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Issues and Challenges in Implementation of Occupational Health & Safety Management System in Manufacturing Industry

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ABSTRACT

Objective: This paper is to determine the correlation between issues and challenges in implementing the Occupational Health and Safety Management System (OHSMS) in manufacturing industry.

Method: A cross-sectional study was carried out randomly to 205 workers in manufacturing industry using a self-administered questionnaire. The data were analyzed for descriptive statistics, reliability and correlation between variables using Pearson's correlation and ANOVA test.

Result: The results shown that (i) there were significant association between all issues and implementation of OHSMS in manufacturing industry ($p < 0.001$), (ii) there were significant association between these challenges; "too costly/limited resources/lack of capital"($p < 0.001$), "legislation on the environmental issues lags behind other countries" ($p=0.001$), and "improvement of safety and health is costly"($p=0.05$) towards OHSMS implementation, and (iii) there was a significant and positive correlation between issues, challenges and implementation of OSHMS in manufacturing industry ($p < 0.001$).

Conclusion: Therefore, issues and challenges towards implementation of OSHMS should be addressed as it plays a significant role in establishing good safety system in manufacturing industry.

Keywords: *occupational health and safety management system; manufacturing industry; ISO45001*

1. Introduction

The number of organizations certified with Occupational Health and Safety Management System (OHSMS) has increased significantly in recent years (Shari and Soebarto, 2014). All the certified organizations have decided to comply with this system due to the benefits of occupational safety and health performances in their organization. The OHSMS is useful in assisting the organization to control the occupational safety and health risks, as well as, to boost the operation and productivity. The most decent OHSMS practices by various organizations worldwide are the ISO 45001. The standard has been implemented in diverse workplaces to help the management identify and control hazards and risks. In recent research shows that the OHSMS play a basic role in addressing occupational safety and health challenges, improving worker safety, reducing risks at workplace and creating safer working conditions (Podgórski, 2015).

Despite major contribution by OHSMS in the workplace, the organization should aware on the issues and challenges that may persist towards the implementation of the system (Simon et al., 2013). As many employees do not put safety and health at the workplace as their priority, thus, underestimate the impacts of OHSMS to the organization.

In addition, top management support and commitment significantly affects the implementation process; documentation, education and training through lead by example and good communication are the ingredients of a substantial OHSMS (Santos et al., 2013).

Manufacturing industry is essential for a country economic development. It employs a massive labour force, processing bulk of items and producing vast commodities and products. Over the time, manufacturing industry has contributed a significant economy impacts, but parallel increased in number of occupational accidents, injuries and fatalities. It has been reported that the fatality rate in manufacturing industry at Malaysia is 3.3 percent higher compared to other industry (Nielsen, 2014).

Workers safety and well-being are the responsibilities of all employers as they are the resources to keep running the economy and productivity. The implication of higher number of accidents in the workplace, not only to the health, also, increased of insurance premiums, medical fees, compensation and obstruction of on-going project in the production line (Rajaprasad and Chalapathi, 2015).

Thus, the aims of this paper is to address the following research questions; (i) What are the issues and challenges in implementing OHSMS in manufacturing industry? (ii) How the issues and challenges of OHSMS associated to the implementation of the system? and (iii) How strong the correlation between issues, challenges and implementation of OHSMS in manufacturing industry?

2. Materials and Method

A cross sectional study design was carried out in October 2018 among manufacturing industry workers in Klang Valley, Malaysia. This research was conducted in a cement manufacturing company and it is already implemented OHSMS standard. A series of questions was asked and scored based on the answers given. In this research, the sample size taken is 205 respondents. The respondents were randomly selected from all division in this company and the demographic as in Table 1.

2.1. Procedures

The questionnaire was divided into four sections which are (i) respondent's demographics, (ii) the implementation of OHSMS, (iii) issues in implementing OHSMS and (iv) challenges in implementing OHSMS in manufacturing industry. The items in the scales were scored using a Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree) and were calculated using Karasek's recommended format (Karasek, 1985).

The first section consists on the information of sociodemographics which comprises of gender, age, nationality, age, race, working experience and academic background.

The second section is viewing the perception of the employee towards the implementation of OHSMS in the organization.

The third section asked about the issue faced by the organization in implementing OHSMS. The issue highlighted were (i) availability of knowledge regarding OHSMS to all works, (ii) OHSMS is viewed as add-on, not a compulsory, (iii) the organization's resistance to implement OHSMS, (iv) pay attention only to technical aspects of OHSMS, and (v) lack of motivation to achieve the objective and target of OHSMS.

The forth section focusing on the challenges faced by the organization comprises of the following; (i) high cost/limited resources/lack of capital, (ii) legislation on environmental issues lag behind other countries, (iii) lack of knowledge (in-house skill), (iv) lack of awareness among the organization, and (v) improvement of safety and health is costly.

