

The Study on The Level Of Workers Compliance With Safety and Health Requirement at The Forest City Construction Site.

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Abstract: The construction industry is a very well-known and very important industry in the field of employment to build development in Malaysia. In the construction industry, the field of employment can be categorized as dangerous due to the accident rate that occurs in the construction industry which recorded an almost high percentage worldwide. Accidents in the construction industry, it is often associated with the attitude of carelessness and negligence in safety and health at a construction site, worker performance, no discipline, neglect training and awareness programs that lead to increased accidents at construction sites. This study aims to identify aspects of the safety of workers on construction sites, analyze the level of compliance work at construction sites and recommend methods to reduce accidents due to causes of the accident at the construction site Forest City, Johor. Among the methods used in this study is the method of questionnaires and interviews with officials involved. The results of the data obtained through questionnaires and interviews showed that the level of compliance of worker safety practices at construction sites in Forest City was in a satisfactory and controlled condition. To overcome the level of compliance with workers at the construction site is to provide exposure and training workers on safety at construction sites to ensure that workers are more concerned about personal safety on construction sites.

Keywords: Compliance, Worker, Safety and Health, Site, Construction

1. Introduction

The construction industry is a very well-known and very important industry in the field of employment to build development in Malaysia. Furthermore, the industry can generate the economic progress of the country. In the construction industry, the field of employment can be categorized as dangerous due to the accident rate that occurs in the construction industry which recorded an almost high percentage worldwide. According to [1] the word danger means high risk of accident and unsafe

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in terms of the condition of workers or equipment such as electric shock or exposed or contaminated chemicals. However, safety and health issues that often occur in the past are due to uncontrolled construction activities and cause an important issue because it involves the surrounding community. The accidents can adversely affect the contractor and its commitment to implement measures against the worker and the employer of its workers. As a result of the Ministry of Human Resources, in 2015 recorded a higher fatal accident rate of 4.84 compared to 2014 which was 4.21. According to [2], the construction sector has recorded 99 death rates in 2016 causing various factors. Four factors affect the safety and health of the behaviour, awareness, safety and management [3]. Organization management plays important roles in terms of worker safety performance. Besides, workers awareness and behaviour regarding safety requires a commitment from the company.

Occupational Safety and Health (OSH) is a multidisciplinary discipline dealing with the safety, health, and wellbeing of workers at work. It is also known as Occupational Health and Safety (OHS), Occupational Health, or Occupational Safety. OSH also helps to protect members of the general public who could be affected by the workplace and environment. There are various hazards in the workplace including chemicals, biological agents, physical factors, poor ergonomic conditions, allergens, a complex network of safety risks and various psychosocial risk factors. In Malaysia, the Ministry of Human Resource's Department of Occupational Safety and Health (DOSH) is in control of ensuring the safety, health, and welfare of workers in both the public and private sectors. The Department of Occupational Safety and Health (DOSH) is responsible for enforcing the Factories and Machinery Act of 1967 and the Occupational Safety and Health Act of 1994. The responsibilities of OSH is assessing working conditions, developing, supporting, and facilitating policies to avoid accidents and diseases, delivering OSH information to employers, workers, and the general public, providing medical evaluations, and reviewing the effectiveness of occupational health initiatives.

2. Literature review

Practice at the construction site is a practice carried out by the workers in terms of behaviour or actions. It also can serve as an example to wear PPE such as safety, hats, and safety shoes is a practice in which it will become a habit that must be made. Safety is defined as the measures taken by an individual to prevent injury, accident, and death. It is an important thing to be practised in the activities performed by workers on construction sites. Therefore, safety is also very important to be maintained to avoid accidents or injuries occurred at work. Labour is called workers working for a company or industry. It does not apply to employers or management. There are many workers on construction sites and various types of races, not only Malaysians but also Bangladeshis, Myanmar, Nepalese and so on. Among the acts involved are Occupational Safety and Health Act 1994, Factories and Machinery Act 1967 and the Occupational Safety and Social Act 1969,

