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SAFETY POLICIES AND PROCEDURES IN THE CONSTRUCTION INDUSTRY

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ABSTRACT

During the pandemic, individuals implemented the safety measures that were advised to them by medical professionals in order to prevent the disease from spreading further. The conclusion of the paper is that having confidence in the authoritative figures in the healthcare field is essential to enhancing adherence. However, this has also highlighted how difficult and time-consuming it is to change one's behaviour when confronted with a pandemic of an infectious disease. Every single worker at the company needs to work together if we are going to be successful in preventing the disease or virus from spreading further. It is imperative that any potential weak spots or obstacles in the execution of the safety measures be thoroughly investigated and comprehended. Although the health and safety precautions that were taken during the Covid-19 pandemic would not have been able to stop the virus from spreading fully, they were able to prevent it from reaching a point where it would be catastrophic. On the other hand, as time goes on and technology improves, more preventative measures will be able to be constructed, which will assist to limit the risk that the virus will spread. New laws and policies on safety have been added to enhance the ones that were already in place. The new laws and regulations include mandating greater levels of hygiene and the usage of personal protective equipment, as well as imposing restrictions on the amount of close physical contact that can occur between employees and requiring sufficient distances to be maintained between them. Because of these limitations, the total number of workers who are authorized to be employed at any one location has been reduced.

Keywords: *Safety, Policies, Construction, Industry*

INTRODUCTION

The construction industry is critical to the functioning of the global economy. Rhodes (2019) believes that the construction industry in the United Kingdom employs something in the neighbourhood of 2.4 million people, which in turn produces an annual revenue of more

than £100 billion. This sector has been impacted particularly hard by COVID19 as a result of its major consequences (Koh, 2020; McClure et al., 2020; ONS, 2020), making it one of the most severely affected. There will be a significant impact on the building industry in two primary areas as a result of COVID-19.

In order to provide construction workers with sufficient time to become accustomed to new ways of doing their jobs, both new and ongoing projects have been delayed or put on hold, respectively. Sites have been forced to make adjustments in order to accommodate a higher social distance, the implementation of improved hygiene and personal protective equipment (PPE) standards, and an increase in the use of remote workers for front-line positions that are not considered vital. In addition to being concerned about one's safety, health and cleanliness have never been more crucial than they are right now. This had to be done without jeopardizing the safety of workers going about their normal responsibilities, despite the fact that the company itself presented a number of risks. According to Health and Safety Executive (HSE), 2019 and van der Molen et al. (2018), there is a significant challenge involved in providing safety. It is not uncommon for several businesses of varying sizes to work together on large construction projects (Pealoza et al., 2020; Rowlinson, 2004; Stiles et al., 2012; Woolley et al., 2020) (Pealoza et al., 2020; Stiles et al., 2012; Woolley et al., 2020). According to Stiles et al.'s research (Stiles et al., 2018a), the unpredictability of the arrangements may provide a barrier to safety leadership, which is an important technique for engaging workers in safety (Zohar, 2002; Zohar & Luria, 2003).

Guidelines for ensuring worker well-being on construction sites

The COVID-19 epidemic has had a negative influence on a number of different industries, including the building industry. It brings to a pause in production as well as the adoption of new laws concerning safety. At this time, the construction sector is seeing the highest number of COVID-19 infections of any other industry. When compared to people working in other industries, those in the construction business have around a five times higher risk of being hospitalized owing to this condition. Construction workers have been hit particularly hard by the epidemic as a whole because to the fact that COVID-19 is largely spread through human contact. It is very necessary to organize a group of individuals to carry out building site fieldwork. The working circumstances of employees who were at a high risk of catching the virus have been adjusted, such as by the elimination of their positions or a reduction in the number of hours they work. Not only are coworkers vulnerable to COVID-19 pandemics, but they are also vulnerable to the worry, fear, and concern that comes along with the pandemic. Physiological and psychological stress are all involved. Because of this, in addition to the safety standards and guidelines that were already in place, additional ones have been implemented as a result. A greater focus will be placed on maintaining personal hygiene, and the usage of personal protection equipment (PPE) will be encouraged in order to

maintain a safe distance between individuals. Because of these limitations, the total number of workers who are authorized to be employed at any one location has been reduced.

