

## **Knowledge, Attitude and Practice (KAP) Towards Safety Harness Usage Among Workers While Working at Height In A Low-Rise Construction Site**

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**Abstract:** Unsafe behaviour and a lackadaisical attitude toward safety are unquestionably to blame for the fact that Malaysia's construction industry's safety record has not improved in recent years. Workers' awareness of safe behavior varies, and the social effects were tied to workers' productivity, social well-being, including safety and health. The ideas of safety behavior and safety culture as they are used in the Malaysian construction sector are not well understood due to a lack of consistent inspections. The aim of this study were to determine the level of knowledge, attitude and practice towards safety harness usage among workers at construction site and to determine the statistical different of socio-demographic factors (age, nationality, work experiences) on knowledge, attitude and practice of using safety harness among workers at construction site while working at height Plus, to recommend good safety practices of using safety harnesses among workers while working at height. The instruments used for this project is the questionnaire form. The collection of data and findings from the questionnaire are analyzed using descriptive data analysis and a one-way ANOVA test. Insights gained from this study will allow for the identification of worker knowledge, attitude, and practice regarding safety harnesses when working at height, as well as the promoting a best safety practices. The findings of this study highlighted there is a significant between knowledge and practices toward age group and work experiences, meanwhile there is no significant between attitudes and the nationality of workers. The foreign workers need to be provided with the appropriate training so that it can align with their knowledge and practice towards safety harnesses usage while working at height.

**Keywords:** Safety Harness, Foreign Workers, Construction Site, KAP

## 1. Introduction

Construction industry is considered one of the most hazardous industries because of the high number of injuries and fatalities. Scaffolding is often used in the construction industry as a temporary platform to help workers do their jobs at height. Using temporary scaffolds to raise work floors and guide rails to a safe height is one of the most basic ways to stop accidents. The most common kind of accident that happens when people do their jobs while working at height is that they fall. It is essential to prevent accidents involving falling from height to significantly minimize the incidence of accident. According to the most recent available data, there are a total of 65 people employed by the company. Of the total manpower, 40% are local workers, while 60% are foreign workers.<sup>[1]</sup>

### 1.1 Problem statement and objectives

In this quantitative survey, general workers on the construction site are required to wear safety harnesses when working with scaffolding and working at height. However, most of the time, it was found that they didn't wear it correctly which these result other consequences that can lead to fatality. The objectives of this study are:

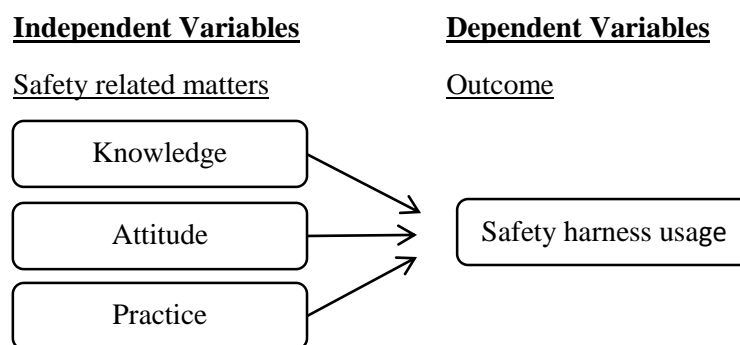
1. To determine the level of knowledge, attitude and practice towards safety harness usage among workers at construction site.
2. To determine the statistical different of socio-demographic factors (age, nationality, work experiences) on knowledge, attitude and practice of using safety harness among workers at construction site while working at height.
3. To recommend good safety practices of using safety harness among workers while working at height.

## 2. Materials and Methods

Research planning was done at the early stage of this study and proceed with research design and analysis.