Aspects of worker personal safety consist of Personal Protection Equipment (PPE) in important facilities within the construction site for the safety of workers. It consists of helmets, earplugs, safety shoes, gloves and face and eye protection (goggles). Every worker must wear Personal Protective Equipment while on the construction site which has been enforced in the Occupational Safety and Health Act 1994. According to Section 31 of the Occupational Safety and Health Act 1994 [6], a safety and health officer has to ensure the safety and health of workers at the construction site in a controlled manner, monitor the situation at the construction site whether workers are safe or in poor health and resolve problems that occur at construction sites that are problems of workers who do not comply with the rules and so on. As for safety policy, it is to ensure that the construction site is in good condition and controlled to prevent accidents or injuries. Moreover, in terms of knowledge is every worker should be given skills and training in the work of handling machines and chemicals. Where workers know how to use tools on construction sites to prevent accidents. Therefore, the construction site should have safety inspections to monitor the situation at the construction site whether in a controlled or uncontrolled state and solve problems that occur at the construction site. Next, the worker's behaviour while working is an act performed either in obedience

to instructions or non-compliance. it refers to the discipline of each employee while on a construction site.

According to [8], stated that the CIDB has monitored the level of compliance of the construction companies involved in the two construction either following the acts and regulations that have been set. Furthermore, each worker must comply with the procedures that have been established during the construction site. Management must ensure that every worker complies with safety rules and acts. Besides, workers who do not comply with safety rules will be fined for the offence committed. According to [9] of DOSH, in Butterworth, some workers do not comply with the guidelines prescribed rules. Thus, there were deaths at the construction site involving 11 deaths and 17 fatal accidents. As for the situation at the construction site, it is in unsatisfactory condition.

In the construction industry, acts or regulations have been enforced on construction sites for workers. The causes of accidents occur due to the behaviour or negligence of workers on construction sites while doing work. Among the causes of accidents that occur are from the attitude of workers who take easy on safety at the construction site and do not wear Personal Protection Equipment such as safety shoes, safety vest and so on. Therefore, the occurrence of accidents at construction sites such as falling objects, ordinary injuries, stepping on sharp objects, being hit or affected by the movement of machinery and so on. Hence, the employer should provide safety training for all workers, keep the workplace clean, maintain the equipment and tools and follow OSHA guidelines and report any dangerous working conditions.

3. Methodology

This section describes the methodology for studying the level of compliance of employee safety practices at construction sites. This study was conducted using qualitative and quantitative methods. Qualitative and quantitative methods will be supported through surveys from the literature review, problem statement and objectives of this study. Besides, in this chapter, the researchers can determine the problem statement is happening at the construction site, and it also helps researchers get the data and information obtained to help with the proposals on the study area. In the construction industry, acts or regulations have been enforced on construction sites for workers. However, there are a handful of employees who do not think about safety without complying with or following the rules that have been set. The effectiveness of safety can be achieved through practice or action. According to [10], the practice is practice on a construction site safety plans, training and education, assembly safety, personal protective equipment and safety checks on site.

3.1 Methodology flowchart

Before starting this study, researchers need to plan a work flow chart so that it can be completed well and the existence of this flow chart can help researchers to get a lot of ideas in terms of generating data. Therefore, the flow chart should be followed by a plan that has been given. Each flow chart starts at the beginning and ends. The following is a flow chart of the study conducted:

