

Identification of the Factors Influencing OHS Performance in Iranian Manufacturing Companies: A Grounded Theory Approach

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ABSTRACT

Background: Over the last few decades, organizations' productivity and occupational health and safety (OHS) performance have improved as a result of the adoption of innovative manufacturing technologies and new management approaches. Despite these improvements, OHS performance in developing nations remains unsatisfactory, and further research is needed to ascertain the factors that influence OHS performance. The purpose of this study was to determine the factors influencing OHS performance in Iranian manufacturing companies.

Methods: Twelve informants, including OHS inspectors and managers, were interviewed individually for this qualitative study. The interviews were semi-structured, and the data were analyzed using the grounded theory method.

Results: Management commitment, safety culture, OHS training, OHS regulations, economic and political issues, social factors, as well as personal and occupational factors were identified.

Conclusions: The findings emphasize the importance of identifying influencing factors to improve manufacturing companies' OHS performance. Given the limited financial resources available to the companies, government assistance and effective OHS training may help in promoting OHS performance. Efforts to improve safety culture and to enforce OHS regulations may also impact OHS performance.

KEYWORDS: Safety, Training, Technology, Regulation, Grounded theory

INTRODUCTION

The application of novel manufacturing technologies and management approaches has improved manufacturing productivity rates and occupational health and safety (OHS) performance worldwide. However, many organizations in developing countries

still face challenges that hinder OHS performance. The implementation of safety countermeasures has had little effect on reducing occupational incidents in these countries [1], and the frequency of occupational incidents remains extremely high compared to developed countries [2]. Additionally, organizations have become more sophisticated, making it more difficult to identify factors influencing OHS performance, and conventional procedures are inadequate for managing such factors.

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Numerous studies have explored the causes of poor OHS performance in developing countries [3-5]. The majority of the world's population lives in developing countries [5]. Other factors include outdated industrial technology and OHS hazards in agriculture and primary industries [6]. The improper transfer of technologies from developed to developing countries exacerbates OHS problems [7-9]. Given the considerable difference in OHS performance between developed and developing countries, it appears that several factors influence each country's OHS performance.

Previous studies have demonstrated that management commitment, safety communication, employee involvement, safety culture, safety training, and OHS regulation influence OHS management [10-14]. External factors, including socioeconomic, educational, political, cultural, and legal environments, influence OHS performance [15]. Organizations build external and internal protective layers to prevent undesirable events [16]. Furthermore, many macro and micro factors might affect OHS performance [9]. Identifying these factors can help managers and policymakers become aware of the possible risks and take steps to improve OHS performance.

Efforts made by industries are insufficient to enhance OHS performance in developing countries. Analyzing the factors that influence OHS performance enables organizations to assess the effectiveness of their OHS efforts. To the authors' knowledge, few studies have reported such factors in Iranian companies. For instance, a recent study discovered that OHS regulations were not being fully enforced in Iranian manufacturing companies [13]. Additionally, unique factors may affect OHS performance in various companies. Therefore, we conducted a qualitative study with participation of informants from both inside and outside manufacturing companies to identify the factors influencing OHS performance.

MATERIALS AND METHODS

This study was conducted in Iranian manufacturing companies in Western Azerbaijan Province. Twelve informants from outside (three OHS inspectors and two university faculty members) and inside the companies (three OHS managers, two senior managers, and two manufacturing workers) were individually interviewed. The participants were selected based on their familiarity with OHS performance and their prior work experience with the companies. The participants' mean age was 42.83 years (ranging from 38 to 52 years), and their

mean work experience was 17.66 years (ranging from 10 to 26 years). Following a comprehensive review of the literature, an interview guide was developed. The face-to-face interviews were conducted at the participants' workplaces after scheduling an appointment. The primary questions were: What factors from inside and outside organizations can affect OHS performance in manufacturing companies? What are your recommendations for improving a company's OHS performance?

The interviews were digitally recorded and transcribed verbatim. Each interview's data was analyzed immediately following the interview, and new sub-questions were raised and discussed during subsequent interviews. The texts were coded using common coding techniques, including open, axial, and selective coding. Then, the factors that influenced OHS performance were identified. The data were analyzed using the grounded theory method, which is a systematic procedure that enables researchers to develop a theory based on the data [17]. It is a widely utilized technique that employs inductive strategies while analyzing data [18, 19].

The data were reviewed multiple times throughout the analysis to generate categories (constant comparison). The vast majority of participants were contacted to double-check the accuracy of their interviews (member check). Furthermore, triangulation between the study team's researchers and the respondents aided in the incorporation of multiple perspectives during the data gathering and analysis phase to ensure trustworthiness. The study was approved by the UMSU ethics committee. The participants were informed of the study's goal and that their participation was entirely voluntary. They were also assured that the data would be treated confidentially and anonymously.