### 2.1 Materials

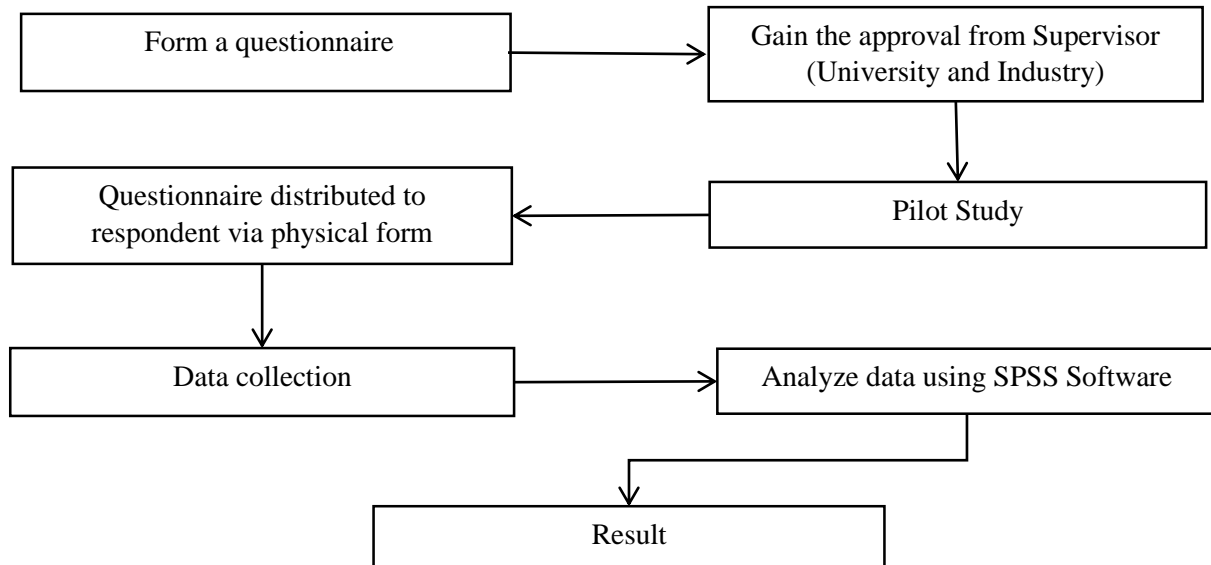
Past study, journals and research was gathered to get better understanding of this study specifically in construction industry. It is all related to the issues with knowledge, attitude and practice among workers that working at height. The main purpose of this conceptual framework is to pinpoint the independent variables and dependent variables. The independent variables is related to knowledge, attitude and practice and the dependent variables is the outcome of the safety harness usages among workers while working at height. This conceptual framework will be the foundation for both method that will be used and the data that will be analyzed. Figure 1 shows the conceptual framework of this study.



**Figure 1: Conceptual framework**

## 2.2 Methods

The study population and the method to gather data was discussed with supervisors. To achieve objective 1 and 2 a set of questionnaires that contain knowledge, attitudes and practices question towards safety harness usage while working at height was distributed to supervisor (local) and workers (foreign) respectively. The data then analyzed using IBM SPSS Statistic software to achieve the objectives of the study. The research flowchart been shown in Figure 2.



**Figure 2: Research flowchart**

## 3. Results and Discussion

The result from the survey conducted as well as the analysis and discussion will be discussed in this chapter. There are 2 types of analysis including descriptive analysis to the level of knowledge, attitude and practice towards safety harness usage while working at height and a one-way analysis of variance (ANOVA) in socio-demographic factors knowledge, attitude and practice towards safety harness usage while working at height. The questionnaires distributed to all contractors and employees. 86 sets of questionnaires from supervisor and workers in the company was collected.

In order to achieve both objective via questionnaires, gaining questionnaire's approvals from both university and industry supervisors was done to identify whether the questions for workers are suitable for this study. In this study, a physical survey form was distributed.

A pilot test was done to 10 employees with 10 years work experiences in construction industry of this company. The reliability test is analyzed via Cronbach Alpha. The result of employee's questionnaire is 0.92. The value is accepted and can be used for actual study due to its excellent reliability.<sup>[2]</sup>

After pilot test was done, the questionnaires were given by hand to the supervisor to distribute to their workers. The data collection period for this study began in August 2022. In order to get results from this proposed study, collected data was analyzed statistically using IBM SPSS Statistics once the questionnaires are handed completely.

### 3.1 Results

The data was collected via physical survey form from the supervisors and general workers who is performing their works at height construction site at PNB-Look@118. The questions that were included in this survey form were purely focused on the knowledge, attitude and practice among workers at construction sites had regarding the usage of safety harnesses while working at height. Data were collected and analyzed using IBM SPSS Statistic, the outcome is the level of knowledge, attitude and practice among workers towards safety harness between workers is significant. Proven by descriptive analysis that have been conducted.

