

Job Safety Knowledge and Apply Job Safety Analysis for Small and Medium Enterprises

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The Asian Conference on the Social Sciences 2016
Official Conference Proceedings

Abstract

This study aimed to determine the job safety behavior among the employees and employers in small and medium enterprises (SMEs) in order to develop a guideline for the promotion of job safety knowledge and to support the job safety activities in the workplace of SMEs by applying the Hazard Identification Technique in job safety analysis. This study was a quantitative research where an in-depth interview was applied for data collection. The samples consisted of 54 employers and 315 employees in 3 provinces, i.e., Chachoengsao, Chonburi, and Rayong Province. Results showed that the level of safety behavior that had been practiced in the work places was found to be at high level for all 4 aspects, i.e., task and operation, machine and equipment, environment, and safety management. The most supporting factor for safety work in the workplace was the protective equipment that provided by the employers. A training course using 5s strategy was organized in the workplace before and after their daily routine works. The guideline for the promotion of job safety knowledge was developed, which included all organizing activities regarding to the regulation and rule of conducts, promotion activities of job safety, and training program for the promotion of job safety knowledge.

Keywords: Job safety knowledge, job safety analysis, SMEs

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Introduction

The number of injuries or illness from work at workplace during 2009 – 2013 was reduced at decreasing rate. According to statistical data of injuries or illness from work at workplace (Social Security Office, 2014). It has been shown that the total number of injuries was 111,894 in 2013 where as the total number of injuries was 131,826 in 2012, which was equivalent to 15.1 percent in reduction. The number of injuries or illness from working in the workplace was reduced annually at the average rate at 6.7 percent during 2009 to 2013.

The number of injuries from working in the workplace has been classified as severe degree of violation in five years between the year 2009 to 2013, where the most severe cases of injuries were reached at the rate of 70.4 %, which the workers had to stop working for three days. The rate of injury that requires for stop working more than three days was 27.4 %, which revealed that there were fewer cases for the degree of violation in the workplace. Several causes of injuries or illness resulting from working in the workplace, i.e., injuring with cut, wound or stab by objects, struck against objects and falling/slipping down, and lift up/moving heavy things/working, had been reported. These aforementioned data reflect that the problems of safety management in the workplace are still existed. It indicated that the basic step of safety management was inadequate especially in part of hazard analysis and identification.

It has been shown that the proportion of the number of employee to number of injuries from working in the workplace is high in the range of 20 to 99 persons that employed in the workplace, especially at Chacheongsao, Chon Buri and Rayong Provinces in Eastern Thailand (Social Security Office, 2014). Thus, it implies that there is an inadequate of safety management in the small and medium enterprises (SMEs).

However, there are various technical tools available for the application to analyze and identify hazards, where it can help to improve a performance of safety management of the small and medium enterprises. In this study, Job Safety Analysis (JSA), which is one of the hazard and accident assessment tools that can be used to identify and control hazards that may occur in the workplace due to its simple and not complicated.

All data previously mentioned demonstrate that the tendency of number of injuries from working in the workplace is reduced at decreasing rate. The violation and causes of injuries from workplace suggest that the safety management is inadequate especially in the part of hazard identification. It has been shown that the number of employee that injure from working in the workplace is also high in the small and medium enterprises.

Thus, this study was aimed to determine the job safety behavior among the employees and employers that might support the job safety activities of working in the workplace in small and medium enterprises, in order to develop a guideline for the promotion of job safety knowledge and to support the job safety activities in the workplace in small and medium enterprises by applying the Hazard Identification Technique in Job Safety Analysis.

Methodology

The methods that used in this study were the quantitative research and an in-depth interview. The phenomena of the accidental event through the observation that recorded in the numerical ways and through statistical analysis were determined. The constructed self-response questionnaires were sent out to respondents and used the returned complete questionnaire for the statistical analysis of the findings. An in-depth interview was carried out in order to collect an in-depth understanding of job safety behaviors and introduce the information concerning the Job Safety Analysis.

The participants that participated in this study were employers and employees in the small and medium enterprises in Chachoengsao, Chon Buri, and Rayong provinces. The samples were randomly selected in proportion to the population using tables of Taro Yamane with the significance at $\pm 5\%$. The samples consisted of 54 employers and 315 employees for a total number of 369 participants. Those selected samples of the small and medium enterprises were classified by numbers of employee working in the small and medium enterprises, i.e., 1 to 19 employees were named as group 1, 20 - 49 employees were named as group 2, whereas 50 or more employees were named as group 3.

All data from the questionnaires were verified and processed by computer. The descriptive statistical analysis was carried out using frequency, and percentage that described the characteristics of population and sample. Various characteristics, i.e., gender, age, education, the arithmetic Mean, standard deviation were used to measure the level of various factors such as job safety behavior and job safety knowledge. Inferential statistics were set at the significance level 0.05 to analyze the relationship between variables and factors using parametric and nonparametric test.

Results

It was found that the characteristics of the respondents who participated in this study were consisted of 63.9 % male, while the age groups were varied ranging from 62.3% for the age group of 31-40 years old, 17.3% for the age group of 21-30 years old, 16.3% for the age group of 41-50 years old, and 4.1% for the age group of 51 – 60 years old. The educational background of respondents revealed that 43.4% of them finished high school or vocational certificate, while 27.6% of them were holding associated bachelor degree, and 19.2% of them earned bachelor degree. In regarding to their experiences in the workplace, it was shown that most of respondents had 1-5 years of experience (35.5%), where 27.1 % of them had been working in the workplace for 6 – 10 years, whereas 27.9% of them had been working in the workplace for 11 or more years.