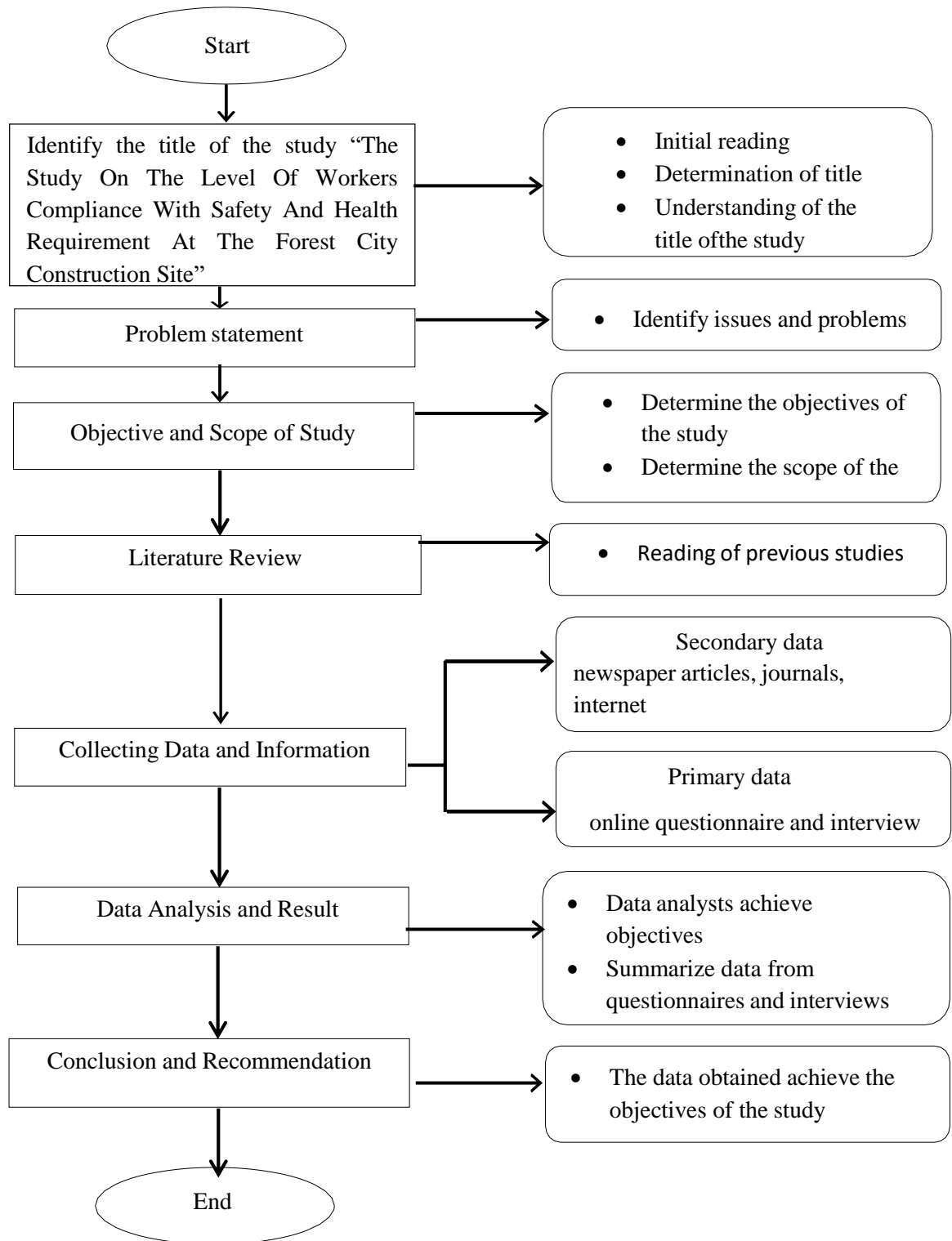


Figure 1: Flowchart research

3.2 Data Collection and Information

The collection of data and information consists of several types of data and information among them in terms of methods that will be selected according to this study and the data obtained. Among the data and information that will be obtained through online questionnaires and interviews conducted on the parties involved in the construction site.

3.3 Primary Data

Primary data were obtained through online questionnaires and interview methods. The distribution of this questionnaire was distributed to the respondents which are project managers, site managers, safety and health officers, site engineers, safety and health supervisors 'site and site supervisors in Forest City, Johor. For the questionnaire, it is divided into four parts, namely part A for personal information, part B for information on identifying aspects of personal safety of workers at the construction site, part C for information identifying the level of compliance of workers at the construction site and part D for information studying the causes of the accident at the construction site. This method can obtain data on the safety and health aspects of workers, the level of compliance of workers and the causes of accidents at construction sites. According to [5], a questionnaire was given to the representative of the safety officer responsible for safety at the construction site.