2.2. Statistical Analysis

Data entry and analysis were undertaken by using the IBM Statistical Package for Social Science (SPSS) Version 22.0 (Armonk, NY, USA: IBM Corp). The data were checked for completeness and examine for parametric distribution. The data found were calculated for Geometric Mean (GM) and Geometric Standard Deviation (GSD).

Descriptive statistics were calculated to represent the mean and standard deviation of the exposure data. Pearson's correlation coefficients were obtained to

evaluate the correlation between issues, challenges and implementation of OHSMS.

The data were further analysed by using ANOVA to find the relationship between issues and challenges on the implementation of OHSMS.

3. Results

3.1 Respondent's demographic

Table 1 shows the socio-demographic of the respondents. A total of 205 workers in this company had involved in this study. As the company has established an OHSMS standard, all of the respondents have been involved in OHSMS briefing, training and process at their respective divisions.

Table 1: Socio-demographic of the respondents

Variable	Category	Frequency (%)
Gender	Male	164 (80.0%)
	Female	41 (20.0%)
Nationality	Malaysian	204 (99.5%)
	Non- Malaysian	1 (0.5%)
Race	Malay	187 (91.2%)
	Chinese	1 (0.5%)
	Indian	14 (6.8%)
	Others	3 (1.5%)
Academic background	High school	102 (49.8%)
	Diploma	27 (13.2%)
	Bachelor's Degree	64 (31.2%)
	Master's Degree	7 (3.4%)
	Others	5 (2.4%)
Involved in OHSMS training and process	Yes	205 (100%)
	No	-

N=205

3.2 Relationship between Issues and OHSMS Implementation

Table 2 shows the relationship between the issues and implementation of OHSMS in manufacturing industry. From the table, the ANOVA analyses show that there were significant association between all issues and implementation of OHSMS in manufacturing industry ($p < 0.001$).

Table 2: Relationship between Issue and OHSMS Implementation

Issues	**Response**	**Mean (SD)**	***F***	***P value***
Availability of knowledge regarding OHSMS to all workers	Strongly disagree Disagree Moderate Agree Strongly agree	18.00 (5.20) 17.48 (3.37) 18.59 (3.59) 19.96 (3.53) 22.50 (5.12)	8.62	<0.001
OHSMS is viewed as add-on, not a compulsory	Strongly disagree Disagree Moderate Agree Strongly agree	19.00 (3.92) 18.49 (4.24) 18.00 (3.13) 19.75 (4.14) 23.07 (3.97)	6.03	<0.001
The organization resistance to implement OHSMS	Strongly disagree Disagree Moderate Agree Strongly agree	18.64 (4.39) 17.34 (3.34) 18.56 (3.21) 20.04 (4.43) 22.75 (4.56)	6.15	<0.001
Pay attention only to technical aspects of OHSMS	Strongly disagree Disagree Moderate Agree Strongly agree	19.10 (3.21) 18.22 (4.37) 18.40 (3.12) 20.23 (4.19) 20.68 (5.17)	3.06	<0.001
Lack of motivation to achieve the objectives and target of OHSMS	Strongly disagree Disagree Moderate Agree Strongly agree	19.00 (4.30) 17.91 (3.50) 18.45 (3.80) 19.51 (3.65) 22.27 (4.76)	6.16	<0.001

N=205

3.3. Relationship between Challenges and OHSMS Implementation

Table 2 shows the relationship between the challenges and implementation of OHSMS in manufacturing industry. The ANOVA analysis shows a significant association between "too costly/limited resources/lack of capital", "legislation on the environmental issues lags behind other countries", and, "improvement of safety and health is costly".

Table 3: Relationship between Challenges and OHSMS Implementation

Challenges	Response	Mean (SD)	*F*	*P value*
High cost/Limited resources/Lack of capital	Strongly disagree	17.46 (3.57)	6.51	<0.001*
	Disagree	17.26 (3.24)		
	Moderate	18.98 (4.01)		
	Agree	21.00 (3.51)		
	Strongly agree	20.25 (4.04)		
Legislation on environ-mental issues lags behind other countries	Strongly disagree	18.29 (3.15)	5.21	0.001*
	Disagree	17.57 (3.16)		
	Moderate	18.60 (4.05)		
	Agree	20.83 (3.14)		
	Strongly agree	19.75 (4.40)		
Lack of knowledge (in-house skill)	Strongly disagree	16.00 (1.55)	1.81	0.127
	Disagree	18.48 (3.71)		
	Moderate	18.99 (4.29)		
	Agree	19.90 (3.69)		
	Strongly agree	19.72 (4.42)		
Lack of awareness among the organization	Strongly disagree	19.20 (4.19)	1.66	0.161
	Disagree	17.74 (3.68)		
	Moderate	19.27 (4.19)		
	Agree	19.71 (3.76)		
	Strongly agree	19.58 (4.51)		
Improvement of safety and health is costly	Strongly disagree	19.08 (4.17)	2.42	0.05*
	Disagree	17.98 (3.84)		
	Moderate	18.74 (4.09)		
	Agree	19.96 (3.80)		
	Strongly agree	20.56 (4.18)		

*N=205, *significant, p < 0.05*

3.4. Correlation between Issues, Challenges and OHSMS Implementation

Table 4 and 5 shows a significant and positive correlation between issues and challenges towards the implementation of OHSMS in manufacturing industry.

