A Cross-Sectional Study on Behaviour-Based Safety (Bbs) Among Workers in A Construction Site

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Abstract: Malaysia's new behavior-based safety (BBS) programme focuses on risky conduct. Malaysia's building industry executed and sustained the initiative. This study identified behavior-based safety among construction employees at Package Bus Depot Serdang, found a correlation between general necessity for behavior-based safety and awareness of it, and suggested ways to improve implementation. Methodology: The cross-sectional study identified characteristics linked to behavior-based safety among workers at the Package Bus Depot Serdang building site (BDT202) by surveying relevant personnel. The questionnaire covers socio-demographic background, behavior-based safety awareness, and general equipment. August–November 2022 saw this study. Findings: The study analyse data and questionnaire survey results. The SPSS analysis and 100% respondent rate were the findings. Age, gender, status, education, weight, height, BMI, nationality, and race were analysed. Methodology described data normality test, descriptive analysis, reliability test, and Spearman correlation coefficient. General workers were 95% BBS-aware. The outcome suggests workers understand BBS.

Keywords: Behavior-Based Safety (BBS), General Workers, Bus Depot Serdang (BDT202)

1. Introduction

Behavior is defined as whatever a person does or says. Behavioral actions or responses are actions or reactions of people or things in responseto external or internal stimuli. Various studies have been done on the notion of reasoned action during the last decade.

1.1 Problem statement and objective

Behavior becomes the main problem contributing to accidents at the workplace and 80% to 85% of the accidents and injuries at the workplaces are caused by unsafe acts (Heinrich (1959). A person's behavior is very difficult to control in terms of maintaining safety at the construction site. This research project will be focused on the behavior of an workers at Package Bus Depot Serdang construction site.

The objectives of this study are:

- To identify behavior-based safety among workers in a construction site at Package Bus Depot Serdang
- To identify correlation between general requirement for behavior-based safety and awareness of behavior-based safety.
- To recommend improvement in the implementation of behavior-based safety among workers in a construction site at Package Bus Depot Serdang

1.2 Expected Outcome

The expected result of this study is that the gap maintains the performance of employee behavior at work and fosters the spirit to maintain good behavior.

2. Materials and Methods

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

2.1 Materials

To better comprehend this study, which is focused on building sites, previous research, publications, and studies were obtained. Everything has to do with the problems with behavior-based safety, BBS, etc.

2.2 Methods

The data collection strategy and research population were addressed with the supervisors. A series of questionnaires was given out to the intended respondents in order to accomplish the specified objectives. To accomplish the study's goals, the data were then examined using IBM SPSS Statistic software. The following is the research flowchart:
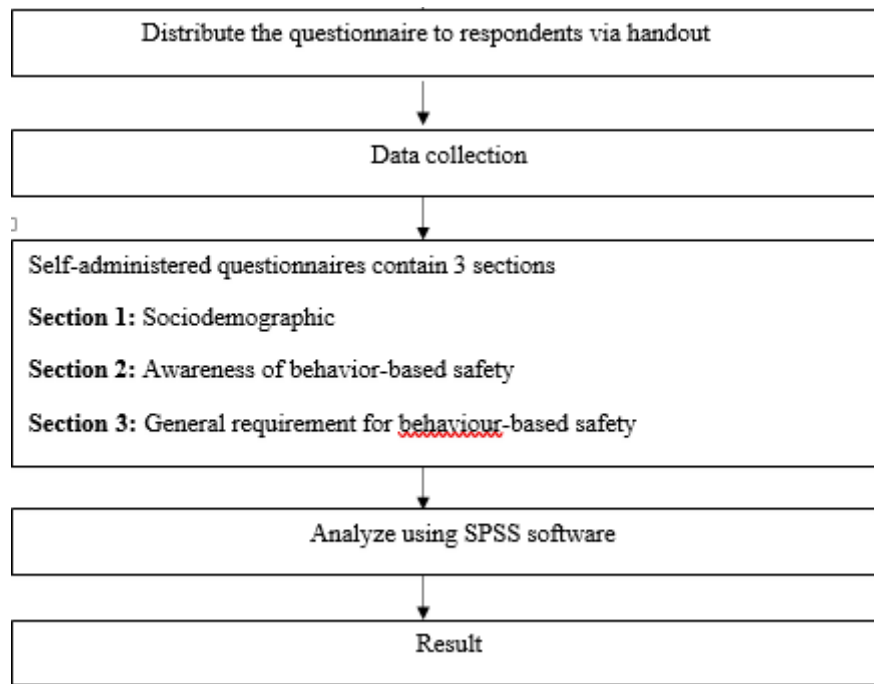
Figure 1: Research flowchart

3. Results and Discussion

To simplify the analysis procedure, data were examined using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics and inferential statistics are the statistical techniques used for data analysis. Mean, mod, and percentages are examples of descriptive statistics, whereas inferential statistics uses inferential statistics. - Pearson correlation coefficient.

