobsite, management commitment and support, safety training, safety talks and employee safety capabilities.

Risk at work or occupational risk is defined as the probability of occurrence of injury or ailments when exposed to hazards. To predict the risk associated with occupational exposures, advanced statistical methods (logistic regression, generalized additive model, ANN) required putting in use and it could be possible only when quantitative data is available [19, 20] that enable the employer to better manage the risk at workplace. According to Hinze [21] regular meetings must be held at workplace or safety talks in order to highlight the problems related to employee safety and to get the solution by improving the accidental rates or achieved zero injuries at site. But [9] recommended the regular inspection is needed by safety patrols that promote good performance of safety by recognizing the unsafe practices and issues at workplace. Moreover, [22] stated that in order to achieve better OHS standards, sophisticated scheduling is required.

**Research Problem and Objectives:** The need of this study is raised as “human resource is a valuable asset to the organization”[23] but Pakistan has poor occupational safety and health legislation [3] therefore, implementation of safe and sound OSH practices are questionable. The aims of the present study are:

- To assess the level of compliance of occupational safety and health Act by Engro Foods.
- To assess the perception of workers regarding OSH practices in Engro Foods and also finds out the deficiencies therein.

**Research Model and Hypothesis Development**

**Research Model:** On the basis of above literature preventive procedures, safety climate, management commitment, OSH training and risk management (emergency plan) are considered in research model. Fig. 1 indicates that preventive procedures, safety climate, management commitment, OSH policy training and risk management and safety committee have been taken as predictor variables and safety performance of Engro Foods with respect to OSH has been taken as dependent variable.

**Hypotheses:**

**H1:** There is an association between management commitment and safety performance in Engro Foods of Pakistan.

**H2:** There is an association between safety climate and safety performance in Engro Foods of Pakistan.

**H3:** There is an association between OSH policy& training and safety performance in Engro Foods of Pakistan.
**Fig. 1:**

**H4:** There is an association between risk management and safety performance in Engro Foods of Pakistan.

**H5:** There is an association between safety committee and safety performance in Engro Foods of Pakistan.

**Methodological Design**

**Data Collection:** The study focused on evaluating the occupational safety and health performance of food industry in Pakistan. The study targeted the Engro Foods Limited for this study. The close ended questionnaire was adapted on five selected variables that required the workers own assessment on OSH practices in Engro foods. A total of three hundred questionnaires were sent to Engro Foods Sahiwal, Engro Foods Jhang and Engro Foods Haweli Lakh and 212 valid responses were received. All items were measured along 5-point Likert scale (ranging from Strongly Disagree=1 to Strongly Agree=5). A questionnaire contained two sections; Section 1 was based on demographic of workers and section 2 was based on perception of workers on variables (OSH training, safety climate, management commitment, risk management and safety committee). These constructs were further operationalized into items and asked varied range of question on each variable. Safety climate was assessed by 4 questions like---- (adequate climate, proper ventilation, safety signs, personal injuries etc). OSH training was assessed by 3 questions like---- (Engro helps workers for OSH training in-house). Risk management was assessed by 4 questions like---- (Workers are informed about risks associated with their work and how to prevent accidents through written circulars and meetings), safety committee was assessed by 3 questions like---- (company has a safety committee) and management commitment was assessed by 3 questions like---- (Firm commits for well-being of the workers through its health and safety policies along with other HR policies).

**Data Analysis:** The collected data was eventually analyzed by using SPSS software. The present study used the descriptive statistics, regression and correlation analysis for data analysis.

**Reliability Scale:** Table 5.3 is showing the reliability of the scale. Internal consistency of the items in the study was tested and all the variables had Cronbach’s alpha value greater than .7 which showed that scale was reliable. Management commitment, OSH training have highest reliability scores .801 and .791 respectively. Risk management, safety climate and safety committee were the followers with a reliability score of .782, .762 and .756 respectively.

**Collinearity Test:** The table below revealed that tolerance level (> or equivalent to 0.10) and VIF (below 10) meet the rule of thumb, which means no multicollinearity exists between variables. OSH policy& training (T= .530, VIF =1.286) and safety committee (T= .653, VIF= 1.294) were on the top with least tolerance level and VIF. Management commitment (T=.709, VIF =1.410), Safety climate (T=.719, VIF= 1.361) and risk management (T=.733, VIF=1.394) were the followers.
Table 5.4: Collinearity statistics (Engro)

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<tr>
<th>Variables</th>
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<td>Safety Committee</td>
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Descriptive Statistics: The Table 5.5 indicates the mean as well as standard deviation. An important observation was that safety performance of Engro Foods is good enough with a highest mean value of 4.7533 and least standard deviation score .45666 and this is due to what management of Engro Foods showed full commitment (mean score of 4.5627 and .51246 s.d) with wellbeing of the employees through its safety and health policies at site and give proper OSH training (mean score of 4.5462 and s.d .52496) that helped them to prevent from injuries. The Engro Foods provided safe and sound climate (mean score of 4.1657 and S.D .53872) to their workers for this purpose they have a safety committee (mean score of 4.1590 and s.d of .54517) that arranged safety talks on weekly basis in order to manage the risk effectively (mean score of 3.9347 and .57224).

