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How are Organizations Complying with Health and Safety Regulations? A Content Analysis of Committee for Technical Protection and Health at Work Minutes

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ABSTRACT

The main aim of Occupational Health and Safety (OHS) regulations is providing safe conditions at workplaces. A literature review was indicated that no study has been reported on the implementation and enforcement of the regulation of committee for technical protection and health at work (CTPHW) in Iran. Therefore, this study was conducted to assess how workplaces fulfill the requirements of the CTPHW regulation and prioritization of OHS issues in CTPHW' decisions using content analysis of CTPHW' minutes. In this study, 817 minutes for duration of 2011-2016 were assessed in Iran. The content analysis was used to assess the available documents. The findings of this study indicated that the committees gave more priority to safety issues than others. Administrative control measures were suggested as more prevalent safety measures than engineering measures and personal proactive equipment (PPEs). The qualitative analysis of the data indicated that the minutes of the companies differed in terms of the quality of the writing, assessed OHS problems, and the decisions taken about OHS. The majority of the companies did not fulfill the requirements of the CTPHW regulation in an appropriate manner. This study was concluded that the OHS authorities may help to fulfill the requirements of the CTPHW' regulation and promote OHS status in the companies by training and encouragement.

Keywords: *Qualitative Study, Document Analysis, Content Analysis, Safety, Enforcement*

INTRODUCTION

Occupational health and safety (OHS) laws and regulations have been developed with the ultimate aim of providing safe conditions at workplaces by employers. Compliance with the requirements of these of OHS in organizations [1-3]. For instance, the regulations has been highlighted by both programmatic and systematic safety management approaches for maintaining and promoting the status Iranian regulation of committee for technical protection and health at work (CTPHW) has emphasized that OHS issues are reviewed at least once a month to allow decisions to be made for improving

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the status of OHS at workplaces. Organizations are required to send the records of the committees' decisions to the OHS authorities, including labor inspection offices and health centers [4]. Studies showed that OHS regulations were not fully implemented in various work environments, especially in developing countries [5-6].

The formation of OHS committees in workplaces usually has benefits for organizations. Previous studies showed that the formation of the committees may cause to reduce the lost time injuries [7-8]. Collaboration between managers and workers can be achieved and facilitated through the formation of the committees. Since almost all OHS committees are responsible for conducting inspections and investigating incidents with severe consequences, the committees of the companies with fewer injuries are more likely to be responsible for carrying out OHS practices and training of workers [8]. In addition, good governance of OHS is important for promoting health and protective policies, and OHS committees are also responsible for accomplishing OHS-related tasks in their respective enterprises [9]. The committees are probably the largest program of worker participation in work environments, and there are many supports for this approach to reduce injuries and illnesses [3]. Training, the commitment of senior management, and strong communication can affect the effectiveness of OHS committees to improve safety performance [10]. Given the mentioned benefits, the proper implementation of the rules related to OHS committees can be a great importance in improving the status of OHS in organizations.

Data in OHS management processes including data generated at the time of risk identification and assessment, inspections, audits, the occurrence of occupational incidents, and OHS decisions is created in organizations [2]. The recording of these data can help to maintain OHS knowledge in an organization. Since one of the 17 responsibilities that CTPHW specified for workplaces is monitoring the registration of incidents [4], the problems along with recording and maintenance of OHS data have caused the statistics of work mortalities and injuries to be reported improperly to the OHS authorities. The absence of the OHS committee has resulted in the lack of policies and objectives for promoting OHS in organizations [9]. Given the importance of CTPHW in improving OHS, the review of the existing documentation could lead to the identification of the problems involved in implementing the relevant regulations and providing solutions for improving the implementation of the regulations.

The analysis of OHS documentation in workplaces such as CTPHW-related documents can be done using quantitative and qualitative research methods. Document analysis is a systematic way to evaluate paper and electronic documents for understanding the meaning and acquisition of empirical knowledge. In the process of document analysis, data including excerpts, quotes, or the entire text is organized into topics, categories, and case examples, in particular through content analysis (CA). CA is referred to any technique that is used to draw up a systematic and objective inference of the specific features of a text and the process of organizing information into categories related to the main research questions [11].

Researchers applied CA to convert large volumes of words into fewer content categories based on coding techniques [12]. Qualitative CA is a subjective interpretation of a text through a systematic process of coding [13]. A researcher who decides to perform a qualitative CA can select to apply manifest or latent analysis. Manifest content is the visible and surface content of a text; whereas latent content refers to the interpretation of the underlying meaning of the text [14-15]. Quantitative CA is a research method to count the number of keywords and manifest themes in the content of analyzing text [15]. Downe-Wamboldt stated that describing the number of words (Quantitative CA) is inappropriate and inadequate without sufficient consideration of the content environment of the data (Qualitative CA) [14].