It is essential for workers in the construction industry to have knowledge of the elements that impact their health and safety in order to prevent them from engaging in unsafe conduct. Ludecke and Knesebeck contend that it is essential for individuals to acquire knowledge related to diseases in order for them to be able to evaluate information on COVID-19 and prevent the disease's spread. The researchers Dai and colleagues anticipated that in order to successfully prevent and control COVID-19 among the general population, it would be required to systematically intervene on governmental factors and combine these interventions with programs that address individual causes. During the COVID-19 pandemic, it is essential to have a solid understanding of the factors that impact the health and safety-related behaviors of construction workers. This is due to the fact that there is a dearth of information that has been made public on how Thai construction workers responded to the COVID-19 pandemic in 2009. The Protection Motivation Theory (PMT) and the expanded Theory of Planned Behavior (TPB) are combined in this research project in order to investigate the preventative measures taken by construction workers in Thailand while the epidemic was ongoing. It's possible that the PMT and the TPB may investigate the COVID-19 protective behavior in construction from a more holistic point of view by evaluating the components that have an effect on it.

The themes of COVID-19 are education, prevention, and risk perception.

Workers need to be trained on the most recent scientific discoveries and best practices for disease prevention as part of a COVID-19 protection plan. This education will focus on best practices. The first thing that has to be done is get a sense of how knowledgeable people in the construction sector are about COVID-19 and how seriously they take the risk that it poses. For the purposes of this essay, when we refer about "workplace safety literacy," we mean the capacity to detect possible dangers and take the appropriate activities to avoid harm while on the job. Some examples of these precautions include always wearing the necessary personal protective equipment and adhering to the established standards for safe employment. In turn, this definition would match with COVID-19 workplace literacy, which would also contain the precise protocols required to decrease or avoid infection among one's self or one's coworkers. COVID-19 workplace literacy was developed by the Centers for Disease Control and Prevention. According to research that was carried out in the construction industry (Namian et al., 2016; Gunduz & Ahsan, 2018; Pandit et al., 2019; Loosemore & Malouf, 2019; Uddin et al., 2020), variables such as safety training, hazard recognition, risk-taking behaviors, attitudes, and the dynamic nature of the profession all influence the levels of safety literacy and risk perception (and the likelihood of injury). It is important that racial and ethnic minorities, such as Hispanic and Latinx workers, be protected in the United States, hence it is imperative that this problem be given a higher

priority than it now is. In the construction industry, this demographic is disproportionately represented in low-skilled or unskilled high-risk positions, which puts them at a higher risk of injury and death on the job than their non-Hispanic counterparts (NIOSH, 2015; Al-Bayati et al., 2016; Velasco-Mondragon et al., 2016; Moyce & Schenker, 2018). These employees are more likely to be working in jobs that put them in danger of being injured or killed. The fact that many construction workers may not be able to speak English fluently and, as a result, lack the communication skills necessary to discuss and recognize the COVID-19 danger in the workplace further makes the problem more difficult to deal with.

Preventative Health and Safety Measures for the Covid-19 Virus

A Standard Operating Procedure (SOP) has been developed by an organization specifically for the construction industry. The goal of this SOP is to assist employees in carrying out their responsibilities in a secure setting and to lessen the probability of the Covid-19 Virus spreading among construction workers. Every member of the construction workforce is required to adhere to the policies and procedures that are stated in this SOP. In order for the construction site to continue operating normally during the pandemic, it is imperative that appropriate safety measures be put into place to protect the health and safety of everyone working on the site. It is the goal of the Standard Operating Procedure to ensure that all of the processes and protocols included in it are consistent with one another. This will help cut down on the transmission of viruses among construction employees. According to OSHA 2021 and the Construction Leadership Council 2020, workers in the construction industry are expected to keep a certain amount of professional and social distance from one another.

Testing Is Required For All Construction Employees.