Demographic Information: The respondents were not the same in terms of gender. The male respondents have more strength (N=181) than female (N=19) respondents. The age group of 25-40 years had a higher representation (50.5%) than the other age groups of 40-51 years and above 51 in total respondents of 200. The respondents are from milk procurement, operations, production and engineering department with 17%, 22%, 56% and 5% respectively that took part in the study.

Correlation Analysis: The Table 5.7 indicates the association between predictor and response variable.

Hypotheses Testing

Hypothesis 1: The correlation results reveal the association between safety climate and safety performance with (r = .876) with a significant value (p = .000). It means that safety climate is associated with safety performance of Engro Foods. Safe and sound environment, safety signs, walkways and low personal injuries all these factors are positively associated with safety performance of Engro Foods, Therefore, we accept H1.

Table 5.7:

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<th>Safety Climate</th>
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**. Correlation is significant at the 0.01 level (2-tailed).
Hypothesis 2: The correlation results reveal a positive association between management commitment and safety performance with \((r = .795)\) with a significant value of \((p = .000)\). It indicates that management commitment is linked with safety performance of Engro Foods. But it is less associated with safety performance of Engro Foods as compared to safety climate. Therefore we accept H2 and conclude that commitment of management contributes to safety performance of Engro Foods of Pakistan.

Hypothesis 3: The correlation results indicates that OSH was positively associated with safety performance \((r = .783)\) with a significant value \((p = .000)\). Therefore, we accept our hypothesis H3 based on that there is an association between OSH and safety performance of Engro Foods. It contributes a lot to safety performance, in such a way, training given to the employees related to OSH that helps them in day to day activities in a manner to prevent them from injuries.

Hypothesis 4: Association between risk management and safety performance was also found positive with correlation value \((r = .776)\) and with a significant value of \((p = .000)\). We accept H4 because Engro Foods give OSH training to employees that make them aware to the risk at job position in such a way they are able to manage the confronted risk at work.

Hypothesis 5: The correlation results shows that strong association between safety committee and safety performance was found positive with \((r = .876)\) and with a significant value of \((p = .000)\). Therefore, we accept H5 because it contributes or relates to safety performance of Engro foods.

Summary of Hypotheses: According to correlation table results reveal that safety performance was strongly correlated with safety committee \((r= .876)\) i.e. r-square is 87.6%, P value < 0.01. Meanwhile, safety climate \((r=.868, p< 0.01)\), management commitment \((r =.795)\) and OSH policy and training \((r = .783, p<0.01)\) has positive association with safety performance whereas, risk management has weakest correlation \((r = .776)\) than other predictor variables with safety performance.

CONCLUSION AND DISCUSSION

The employees are the valuable asset to the organization so conducive working environment is needed for good health that ultimately leads towards prosperity. The present study increased our understanding about the occupational health and safety importance at workplace. The mean score indicated the safety performance of Engro Foods is “remarkable”. The correlation findings depicted that all the predictor variables are positively associated with safety performance but “safety climate” is highly correlated among all the variables.

As study has proven that Engro Foods have fabulous safety performance and it complies all occupational safety health standards set by OSHA, workers have a positive perception about Engro Foods provides a safe and sound work environment and no deficiency is found regarding OSH at workplace. Every company has its policy, Engro Foods policy is food safety health environment (FSHE) and management is always focused upon safety concerns of employees so now they are going to take DuPont safety certification and engaged in fulfilling the modules of DuPont. Engro Foods has ISO 18001 (OSH) and they follow the guidelines of ISO, even currently their all operations are ISO certified. To take into account all the safety health issues safety committee allow each department to do safety talk on weekly basis into which they make discussion on how to avoid the last week injuries and prevent them from other injuries that they might confronted into daily basis. Meanwhile, Engro Foods successfully achieve the 15 million safe man hours without any injury that ultimately leading towards the success of the campaign “zero becomes hero.”

Limitations and Practical Implications: The present study is limited to single food company. Future research can be carried on by considering other food companies that increase the validity of current research. Data were collected on convenient basis from three cities or from 1 province which reduces the generalizability of the findings. Future research can be done by broadening their base, means data collected from all provinces in order to generalize the findings. The current research is limited to some variables; future research can also consider periodic plans, injury avoidance and can assess the perception of workers on these dimensions. The future research can also collect the data by using other means like interviews of employees or in case of questionnaire open ended questions can also be added.

Research is focused on occupational, safety and health performance of Food Company. This study is important for future research and also important for stakeholder’s perspectives. There is a gap in this sector of Pakistan because no research has been found in this area. This research provides a valuable knowledge to
Engro Foods on what workers perceive and feel about OSH practices that Engro providing them. By having this knowledge they will be able to further improve their safety practices or more strengthen their safety policies that ultimately increase the morale of worker and they give their best to the company that increase the productivity as well as profitability.

REFERENCES