The CTPHW regulation was approved by the ministry of labor and social affairs and the ministry of health, treatment, and medical education which was published in 1995 [4]. To the best of our knowledge, no study has been reported about implementing CTPHW regulation in organizations; enforcing this regulation in various industries, and reviewing the content of relevant documents. Therefore, the purpose of this study was to investigate the content of the CTPHW' minutes using both quantitative and qualitative approaches to discover how to fulfill the requirements of the CTPHW regulation in workplaces, prioritization of OHS issues in CTPHW' decisions, and providing solutions for better implementation of

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the regulation. This study was an example of the implementation of OHS regulations in Iran as a developing country.

MATERIALS AND METHODS

This study was conducted in the capital city of a northwest province in Iran. The existing records for the CTPHW' minutes of 34 active manufacturing companies were examined for the purpose of this study. The majority of the records were gathered from the archives of one of the OHS authorities. The authors were asked the companies for incomplete records and obtained minutes from other enterprises that formed the committees in recent years. The documents were collected for 6 years (2011-2016) in August 2016. The committees were mostly formed in morning shifts, at 10 am and the duration was about 2 hours.

A total number of 5746 (23-550) workers were employed in the companies. Seven of the companies had small (10-50 employees), 19 of them had medium (50-250), and 8 of them had large (250 up) sizes. The 15 companies had a quality management system (ISO 9001), 6 had an environmental management system (ISO 14001), 4 had occupational health and safety assessment series (OHSAS 18001), and 6 companies had no management system in place. The companies were manufactures of food and dairy products, construction materials, gloves, car parts, electric devices, furniture, mattresses, and metal equipment. All companies had employed full or part-time OHS officers at the time of the study.

In the present study, both quantitative and qualitative CA was used to analyze the data. For quantitative analysis, the authors counted the number of technical clauses that were written in the minutes. Next, the contents of each minute were reviewed word by word and the numbers of the most prevalent technical words were counted. Then, the numbers of agreed OHS control measures in the meetings were calculated. In order to conduct the qualitative CA, the minutes were examined more precisely and comparatively to understand the quality of the meetings; the priority were given to OHS in the companies, and latent meaning of the agreed decisions. On average, three hours were spent on the quantitative and qualitative analysis of each minute, and each of the minute was reviewed for 5 times.

The following actions were made to ensure the trustworthiness of this study. All available CTPHW' minutes were collected from the OHS authorities and the companies as well as analyzed the content of the documents using both quantitative and qualitative CA. The application of quantitative and manifest qualitative CA enabled us to count the number of important technical words and analyze the visible content of the minutes. The latent qualitative CA helped us to discover the underlying meaning of the text in relation to the requirements of the CTPHW regulation in the companies. The minutes were carefully re-read several times by the first and second authors and the keywords were identified.

RESULTS

A total of 740 minutes were analyzed for duration of 2011 to 2015 in 34 companies (Figure 1), and 77 minutes for the early 2016 in 22 companies. The highest number of the minutes (n=241) was for 2015 and the lowest amount (n=44) was for 2011. The total number of technical clauses was 5268, with the highest number for 2015 (n=1431) and the lowest was for 2011 (n=383). The most commonly used technical clauses were topically safety-related (n=3032) and the lowest was ergonomic clauses (n=82). The number of technical clauses has been presented in Table 1.

The total number of technical words related to OHS was 4748; with the highest number in 2015 (n=1271) and the lowest number in early 2016 (n=340). The highest number of the words were related to safety (n=1475), and the lowest number of them were related to ergonomics (n=43). The most common safety-related word was fire-fighting (n=438). It should be noted that the number of the ergonomic words was zero in 2011 and 2012 (Table 2).

As shown in Table 3, the total number of agreed OHS control measures was 2553; with the majority of administrative controls (n=1295) and the minority of PPE controls (n=145). The number of routine control measures was 1308 and the number of non-routine measures was 1245. The most commonly used OHS control measures were related to the safety (n=1662) and the least of them were related to ergonomics (n=53). Table 4 presents examples of OHS control measures.

The qualitative content analysis of the minutes showed that 31 of the studied companies applied the format of the labor inspection (in explanation), and three of the companies used their own format (in the abstract format using headlines including actions taken, items in action, and new approvals) for documentation of the minutes. In 15 companies, the number of CTPHW' minutes was low in 2011 and 2012 and had increased after hiring an OHS officer. In four companies, the meetings were held monthly and in the rest of the companies the meetings were held irregularly.