(Karim, 2020) The government has made it mandatory for all construction workers to submit to a swab test and screening in order to determine whether or not they are infected with infectious diseases. (LoBue and Lua-Valencia, 2020) Those workers who tested positive will be separated from the rest of the workforce until they can give evidence from a medical professional that they are no longer contagious. According to (LoBue & Lua-Valencia, 2020).

OBJECTIVES OF THE STUDY

1. To study on COVID-19 Knowledge, Preventive Behaviours, and Risk Perception
2. To study on Safety Policies and Procedures in construction industry

RESEARCH METHOD

A quantitative research approach will be taken in the collection of data and information from the people who participated in the study. In order to collect the data and information that is pertinent to the objectives of the study, a survey in the form of a questionnaire was

carried out using Google Forms. The questionnaire that will be used in this investigation will consist of a total of three sections, the first of which will be titled "Demographic Information" and will be used to collect fundamental participant demographic information. The open-ended questions in Section B are designed to investigate respondents' ideas and knowledge on the subject of the health and safety of construction workers during the Covid-19 epidemic. In Section C, questions are presented that are particular to the difficulties associated with putting the safety measures into action.

On a scale from one to five, participants are asked to rate how acquainted they are with various scenarios that have been presented to them. In addition to this, an open-ended question is posed to the participant so that they may provide their input on the activities that are taking place. On a scale from one to five on the Likert spectrum, the levels of agreement are classified as strongly disagreeing, disagreeing, being neutral, agreeing, and strongly agreeing.

The demographic features of Bangladeshi construction workers, site professionals, and managers who are currently residing in Singapore will be the primary focus of this study. This inquiry requires a sample size of thirty people, and the population of construction companies in Lim Wen Heng Construction Pte Ltd. supplies those individuals. Following that, we will use descriptive analysis and the Relative Importance Index (RII) to evaluate the facts and information provided by the questionnaire. In order to make previously incomprehensible datasets more manageable, descriptive statistics may be used to summarize enormous amounts of data using visual representations such as charts, graphs, tables, and statistics. This can make it easier to work with the data. The Relative Importance Index (RII) Method is a strategy for ranking different aspects of motivation depending on how important they are in comparison to one another.

With scores ranging from 1 (the least degree impact) to 5 (the most degree effect), a Likert scale is used to evaluate each component of motivation, and the results are then translated into relative significance indices (RII) in the following ways:

RII = ΣW / (A*N)

Respondents' weights (from 1 to 5) for each factor are represented by the letter W.

In this case, the highest possible value is 5, which is represented by the letter A.

N is the total number of respondents to the poll.

Table 1: The Level of Consensus, as Measured by the Likert Scale

Level of Agreement	Likert Scale Rating
Strongly Disagree	1

Disagree	2
Neutral	3
Agree	4
Strongly Agree	5

The following is an explanation of each of the five phrases that come after an equal period of RII:

- 0.10 ≤ Strongly Disagree (SD) ≤ 0.20
- 0.20 ≤ Disagree (D) ≤ 0.40
- 0.40 ≤ Neutral (N) ≤ 0.60
- 0.60 ≤ Agree (A) ≤ 0.80
- 0.80 ≤ Strongly Agree (SA) ≤ 1.00

DATA ANALYSIS

The questionnaire poll yielded a total of thirty replies; however, after being screened, only five were deemed suitable for further consideration since they did not adequately address the requirements of the intended respondent. As a result, the analysis of the outcomes of this study will only take into consideration the dependability of the data acquired from the 25 replies.

Table 2 Demographic Data Collected From the Respondents

Respondent's job position	Frequency	Percentage
Manager	5	20
Supervisor	2	8
Quantity surveyor	1	4
Engineer	5	20
Skilled worker	7	28
Project co-ordinator	1	4
Safety and health officer	4	16

A breakdown of the respondents' jobs and areas of study for this survey questionnaire can be seen in Table 2. According to the information that has been provided, it would appear that 8% of respondents work as quantity surveyors, 4% work as project supervisors, 20% work as construction engineers, 20% work as project managers, 28% work as construction skilled workers, 1.5% work as project coordinators, and 16% work as safety and health officers.