Table 1 shows the overall descriptive analysis showing mean value of 4.39 which interprets high, indicating that the respondents have a general knowledge of PPE when entering the construction site, receive adequate training on safety harness usage, and are aware of the significance of wearing a safety harness while working at height as well as the importance of safety harness maintenance.

**Table 1: Descriptive analysis for knowledge**

Knowledge	N	Mean	Std Deviation	Interpretation
<b>Overall</b>	56	4.39	0.51	High

Table 2 shown the overall descriptive analysis showing mean 1.29 which interprets low, indicating that the entire item of safety attitude receives a low interpretation, which indicates that the respondent has a negative feeling. The respondents have a strong disagreement with the negative attitude that has been stated. This is because the attitudes section of the questionnaire focuses more on questions that focus on the negative.

**Table 2: Descriptive analysis for attitude**

Attitude	N	Mean	Std Deviation	Interpretation
<b>Overall</b>	56	1.29	0.44	Low

Table 3 below shown the overall descriptive analysis showing mean 4.64 which interprets high. The respondents practice the safe work safe work method by following a requirement which is mandatory to wear safety harness during working at height.

**Table 3: Descriptive analysis for practice**

Practice	N	Mean	Std Deviation	Interpretation
<b>Overall</b>	56	4.64	0.51	High

A one-way analysis of variance (ANOVA) test was performed in order to determine whether there are any statistically significant differences in socio-demographic factors on knowledge, attitude and practice of using safety harness among workers at construction site while working at height. If the value in p is equal or less than 0.05, there is a significant difference on the dependent variable for each of the two groups. If the value is above 0.05, there is no significant difference between the two groups. The null and alternative testing hypotheses for this study were ( $H_0$ ), null hypothesis is the sample means between groups are equal. Meanwhile, ( $H_a$ ), alternative hypothesis is the sample means between group are not equal.<sup>[3]</sup>

Table 4 shows the total of 22 questions in the questionnaire, p value of knowledge segment questions are more than 0.05, interprets that there is no significance difference between the knowledge and practice towards the age group and work experiences of respondents. Meanwhile, there is a significance difference between the attitude and the nationality of respondents due to the p value is less than 0.05.

**Table 4: One-way ANOVA test**

Dependent Variable	F	p	Significant Difference
I agree that wearing safety harness with properly hooked prevent from falling while working at height.	0.41	0.66	No
I rarely hook my safety harness lanyard because it restricts my movement.	4.30	0.04*	Yes
I practice a safe work method by following a requirement which is mandatory to wear safety harness during working at height.	1.67	0.10	No

\*Significant level at  $p < 0.05$

#### 4. Conclusion

The findings from the study shows that the respondent's nationality influences their attitude. This can be proven after the data collected and a one way-ANOVA test conducted. From the questionnaire, the level of knowledge, attitude and practice of workers towards safety harness usages during working at height are significant.

Overall result of descriptive analysis shows that level of safety harness usage among workers at construction site was in high level of knowledge. The employees are positive with the knowledge of safety harness usage while working at height. They are also more likely exhibit safe behaviour and practice a good safety culture while working at height.

The other analysis is a one way-ANOVA test. The result turns out that there is no significance difference between the level of knowledge with age group and practice with workers work experiences. However, there is a significance difference between the level of attitude with the nationality of respondents. Although, it is important for the workers to get an adequate training before working at height to prevent any related accident such as falling from great height. Due to a variance of nationality, the supervisor should remind their workers the important of safety when it comes to working at height. Knowledge of each workers towards safety harness usage are significant because its then followed by their attitude and practice and could be implemented into their daily practice in maintaining safety and health when working in high places. A good attitude will also prevent from less data accuracy due to human errors. The workers will get to attend adequate training's relevant to their job scopes, as a safety system could identify the relevant training's for them as well.

A similar study could be conducted with a larger sample size in order to achieve better results. In continuation of this research, a study should be conducted on adequate safety training for workers in high-risk workplaces.

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