In most of the minutes, the session began with felicitations and condolences on religious and national occasions, and followed by the report on OHS performance of the previous month and the summary of the issues were raised at the previous meeting. Then new issues were examined. A part of a minute that held in a company has been presented here as a sample:

"The 6th meeting of the CTPHW of ABC Company started with the congratulations of Imam Reza (the 8th imam of Shias) by the director of the company to colleagues at the meeting room and the following issues were discussed and finalized. In addition, he appreciated the efforts of personnel to keep production units active during peak consumption time in the summer.

1-The safety officer of the plant gave explanations regarding the safety performance of the factory and follow up with stating the approvals of the previous committees. Fortunately, during the last month no accident occurred at the plant".

The widespread approach to examine the OHS problems and to decide how to deal with them was more reactive and the scarce number of them was analyzed proactively. For instance, the members of the committee assessed one OHS problem as bellow:

"It is stipulated that the HSE personnel carefully monitor, promptly report, and control all HSE-related defects and non-conformities such as leakages".

This study identified that the analyzed cases in the meetings were generally related to the basic OHS practices which should perform in the workplace to manage OHS. However, a few cases regarding accident prevention or investigation of the occurred accidents causes were assessed in the meetings. The investigation committee was formed only in two companies after the occurrence of accidents. Some cases were raised several times in meetings, but no action was taken about them. A considerable part of the meeting's times spent on reporting performed actions related to HSE in the companies.

Most ergonomic clauses were related to micro-ergonomics and few macro-ergonomic clauses were written in the minutes of two companies. Most of the clauses in the minutes of food companies were related to health issues. Periodic health checks were carried out in most companies. Five companies were equipped with emergency and fire-fighting equipment, and only 3 companies had automatic fire alarms and extinguishing systems. There were trained firefighters in only four companies, and five companies conducted fire and rescue drills.

The analysis indicated that the contents of the minutes differed in the companies. The number of minutes and technical clauses in the large public and private companies was higher than in other companies. Some technical clauses of the minutes were repeated in some companies, especially small ones. The training was given more value in state-owned and large companies. Follow-up of the approved clauses in previous minutes was implemented more in state-owned and large companies. The clauses of the minutes in large companies were functional and costly. The state-owned and large companies were given somewhat more priority to ergonomic. The health checks were fully performed in state-owned and large-scale companies including spirometry and audiometry tests. In state-owned and large companies, the follow-up of the approved technical clauses in the minutes was better and faster.

A comparison of the findings of this study with the requirements of CTPHW showed that the problems examined in most meetings were identified based on superficial assessment and the majority of the proposed OHS control measures for resolving them were low cost and temporary methods. There has been no follow up to record and report on occupational incidents, and only events with high severity have been reported, registered, and investigated in some cases. No serious action has been taken regarding the early detection of occupational diseases. In a small number of the companies, retrospective performance

indicators such as frequency and severity rates were used to present the reported accidents, but the direct and indirect economic losses were not calculated. In few companies, policies, objectives, and operational programs were developed on the basis of studies carried out to improve OHS status.

DISCUSSION

This study was aimed to analyze the content of the CTPHW' minutes. The results showed that the CTPHW was not formed in most of the companies, and there were no record in the OHS authority office. Safety issues were the most frequent subjects, as well as administrative controls were the most common measures proposed and assessed to control OHS problems in the meetings. The majority of the companies did not fulfill the requirements of the CTPHW regulation in an appropriate manner.

The findings of this study showed while the CTPHW code has published more than 20 years ago, the requirements of this code have not been well implemented in the companies. The relevant regulations oblige to convene CTPHW meetings in all companies [6]. More than 1000 manufacturing companies were active according to the information obtained from the office of industry, mines, and commerce of the province. It should be noted that the authors did not find any record for the meetings of other industries such as construction, mining, agriculture, and healthcare. The presence of records for only 34 manufacturing companies in the archives of the OHS authority indicated that most of the manufacturing companies did not follow the CTPHW regulations or did not send the records to the organization. In previous studies, weaknesses or deficiencies in OHS regulations, frail regulatory systems, and superficial implementation of them in developing countries were found [16-18]. Lack of enforcement and training, inadequate managerial commitment to safety, a variety of OHS procedures, and poor OHS practices were identified as obstacles to the implementation of OSH requirements in Iran [4-5-18-20]. Hence, the lack of implementation of this regulation in many manufacturing companies may result from inadequate inter-organization or external enforcement, the commitment of managers of the companies to OSH, or the inappropriate culture of safety in the companies. In some industrially developed countries, OSH authorities offer incentives for organizations to form regular and continuous OSH committees [21]. It seems that the lack of interest in manufacturing companies to form the committees can be due to the lack of incentives from the authorities.