Table 3 : The number of years the respondent has been employed

Respondent's years of working experience	Frequency	Percentage
1-5 years	5	20
6-9 years	10	40

10-19 years	2	8
Above 20 years	3	12

The chart demonstrates that 20% of respondents have 0-5 years of experience in employment, 8% have 10-19 years, 40% have 6-9 years, and 12% have 20+ years of experience when broken down by years of experience in the workforce. Construction workers and specialists are likely to have access to a greater quantity of data and a more diverse range of opinions than individuals who have been working in the industry for a shorter amount of time because of their considerable expertise in the sector. It is possible that their past experience with pandemic outbreaks, such as those caused by the H1N1 and SARS viruses, may enable them to give more credible data and information for the purpose of this study.

Table 4: Classification of the Contractor's CIDB Registration

Contractor's CIDB registration grade	**Frequency**	**Percentage**
Grade 1-3	10	40
Grade 4-5	10	40
Grade above 6	5	5

A pie chart illustrating the respondents' CIDB registrations broken down by category is presented in Table 4. The remaining respondents to the poll can be divided into the following categories: Forty per cent of the children are enrolled in grades four and five, while the remaining forty per cent are in classes one through three. The percentage of pupils enrolled in grades six and above is five per cent. The information that is acquired is essential due to the fact that both medium and big construction companies frequently work on massive projects that include a significant number of people and activities on sites. They will have a more difficult time ensuring the well-being of their employees when they are working on construction sites.

Table 5: Construction workers must take precautions to stop the spread of the Covid-19 virus.

Measure that helps to control the trust mission of Corid-19 virus among the construction workers	**Level of Impact**					**TR**	**NAT**	**RH**	**Rank**
	SD	**D**	**N**	**A**	**SA**				
	1	**2**	**3**	**4**	**5**				
1 Regular Covid-19 Screening T.	1	1	1	1	1	25	528	0.873	4

2 Regular Disinfection of Construction Site	1	0	1	1	1	25	530	0.876	2
3 Prohibit Irrelevant Site Visitors	1	1	1	1	1	25	50S	0.840	6
4 Hiring of Site Safety and Health Officer	1	1	1	0	1	25	507	0.835	
5 Quarantine of Construction Workers Who Just Come Back From Foreign Country	1	1	0	1	1	25	529	0.874	3
6 Compulsory for Construction Workers to Complete Covid.19 Vaccination	1	0	1	1	1	25	545	0.901	1
7 Posting of Notice of General Safety P dicks	1	0	1	0	1	25	515	0.151	5

The information that was gathered from the respondents is displayed in Table 5 below. The findings have implications for prophylactic measures that might be taken to lessen the likelihood of construction workers contracting the Covid-19 virus. Respondents will be asked to score their degree of agreement with each of the seven safety measures described above on a scale ranging from 1 (strongly disagree) to 7 (strongly agree), and the Relative Importance Index (RII) given in Table 2 will be used to analyze their replies. An RII of 0.901 shows that making immunization against Covid-19 mandatory for all construction workers is the most effective preventative intervention that is presently in place. According to the World Health Organization (2021), vaccination is the most effective method for protecting construction workers against the Covid-19 Virus. This vaccination helps us build antibodies that protect us from the virus by stimulating our immune system (World Health Organization, 2021). Those who have been immunized against the Covid-19 virus, which affects construction workers, have a lower risk of being ill from the virus and are able to begin fighting it as soon as they feel the effects of it. The practice of routinely disinfecting building sites comes in second, with a relative importance index of 0.876. In light of these findings, respondents felt that routine cleaning of the construction site is vital for the elimination of viruses and bacteria and for providing construction employees with a working platform that is free of Covid-19. It is vital to do routine cleaning and disinfection on the working platform as well as on all of the other tools and equipment used on the construction site in order to protect the health and safety of all of the employees and to stop the spread of illness.