Interview methods were conducted to achieve the objectives of this study to strengthen the data obtained from the questionnaire. Interviews were conducted with four authorities, namely project managers, safety and health officers, safety and health supervisors 'site and site supervisors. According to [5], an interview was conducted against officers of the department in charge of construction for the construction of the safety and welfare of the workers according to safety standards and procedures.

3.4 Secondary Data

Secondary data is obtained through the results of reading sources that are a literature review. This literature review involves reading materials such as journals, newspaper clippings, accident reports and through websites on the internet. The data obtained will be used to help to achieve the set objectives. As a result of data retrieval and readings on aspects of worker safety, level of worker compliance and causes of accidents at construction sites that result in worker safety practices being complied with or not complied with.

3.5 Analysis of Average Index

Based on the responses received by the respondents using the average index for calculating the overall average level of compliance with worker safety practices at construction sites through questionnaires and interviews that have been conducted. This formula was introduced [10] as shown below in equation (3.1) which will be calculated:

$$\text{Average Index} = \frac{\sum(ai.xi)}{\sum xi}$$

Where: ai = total frequency for respondents

Xi = number given for each factor by the respondent

i = the number of targeted respondent is 1,2,3,4 and 5

For the average low, it shows the most important factor in the data [10] have created an evaluation group ranking for the average index according to the following classification:

Table 1: Group rating of average index

No.	Scale	Achievement value
1	Do not agree	$1.00 \leq \text{Average Value} \leq 1.50$
2	Disagree	$1.50 \leq \text{Average Value} \leq 2.50$
3	Moderate agree	$2.50 \leq \text{Average Value} \leq 3.50$
4	Agree	$3.50 \leq \text{Average Value} \leq 4.50$
5	Strongly agree	$4.50 \text{ Average Value} \leq 5.00$

4. Analysis and Result

4.1 Data Analysis

Data analysis is the data collected through the respondents involved. Methods of data analysis were performed using questionnaires and interviews. This chapter discusses the safety of workers on construction sites.

4.2 Background of Respondents

Based on the information respondents in Forest City construction sites, Johor shows were for the work on this construction site more men than women with the percentages of 80.6% and 19.4%. Besides, according to the age of workers working on construction sites in the range of 25-29 years old with a percentage of 12.9% compared to the age of 30-34 years old with a percentage 32.30% and 35 years and above with a percentage 80.6%. On a construction site, there are many workers of the Malay race, with a percentage of 83.9% compared to 16.1% Indian workers. Therefore, among the respondents involved according to the position are comprised of safety and safety and health officers, site engineers, site managers, safety and health supervisors site, site supervisors and technicians. The highest percentage by post is the post of safety and health officer with a percentage of 25.8%. Therefore, based on the experience of respondents in the highest industry is 6-10 years of experience with a percentage of 48.4%