The level of job safety behavior of employees and employers that had been practiced in the workplaces was considered in four aspects, i.e., task and operation, machine and equipment, environment, and safety management. The study was found that the level of job safety behavior that related to the task and operation could be rated into three levels, i.e. 50.1 % of respondents were at the very high level, 28.5% of respondents were at high level, and 9.2% of respondents were at the moderate level. The level of job safety behavior that related to machines and equipments was also rated into three levels, i.e., 36.9 % of respondents were at the very high level, while

33.1% and 16.5% of respondents were at high and moderate levels, respectively. The level of job safety behavior that related to the environment in the workplace was similarly rated into three levels, i.e., 35.2% of respondents were at the very high level, while 32.5% and 21.7% were at high and moderate levels, respectively. The level of job safety behavior that related to safety management in the workplace was rated into three levels, where 37.4%, 33.3%, and 14.6% of respondents were rated at the very high, high, and moderate levels, respectively. In summary, the level of job safety behavior that related to all four aspects could be similarly rated into three levels, where 40.7% of respondents were at the very high level, while 32.8% and 17.3% of respondents were at high and moderate levels, respectively.

The general practice of employees regarding to the safety behavior in the workplace could be considered as five steps of practice, i.e., study working manual before working, warn and advise colleagues to be aware of the importance of safety, use only the provided safety devices, do not work when knowing that he or she is not ready to work, and must be careful when approaching to a running machines.

It was found in the additional study that the level of attitude of self protection for job safety in the workplace could be rated into three levels, i.e., 48.2% of respondents were at a very high positive level, 39% and 14.6% of respondents were at high positive and moderate levels, respectively.

The level of safety knowledge of respondents was also rated in to three levels, i.e., 35.8 % of respondents were rated at a very high level, 29.8 % and 19.5 % of respondents were rated at high and moderate levels, respectively.

According to the list of supporting for job safety in the workplace provided by employers, it could be considered and assigned into five steps, i.e., providing protective equipments in the workplace for employees, providing of training program for job safety in the workplace, apply 5'S strategies (Screen, Systematic, Spotless, Sanitary, and Self-discipline) in order to facilitate the work of employees, providing suggestion boxes concerning the safety in the workplace, and organizing a sign / label / poster slogan contest on safety in the workplace.

In regarding to the guideline for the promotion of job safety knowledge, it could be listed in several ways, i.e., organizing activities regarding to the regulation and rule of conducts, organizing activities to promote safety workplace, organizing training program for promotion of job safety, where conversation security, suggestion safety activities from employees, and observed risky behavior of employees were included.

Discussion

Job Safety Analysis is a technical method that can lift the operation of the workplace to safety operation as possible. Job Safety Analysis is a simple activity, and its basic purpose is to search and identify the hazard trend that may occur in each working stages. This technical analysis is focused on accidents that has not been regulated as hazardous and can be occurred among the worker, machinery / equipment, and environment. In order to eliminated or reduced risk, it is advised that a solution that can correctly improve the working process in the workplace and transfer the safety knowledge to all workers as much as possible.

In Modern JSA, the Job Safety Analysis is not only focused on the search for any harm that is likely to cause an accident. Job Safety Analysis is used in an analysis of other hazards, such as chemicals, dust, atmospheric conditions, and information in the physical sciences. It is used for the executive to urge the regulations of the organization. This is agreed with other studies done by Kittiporn (1994) and Sirijharunwongse (2011), which show that job safety analysis could be benefit to the managers of the workplace. It is a beginning stage of safety management and is led to determine the measure that suit to the existing accidents. Using job safety analysis can make supervisor and employees know more about safety practices, hazards that are hidden in each activities, and operations to eliminated or reduced the hazards. In order to help workers to be accustom to a safety practice and treat it as a routine job, it is recommended that all workers should participate in job safety management, build and improve all activities to be more efficient, more safety operation, and develop more positive job safety attitudes of employers and employees.

The job safety analysis can be done with five steps of activities. The first step is the selection of the job to be used in the hazard analysis, where and the selection is done by job priority ranking. The second step is to break down the job into a sequence of step, where an analysis of identified potential hazards is done in the third step. The fourth step is to determine a preventive measures to overcome or protect the hazards that may occur and to consider for any methods to be used to eliminate and reduce hazards, while the fifth step is to provide the job safety standard documents and organize a training on job safety behavior and observation.

Conclusion

It was shown that the job safety analysis of the small and medium enterprises was led to the development of measures to eliminate or reduce the hazards inherent in working conditions or the environment, and how to prevent hazards. The level of job safety behavior of employees and employers that had been practiced in the work places was considered against four aspects, i.e., task and operation, machine and equipment, environment, and safety management. It was found that the level of job safety behavior was rated at high level for all aspects. General practice for the safety behavior in the workplace of employees was developed and distributed to all of them. The level of attitude of self-protection for job safety and the level of safety knowledge was found at a high positive level for most of respondents. Employers should provide protective equipment, training program, provide suggestion box, organize a poster slogan contest on safety in the workplace, and apply 5'S strategies to support the job safety analysis activities of employees. The guideline for the promotion of job safety knowledge has been developed and distributed among all members in the workplace.

Acknowledgement

This research was funded by Rajabhat Rajanagarindra University, Thailand

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