RESULTS

The data analysis revealed that seven factors influenced OHS performance. These factors included management commitment, safety culture, OHS training, OHS regulations, economic and political issues, social factors, and individual and occupational factors (Fig. 1).

Management commitment

The commitment of senior management was identified as the most important factor affecting OHS performance. The majority of interviewees expressed dissatisfaction with senior management's commitment to OHS. They stated that senior management's belief in OHS and provision of resources are essential for enhancing OHS performance.

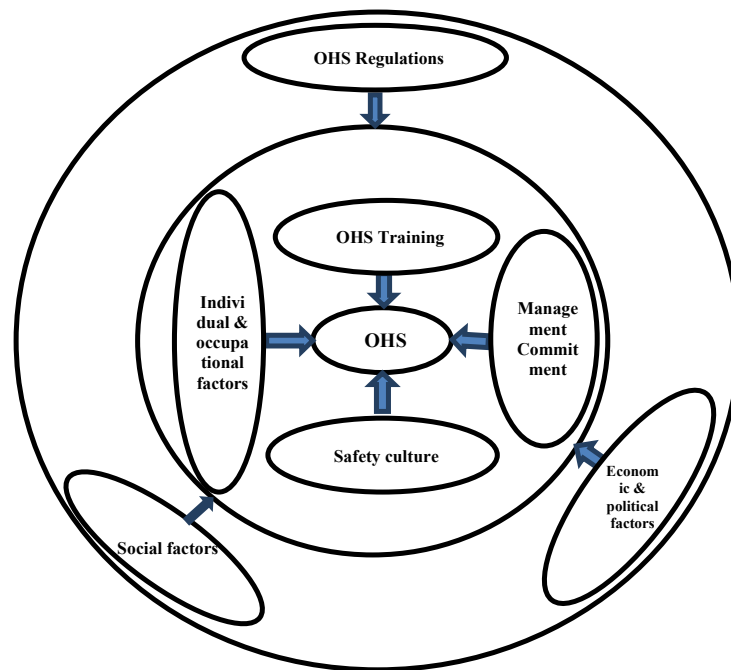


Figure 1. External and internal factors that influence OHS in the companies

“If managers have a genuine belief in their employees’ safety and provide adequate resources for OHS, they will see a positive impact on OHS performance improvement (Participant 12).”

Respondents acknowledged that companies’ OHS performance should be improved, and OHS officers should be empowered to do a better job. Managers should place a higher value on OHS and assign sufficient power and authority to OHS managers. They should also pay close attention to personnel OHS training and updates to rules.

“Managers should support and encourage safety staff to engage in new safety training courses and to share their new knowledge with others (Participant 11).”

Participants cited a lack of managerial support for OHS, providing examples such as inadequate OHS training and lack of financial support for OHS initiatives. Interviewees provided examples of top management’s reluctance to support OHS programs in their companies, such as not empowering OHS managers, a senior manager’s negative attitude toward the effectiveness of OHS programs, managers’ non-attendance at OHS training courses, and a lack of employee support.

OHS training

The majority of interviewees agreed that a lack

of OHS training can impact OHS performance. They emphasized the key role of safety training in promoting OHS performance and preventing workplace accidents. Training should be tailored to the learners’ OHS needs based on their occupational responsibilities. They also noted employers’, managers’, and workers’ lack of familiarity with OHS principles; OHS inspectors’ lack of familiarity with companies’ OHS concerns; and the poor quality of provided training.

“Some workers are unaware of OHS importance, and they should be provided with the appropriate trainings regarding their workplace safety using practical methods and visual means such as films, posters, or animations (participant 1).”

One of the greatest problems in Iran at the organizational level is the lack of OHS training and awareness among management. Given that the sole application of theoretical training is not particularly effective in changing behavior, company managers should believe in the positive impact of OHS training and use effective training methods to empower the workforce.

“Managers have less competence and training in the field of OHS. Some managers don’t have higher education and are unaware of OHS that is a barrier to the adoption of safety principles (Participant 7).”

Safety culture

According to interviewees, fostering a positive safety culture in the workplace could lead to improved compliance with OHS requirements. The majority of interviewees cited companies' low safety culture as a result of inadequate OHS training. Furthermore, top managers are less concerned with promoting a safety culture since they are more focused on increasing the plant's profitability by manufacturing more commodities. One of the participants suggested that managers make improving safety culture a top priority.

"The process of improving safety culture should begin with the company's managers; they must be trained to increase their OHS awareness and demonstrate the positive impact of it in the workplace (participant 8)".

Participants emphasized the need to develop an appropriate OHS culture. Part of this work should be carried out within the factory, taking into account the current culture of the different company units. Efforts to improve the safety culture in the surrounding society can also significantly impact people's attitudes and behaviors regarding safety. However, it should be noted that this is a time-consuming process.