According to Taber (2018), an acceptable level of Cronbach's alpha values is 0.7 or above. Table below describe the Rule of Thumb for Cronbach's alpha values.

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Questionable
$0.6 > \alpha \geq 0.5$	Poor
$0.5 > \alpha$	Unacceptable

3.1 Results

Construct	N of Items	Cronbach's Alpha	Decision
Awareness of Behavior Based Safety	5	0.935	Excellent
Housekeeping/General	6	0.924	Excellent
Personal Protective Equipment (PPE)	5	0.953	Excellent
Emergency Equipment	3	1.000	Excellent
Tools and Equipment	4	1.000	Excellent
Scaffold	5	0.947	Excellent

Table 1

The result explains, general requirements in terms of Housekeeping/General, Personal Protective Equipment (PPE) and Scaffold were not significant since the p-values are higher than significant value (p-value>0.05). Whilst only two variables have a significant relationship with awareness of behavior-based safety, which were Emergency Equipment (r =0.562, pvalue=0.000<0.05).In short, all the actual Cronbach's Alpha value were all excellent since the alpha values were higher than 0.7. The factors range has a strong level of internal consistency. As a result, the questionnaires used in this study were reliable and relevant.

Table 2 shows the percentage of knowledge about behavior-based safety among general workers at Bus Depot Serdang respondents. From total respondents, 95% know about behavior-based safety, 0% did not know about behavior-based safety and 5% not sure.

Do you know about behavior-based safety?	Percentage
Yes	95%
No	0%
Not sure	5%

Table 2: Behavior-based safety awareness

Table 3 shows the percentage of behavior-based safety application in Depot Bus Serdang workplace. From total respondents, 92.5% applied behavior-based safety in their workplace, 2.5% did not applied in their workplace and 5% did not sure if they applied behavior-based safety in their workplace.

Are you applying behavior-based safety in your workplace?	Percentage
Yes	92.5%
No	2.5%
Not sure	5%

Table 3: Behavior-based safety application

Table 4 shows the percentage of behavior-based safety is useful to reduce the risk at workplace. From total respondents, 95% are answers yes that useful to reduce the risk at workplace, 0% from answer no, and 5% were not sure whether useful or not can reduce risk at workplace.

Do you think behavior-based safety is useful to reduce the risk at workplace?	Percentage
Yes	95%
No	0%
Not sure	5%

Table 4: Behavior-based safety is useful to reduce the risk at workplace

Table 5 shows the percentage of awareness of work-related risk factors if they do not apply behavior-based safety in their workplace. From total respondents, 95% aware of work-related risk factors if not apply behavior-based safety, 0% did not aware of work-related risk factors, and 5% were not sure whether they aware or not. Accompanying discussions that further explain observations of the results are usually placed immediately below the results paragraph.

Are you aware of work-related risk factors if you do not apply behavior-based safety?	Percentage
Yes	95%
No	0%
Not sure	5%

Table 5: Awareness of work related risk factors

Table 6 shows percentage of respondent's opinion on behavior-based safety impact on daily work performance. From total respondents, 95% agree that behavior-based safety does improve daily work performance, 0% said behavior-based safety did not improve daily work performance and 5% did not sure whether behavior-based safety improve daily performance or not.

Do you think behavior-based safety might improve your daily performance in your work?	Percentage
Yes	95%
No	0%
Not sure	5%

Table 6: Behavior-based safety impact on daily work performance

4. Conclusion

This study investigates construction worker safety awareness and physical injury accidents. The study's projected results depend on its goals and success.

Psychologists have practised behavior-based safety for years, but occupational safety is still developing it. Its use is rare, and data is scarce. Began safety behaviour studies.

Safety culture has strengths that BBS techniques lack. BBS can be used in many professional areas; however, each phase must be suited to the organisation.

This literature briefly describes Behavior Based Safety (BBS) and how to implement it in the workplace. BBS has been shown to enhance safe behaviours, but only when implemented companywide.

This chapter reviewed and synthesised research on construction workers' Behavior-Based Safety (BBS). The literature review includes employee behavior-based analytical techniques for studying construction site safety equipment.

The results show that general requirements for Housekeeping/General, Personal Protective Equipment (PPE), and Scaffold were not significant since the p-values were greater than the significant value (p-value>0.05). Only two variables, Emergency Equipment (r =0.562, pvalue=0.0000.05) and Tools and Equipment (r =0.562, p-value=0.0000.05), have a significant connection with knowledge of behavior-based safety.

Acknowledgement

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