Table 4 Correlation between Issues and OHSMS Implementation

	Mean (SD)	R	P value
Issues	18.95 (3.94)	0.46	<0.001*
Implementation	19.11 (4.04)		

**, p-value was less than 0.001, α = 0.05,R = 0.46*

Table 5 Correlation between Challenges and OHSMS Implementation

	Mean (SD)	R	P value
Challenges	31.47 (5.96)	0.31	<0.001*
Implementation	19.11 (4.04)		

**, p-value was less than 0.001, α = 0.05, R = 0.31*

4. Discussion

The availability of OSH knowledge to all workers is the first element measured in this study and it is significantly related to OHSMS implementation as stated in Table 2. Awareness and knowledge are crucial to sustain the implementation of OHSMS. The lack of knowledge may happen because of lack of consultation and involvement in the OHSMS practices. Thus, the top management should actively encourage the participation of all workers on risk assessment activities, hazard identification, application of hazard control and emergency preparedness and response, as this may enhance the awareness on the responsibilities in OHSMS (Abad et al., 2013).

Lack of motivation among the workers may give impact to the OHSMS implementation. The policy will be difficult to enforce without the support and expertise among the team members. Due to that finding, it is important to establish as a positive motivation among employees and interactive communication should be applied towards a success OHSMS implementation. Communication and consultation among members may improve knowledge, create strong relationship and trust. This is a recipe to a success of OHSMS (Ghahramani and Summala, 2017).

To address the views of employees as OHSMS is just the add-on or 'accessories' to the company, the support from top management in terms of commitment, accentuate on the significance of OHS through leading by example and effective OHS communication is important. The behaviour of senior management team may lead to a smoother implementation of the policy (Chris et al., 2014).

From Table 3, the most emphasized challenges in OHSMS implementation were "high cost" and "improvement of safety and health is costly". Ghahramani and Summala (2017) mentioned that it is essential to calculate the cost in the early stage of the project. The analysis should consider on the size of the organization, the complexity of the project and the existing atmosphere of OHS implementation. The largest item in the cost of OHSMS is the administration cost comprises of the payroll of OHS Representatives and materials or equipment. As well, the cost may increase during the period of implementation; training, internal auditors, external audit and certification (Rzepecki, 2012). Michael and Leonard (2013) found the importance of cost sustainability to implement the OHS system. The organizations will be difficult to set-up and continuously improve the system if there is a short supply of money. The issue on job health and safety including hygiene environment costs money.

Also, the findings in Table 3 found that the success of OHSMS may significantly depend on the compliance of the organizations towards environmental and safety related legislation. Many manufacturing companies decided to implement the OHSMS for various reasons, such as decreasing the risk of failing to comply with the legislation. OHSMS builds a solid baseline for the organization to sync the OHS legislation to its workplace environment. The policy will address the need of the organization to fulfil the required legislation (Edwards et al., 2013). In accordance to that, it is crucial in manufacturing industry to employ a specialist or competent person to handle the implementation of OHSMS especially to obligate the regulations (Bevilacqua et al., 2016).

As this study has revealed a significant relationship between issues and challenges, as stated in Table 4 and 5, any organization should put OHSMS as their top priority. It is essential to ensure all issues and challenges in OHSMS implementation to be address accordingly, so that; the elements of OHSMS can run smoothly (Palačić, 2016). Through implementation of the system, the organization may potentially reduce the number of accidents in the workplace, as less accidents, the company may save more in financial because low medical and compensation claims. The organizations that have a greater stability are the result of hazard controlling and risk elimination (Gianni, M., & Gotzamani, 2015).

In other perspective, the OHSMS will urge the management of the organization to conduct periodically-based health monitoring among their workers especially in manufacturing industry. This is because in adverse working conditions, the manufacturing workers will expose to various hazards such as metallic dust, noise and environmental temperature. It is therefore important to implement health monitoring based on important physiological parameters such as heart rate, blood pressure, and body temperature (Xu et al., 2016).

5. Conclusion

In conclusion, the study has clarified that issues and challenges have significant roles toward the implementation of OHSMS in manufacturing industry. Hence, by managing the issue and challenges factors, there would be a better implementation. It is recommended that the appropriate occupational health and safety system and procedures must be establish, enforce and adhere to in order to assure the preservation of a safety measures and human life at the workplace.

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