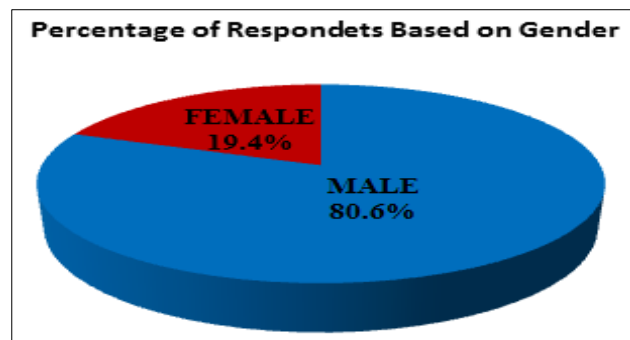


Figure 1: Percentage of respondents based on gender

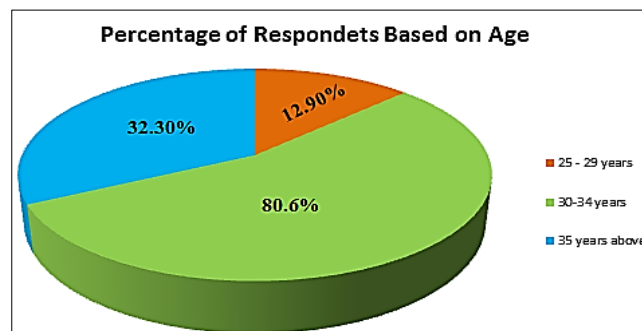


Figure 2: Percentage of respondents based on age

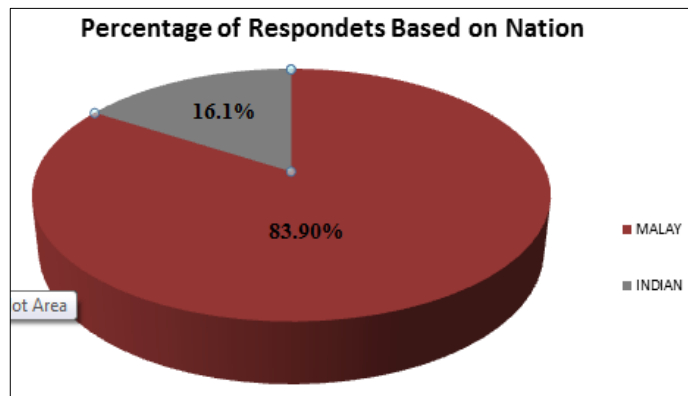


Figure 3: Percentage of respondents based on nation

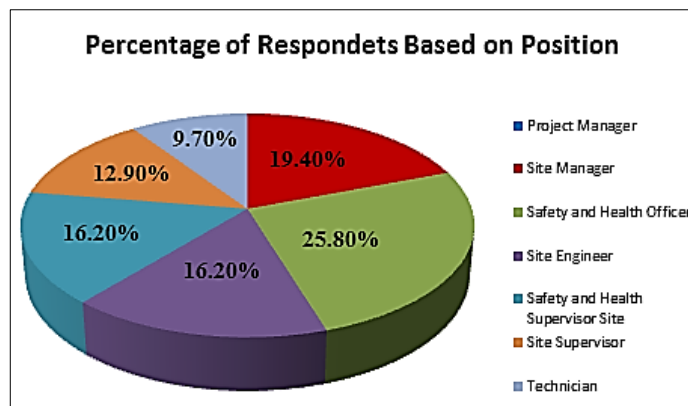


Figure 4: Percentage of respondents based on position

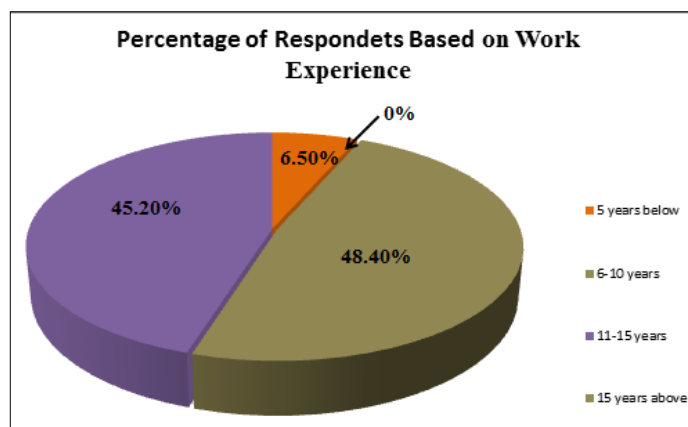


Figure 5: Percentage of respondents based on work experience

4.3 Aspects of Personal Safety of Workers on Construction Sites Forest City, Johor.

Based on figure 6, shows the mean score for the personal safety aspects of workers at construction sites. The highest mean score is 4.06 of respondents stated satisfactorily for doing toolbox meeting before doing the work at the construction site. Therefore, the mean score for placing safety signs at construction sites is 4.03 and it is satisfactory. Where, it shows that in terms of operating machine or machinery at the construction site, workers already have those skills. Therefore, for the other mean score according to the eight questions, some stated very satisfactory related to the aspect of the personal safety of workers and some stated moderate base on this data. That means, have some construction sites in Forest City do not have such problems and the workers are well taken care of and following the rules that have been set.