The third and fourth techniques, respectively, for restricting the transmission of the Covid-19 virus among construction workers include isolating construction employees who have

just returned from a foreign country (RII: 0.874) and conducting frequent Covid-19 screening tests (RII: 0.873). Both of these strategies have a high likelihood of preventing the spread of the virus. It is estimated that both of these undertakings will have a relative risk equal to 0.873. Due to the fact that they may have been exposed to the Covid-19 Virus while abroad, construction workers who have just returned from a vacation in another country are required to remain in quarantine for a period of fourteen days after returning to the United States. This is done to monitor the workers and prevent the illness from spreading further within the facility. Construction workers are required to subject themselves to a Covid-19 test after they have been isolated for a period of 14 days. They will not be permitted to go back to work until the results of the test have been received, and those findings must be negative. Employees who have returned positive test results are placed in quarantine until they get medical clearance demonstrating that they are no longer contagious, which can take up to two weeks. During this time, they are not allowed to leave the hospital. Regular testing for Covid-19 exposure is recommended for those who work in the construction industry so that we can be absolutely certain that they are not spreading the virus.

Table 6: Challenges that must be surmounted by construction employees in order to effectively implement safety requirements

Challenges faced by the construction workers during the implementation tithe safety measures	Level of Impact					TR	\NT	RII	Rank
	SD	D	N	A	SA				
	1	2	3	4	5				
1 Cooperation of Construction Workers	1	1	1	1	1	25	531	0.878	1
2 Lack of Safety Equipment and Resources	1	1	1	1	1	25	511	0.145	3
3 Short of Funds	1	1	1	1	1	25	503	0.831	5
4 *Harsh* Working Environment	1	1	1	1	1	25	507	0.S31	4
5 Lack of Proper maintenance of Standard Operating Procedures	1	1	1	1	1	25	524	0.866	2

The replies have been compiled in Table 6, along with the proportion of total respondents that agree with each statement. In the following table, we take a look at the obstacles that

construction workers need to overcome in order to successfully implement newly developed safety practices. The results shown in Table 4 illustrate that the construction sector was able to attain the maximum possible RII score of 0.878. This was made possible by the high level of collaboration displayed by the industry's workforce. It is not the responsibility of any one construction worker to stop the spread of the Covid-19 Virus inside the construction industry; rather, it is the collective responsibility of all construction workers. In order to put a halt to the further spread of the virus, all of the workers must demonstrate that they are willing to cooperate with one another by adhering to the Standard Operating Procedure and the safety regulations to the letter. There is a mention of the inability to successfully maintain Standard Operating Procedure being the second biggest cause of risk, with an associated RII of 0.866. Standard Operating Procedures (SOP) have to be in place in order to ensure that the safety measures will continue to be effective and to ensure that construction workers are following the appropriate course of action when it comes to putting the safety measures into action. The health and safety officer is responsible for developing and compiling a list of Standard Operating Procedure procedures, as well as gathering up-to-date information and ensuring that all SOP requirements are current (Pearce, 2019). In addition, the health and safety officer is tasked with ensuring that all SOP requirements are current.

CONCLUSION

The findings of this study provide a comprehensive evaluation of the health and safety measures taken in response to the Covid-19 pandemic. This evaluation includes an assessment of the success of each measure in halting the spread of the Covid19 virus as well as a discussion of the challenges that have arisen as a result of the implementation of these measures. Every single worker at the company needs to work together if we are going to be successful in preventing the disease or virus from spreading further. It is imperative that any potential weak spots or obstacles in the execution of the safety measures be thoroughly investigated and comprehended. Although the health and safety precautions that were taken during the Covid-19 pandemic would not have been able to stop the virus from spreading fully, they were able to prevent it from reaching a point where it would be catastrophic. On the other hand, as time goes on and technology improves, more preventative measures will be able to be constructed, which will assist to limit the risk that the virus will spread. In the event that another pandemic of the same kind suddenly occurs in the future, the health and safety measures that were implemented and the lessons that were learnt during the Covid-19 epidemic could prove to be valuable.

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