The managers' commitment to safety, especially senior managers, has been recognized as an important factor to promote safety in various work environments [22] and manufacturing companies [23-24]. The management commitment must be demonstrated in managers' actions and in the implementation of OHS regulations in an organization [25-26]. Failure to comply with the requirements of the CTPHW regulation may result from inappropriate management commitment and undesirable safety culture of the companies. Previous studies identified that an organization's safety culture usually affects reporting, recording, and analysis of OHS data at workplaces. Effective implementation of safety programs in an organization required employees' understanding of safety culture as an important and valid factor to promote safety [27]. One of the most important controversial approaches for managing safety in organizations was enhancing the safety culture that affects the actions of managers, development, and implementation of safety programs [28]. Ghahramani identified undesirable safety culture in manufacturing companies [19]. Therefore, efforts that were conducted to improve the safety culture of the companies and commitment of their managers to safety may help to increase adaptation with the requirements of the CTPHW regulations.

The increasing number of minutes, technical clauses, and OHS control measures from 2011 to 2015 indicated improvements in the implementation of the CTPHW regulations in the companies. One probable reason might be growing number of OSH officers in companies and their role in justifying the companies' managers regarding the necessity and the importance of convening CTPHW meeting over the study years. Another possible explanation for this might be that the inspection and follow-up processes of OSH authorities improved for the companies. The highest number of clauses, words, and control measures relating to safety can be attributed to the greater importance of the companies to safety affairs. The consequences of safety-related incidents e.g. an accident occur in the short-term, but a long time was required to occur in work-related health problems i.e. musculoskeletal

disorders. A large number of safety-related items indicated that the safety issues have become a priority for the companies and have been more considered by CTPHWs members.

The number of minutes, approved and enforced technical clauses, and the given importance to ergonomics in large companies was much higher and better than other companies. Previous studies identified the differences between small and large companies, such as having limited financial resources and a lack of adequate training [29-31], and a lack of safety officers [32] in the small companies, which led to many problems in safety management and a lower level of safety compared to large companies. It seems that large companies held monthly CTPHW' meetings, sent regulatory documents to OHS authorities, and easily enforce the decisions due to a better economic situation than small companies as well as the presence of a full-time OHS officers.

The identification of a large number of routine OHS control measures, repetitions of items at different meetings, the assessment of basic OHS practices such as recharging fire fighting cylinders and hanging safety posters in the meetings, and having a reactive approach to OHS may be induced by lack of interest to improve OHS. It seems that a meeting was needed when something was done for the first time, and organizations did not have enough experience in that field or there was a need for a meeting to coordinate among members. A possible explanation for this situation might be that the resistance of managers to spend money for OHS or a lack of interest among them for promoting safety and inappropriate culture of safety in the organizations.

The main constraints of this study were the lack of OHS authority's cooperation in the gathering of minutes, which, fortunately, had been resolved by coordinating with another one. The authors tried to gather the records of the committee for all companies from the OHS authority offices, but one of the offices rejected our request, and another provided existing records that consisted of the minutes for 25 companies. Due to the lack of a system for recording OHS data in developing countries, researchers should do their best to collect and analyze data. It should be noted that there were some minutes related to other manufacturing companies, but due to the small number of minutes for each company, the authors decided to exclude them from the analysis. Since, the majority of minutes were in hard-copy format, so performing quantitative CA was relatively time-consuming.

CONCLUSION

This study was a sample for demonstrating the status of compliance with the requirements of OHS regulations in Iran as a developing country. The main findings of this study included the inadequate implementation of the CTPHW regulation in the manufacturing companies and an increase in the number of minutes, technical clauses, and OHS control measures in the companies. The second finding demonstrated an improvement in the implementation of the regulation. Therefore, it was suggested that the OHS authorities should be enforced to increase the compliance with the requirements of this code. The authorities should also be persuaded the companies through training and encouragement to comply actively with the requirements of the code. These efforts may help the companies to assess the OHS problems better than the past and will reduce occupational incidents in the future.

Given the similarities and weaknesses that exist in enforcing OHS regulations in developing world, the problems identified in this study appear to exist in other cities in Iran and even in some other developing countries. Conducting efforts to enhance the enforcement of OHS regulations included an increasing safety culture trend and managerial commitment to OHS, encouraging and supporting, hiring an OHS expert in the companies, continuous monitoring and inspection. These suggestions could be used to change the comprehensive policy for implementation of OHS regulations. OHS decision makers in Iran and even in other developing countries can use the findings of this study to improve the implementation of OHS regulatory requirements and the reduction of occupational incidents in workplaces.

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