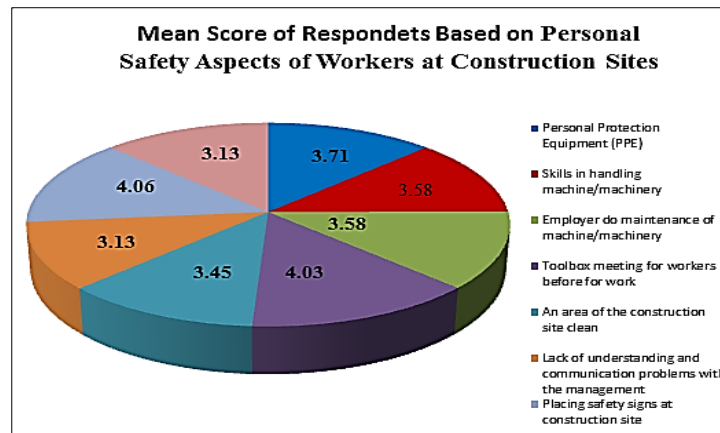


Figure 6: Mean score of respondents based on personal safety of workers at construction sites.

4.4 The Level of Compliance of Workers at The Construction Site of Forest City, Johor.

Overall, the highest mean score is 3.91 of respondents stated satisfactorily for training and exposure to the use of machine/machinery at the construction site. Therefore, figure 7 shows that the mean score for three questions that got the same value is 3.81 and it is satisfactory. It is shown that for the question for workers are given training and exposure to the fire training, the employer inspects the work of the sub-contractor following the act and regulations and employers monitor worker safety measures are same value based on feedback from respondents. Therefore, for the other mean score according to the eight questions, some stated very satisfactory related to the level of compliance of workers is satisfactory based on this data. That means it shows that the level of compliance of workers at the construction site is in a situation good and controlled. Furthermore, most workers at the construction site follow the procedure and Act that be set.

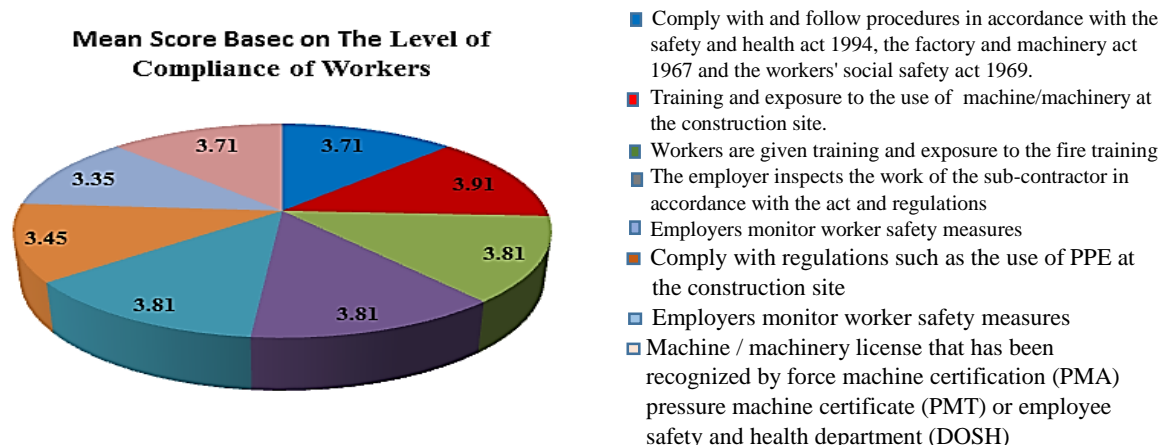


Figure 7: Mean Score of Respondents Based on The Level of Compliance of Workers

4.6 The Causes of Accidents at Construction Sites

Analysis part D refers to the answers given by the respondents according to the circumstances or the situation at the construction site Forest City, Johor. This is the case; this study was conducted by researchers to study the causes of accidents at construction sites that it has a minor injury, major injuries and death. Besides, it can also determine the safety and health of workers at the construction site whether or not they comply with the rules and acts that have been set. Based on the diagram below, the highest percentage of minor injuries is 41.9% compared with the percentage of major injuries is 38.7%. Also, there is a percentage of 16.1% said the negligible injuries. One respondent stated that deaths were occurring at construction sites with a percentage of 3.2%. This is the case, the data show that at the construction site Forest City only minor injuries.