"As we remember, few car drivers have used a safety belt in recent years; however, as part of efforts to enhance the safety culture, this number has increased dramatically in recent years (participants 10)".

Individual and occupational factors

Participants believed that the application of OHS principles is entirely dependent on a person's moral character. A person with a poor moral character cannot genuinely apply safety measures. They believed that people's genuine beliefs about OHS could significantly impact their safety behavior. This belief is usually rooted in individual OHS training.

Appropriate job experience, job security, welfare provision, and workforce motivational incentives are among the identified occupational factors. Employees' knowledge and skills on the job usually improve as they acquire more work experience. Employees will also learn more about OHS through the training provided if a firm considers OHS to be a priority. With a better understanding of OHS, the number of risky behaviors among workers often decreases, contributing to a reduction in occupational accidents.

Participants criticized the workforce's job insecurity,

particularly among workers and company OHS officers. Companies commonly sign relatively short-term job contracts with temporary employees, such as one-month contracts. This circumstance severely impacts workers' mental focus to safely perform their tasks due to the high unemployment rate in the surrounding neighborhood and the fear of losing their jobs. One of the participants described the impact of job insecurity on OHS performance as follows:

"Personally, I do not have any organizational support. I'm frightened of being fired, and I can't insist on OHS nonconformities because I rely on this factory for a living. I ignore the current OHS problems and I have to compromise. If I insist on something, my employer can easily claim that my condition is such, and if I do not accept, he can terminate my contract (participant 8)".

OHS regulations

The majority of participants stated that a major cause of poor OHS performance was the improper enforcement of OHS regulations. The degree to which regulatory requirements are implemented is determined by people's level of participation, which is also influenced by their mentality and level of training regarding the importance of the subject. The level of OHS jurisdiction and the application of legislation requirements are the foundations for achieving intended results and changing human behavior. Companies do not adequately utilize the experience of successful countries in implementing OHS regulations and do not properly implement the requirements of international standards. Inadequacies in OHS legislation, including an improper structure for implementing regulations, lack of enforcement of OHS laws, and outdated OHS rules, negatively impact OHS performance.

"We draw less from the practical experience of successful countries in implementing OHS principles in the workplace. Developed countries have a set of OHS standards that companies must obey. OHS legislation is documented based on some international standards in Iran. However, we face more challenges in enforcing its application in companies (Participant 1)".

Economic and political factors

According to the interviewees' experience, companies are more likely to comply with OHS regulations when the country's economy is strong. Numerous manufacturing companies have been forced to close or operate at minimal capacity due to the poor economy.

Consequently, managers often select and purchase cheaper equipment, significantly impacting workplace safety by reducing reliability. They lack the requisite financial resources to comply with OHS regulations. The lack of government support for production and the improvement of OHS performance exacerbates the situation in such challenging economic conditions.

The hiring of OHS officers, whether permanent or temporary, is influenced by the company's economic situation. Many small manufacturers cannot afford to pay their employees' wages on a monthly basis. Furthermore, this situation has resulted in OHS inspectors applying insufficient pressure to ensure compliance with OHS regulations. Due to their low socioeconomic status, these pressures can lead offenders to dismiss the implementation of OHS requirements.

“Inspectors from OHS authorities who inspect a company have the authority to report OHS deficiencies. Because of the company's specific economic situation, they sometimes disregard the circumstances (participant 12)”.

The government's policies have resulted in restrictions on the import of high-tech production processes and equipment into the country. Consequently, old-fashioned machines with lower safety standards are still in use. Companies have had difficulty importing raw materials or exporting their products due to the political situation.

Social factors

Education, collective will, and the amount of effort people put forward to change and institutionalize OHS regulations in a society determine the degree of respect for these regulations. Community members' knowledge and attitudes influence their acceptance and compliance with OHS regulations. It is important to consider that changing employees' OHS behaviors takes time.

Policymakers and legislators must adopt a positive attitude toward OHS. Additionally, the effort and participation of all individuals are necessary to make significant changes and promote OHS performance. This should be organized and carried out through family and academic training, as well as employee training in the workplace. Participants also attributed the community's success to adherence to regulations, particularly OHS regulations. Due to a lack of respect, improper community routines and habits in the field of OHS have developed.

“Any country that values its citizens will place a higher premium on OHS. I am requesting that our policymakers, lawmakers, and ministries value OHS. Because if they do not value OHS, the lower tiers of society would not value it (Participant 10) “.

DISCUSSION

This study identified safety commitment as an important factor influencing OHS performance. Management commitment to safety is a key factor for the success of safety management [12, 13]. Organizations with committed managers tend to have good OHS performance and the ability to continuously improve it [20-22]. Poor management commitment was indicated by safety managers' lack of power and authority, along with inadequate support for safety initiatives [22]. Managers may not invest in OHS because they doubt it could improve performance. These managers must increase their theoretical understanding of OHS performance and analyze other companies' OHS performance improvements. They can gain confidence in investing in OHS by correctly implementing small initiatives with qualified professionals and tracking their positive impact on OHS performance. Most Iranian manufacturing companies cannot afford such costs due to the economic crisis and sanctions, therefore, government support might improve OHS performance.