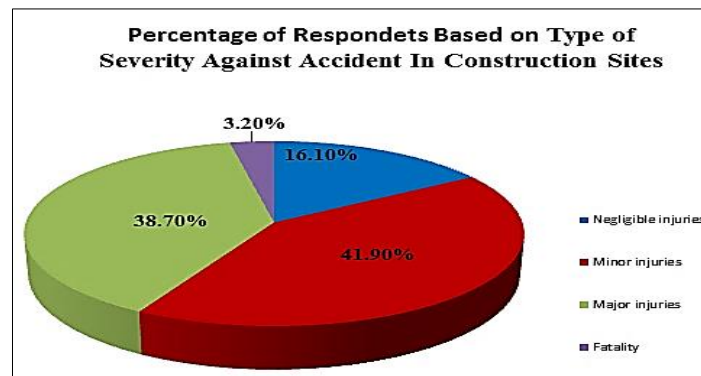


Figure 8: Percentage of Respondents Based on Type of Severity Against Accident in Construction Sites

4.7 Interview Session

The interview method was implemented via message by interviewing four respondents consisting of site managers, safety and health officers, safety and health supervisors site and site supervisor in Forest City. Interview with the first respondent, the Site Manager, he stated that at the construction site he will hold a 'toolbox meeting' on safety every week. Each worker is required to attend the briefing at 8.00 am. Besides, workers who do not comply with safety regulations on working hours, workers will be fined according to the offence committed. Also, at the construction site, he held a fire drill and workers were required to attend the training. During fire drills, workers must move according to a pre-determined emergency route with rapid movement. This training is conducted to train workers to be more sensitive to the environment in the event of a fire.

Summary based on the interview with the second respondent as a Safety and Health Officers. Based on the interview, according to him, the safety and health practices of workers at the construction site are conducive and clean working environment conditions. Besides, in terms of the level of compliance with worker safety practices at construction sites, some workers do not comply with the rules that have been set such as not wearing personal protective equipment (PPE) while doing work until an accident. Moreover, most foreign workers find it difficult to understand the instructions given by the authorities and still commit the same offence repeatedly.

Furthermore, a summary of the interview of the third respondent as a Safety and Health Supervisor of the construction site. According to him, the safety and health of workers at the construction site is the main thing and it is very important to comply. Workers do not underestimate the importance and safety of construction sites. The most common mistakes made by workers are the use of personal protective equipment (PPE), where they take it easy on the use of PPE such as not wearing a safety hat, safety harness and so on while doing work on the construction site. However, it can be controlled and monitored in good condition.

Interviews fourth is Site Supervisor. According to him, the practice of safety and health on construction sites is the actions or act done by the worker or the employer. Safety means precautionary measures against oneself and others to prevent accidents at construction sites. Therefore, safety practices cannot be implemented if the employer does not provide basic facilities such as personal protection equipment (PPE) and so on. However, the situation at the construction site is still controlled by the authorities to prevent and reduce the occurrence of accidents. Practice safety of workers should be improved and should be given exposure to workers about safety.

5. Conclusion

As a result of the data and information obtained, it shows that the safety aspects of workers at the Forest City construction site are in good condition and monitored by the authorities. Overall the data that have been evaluated, many expressed satisfaction from the aspect of worker safety at the construction site. In addition, in terms of the level of compliance of workers at the Forest City

construction site is satisfactory where workers are still compliant with the rules and regulations that have been set and it is still controlled by the authorities. Overall from the data and information obtained by the respondents, it shows that the causes of accidents are due to the careless attitude of workers towards safety at the construction site, not wearing Personal Protective Equipment (PPE), slipping at work and so on. In addition, some respondents stated that there were deaths at the construction site. Thus, the levels of accidents found at construction sites were minor injuries, major injuries and deaths according to different construction projects in Forest City. As a result of the interviews with the respondents, the suggestions given by the respondents are that employers should pay attention to the safety of workers on construction sites in terms of worker compliance, provide exposure to workers on training or skills on safety on construction sites to reduce accidents.

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