OHS training has increased in Iranian manufacturing companies in recent years due to the efforts of OHS authorities. These courses are mainly organized by private training organizations. However, companies, OHS authorities, and trainers often misunderstand OHS training, focusing more on obtaining training certifications rather than their quality or effectiveness.

The training issues could stem from insufficient training or deficiencies in practical workplace training [23]. The main purpose of OHS training is to change employees' knowledge and behavior [24, 25]. Previous studies found that safety-trained employees had fewer accidents [26, 27]. Training sessions often overlook participants' needs, including their exposure to OHS risks. Managers and staff require theoretical and practical OHS training, but organizations are generally unfamiliar with such training [28]. These trainings should be designed with managers' and workers' responsibilities in mind, and with the participation of OHS professionals from inside and outside the company to improve behavior.

Strong firm safety cultures improve industrial safety

performance and OHS management [29-31]. Safety performance is influenced by an organization's safety culture, and a positive safety culture encourages employees to participate in safe activities [32-34]. A poor safety culture in society and inadequate safety training contribute to companies' low safety culture. Training individuals as part of their culture will affect their OHS attitudes, knowledge, and behavior. The way OHS authorities inspect and enforce OHS standards in the community and organizations may also impact how training is utilized. Community leaders in diverse countries prioritize citizens' OHS and work to preserve and improve their health and safety. These activities can be assessed and judged in light of community and workplace OHS advancements. Industrialized societies' efforts have improved OHS performance in recent decades [1]. Consequently, considerable efforts are required to improve companies' safety while providing OHS training to managers and employees. To achieve good OHS performance and institutionalize a positive safety culture in workplaces, long-term efforts are necessary.

OHS regulations aim to improve OHS management and reduce workplace incidents. Iranian companies often manage OHS using a programmatic (traditional) approach to comply with OHS regulations. Previous studies in developing countries indicate that this objective has not been achieved [5, 35]. This study suggests that inappropriate rules, insufficient workplace structure, and inefficient OHS regulations may have caused this failure. Systematic OHS management has also failed to improve OHS performance and comply with OHS regulations [36, 37]. Updating OHS regulations and strengthening their enforcement may improve a company's OHS performance.

Some countries, including Iran, have suffered more from the global economic crisis. Economic restrictions have caused several small manufacturers to close or reduce production. Companies will gain long-term benefits from investing in OHS projects, but this will only be possible if their income surpasses their production costs. Manufacturing managers are hesitant to spend money on OHS due to low profitability, and in some cases, their inability to cover production costs. Additionally, import and export sanctions and restrictions on products and technology significantly impact the operations, revenue, and safe technology imports of manufacturing companies. Policymakers' opinions on importing unsafe technologies without

considering local conditions will affect workplace OHS performance. Therefore, policymakers should evaluate whether workplace reforms will have positive or negative implications.

In 2023, Iran's unemployment rate was 10% [38], while the rate in West Azerbaijan was higher at 14.7%. Consequently, workers often cannot choose their jobs and end up working in unsafe workplaces. Due to poor community safety training priorities, these workers are unaware of their OHS rights at work and are unconcerned about a company's OHS performance, continuing to work even if the environment is unsafe. Under these conditions, government support for manufacturing companies to make workplaces safer, as well as providing social assistance and better insurance, can improve OHS performance.

This study is the first attempt to identify the factors influencing OHS performance using a qualitative approach in Iranian manufacturing companies. Other researchers may find these findings useful if they identify similarities with the context of this study. Although the current study used a small sample size and generalization of the findings to the broader population may be limited, the sample size was sufficient for qualitative analysis, and theoretical saturation was reached. Future research may use quantitative methods to evaluate these findings with a larger sample size. Another limitation was that data collection and coding relied on researchers' judgment. While this may jeopardize the methodological consistency of the analysis, a constant comparative technique was used to reduce bias in coding, conceptualization, and theory development.

CONCLUSION

The findings emphasize the importance of identifying OHS factors to improve OHS performance. Given the present economic situation, government and management support may promote OHS performance in companies. Providing high-quality OHS training could also strengthen managers' and workers' OHS attitudes and behavior. Safety culture improvements both inside and outside organizations can enhance OHS performance in companies, but these changes take time. Enforcement of OHS regulations in manufacturing companies and restrictions on importing unsafe technologies are necessary. The limited research on the factors influencing OHS performance in Iran highlights the need for further studies in manufacturing and other industries to enhance OHS outcomes.

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CONFLICT OF INTEREST

There is no Conflict of interest.

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