

WORK-RELATED STRESS RISK ASSESSMENT AMONG THE  
CONSTRUCTION PROFESSIONALS IN AFGHANISTAN

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## **DEDICATION**

This report is dedicated to my father, who taught me that the best kind of knowledge to have is that which is learned for its own sake. It is also dedicated to my mother, who taught me that even the largest task can be accomplished if it is done one step at a time

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## ABSTRACT

This study was carried out to assess the stress risk among the construction professionals of Afghanistan. Stress risk is major problem not only in Afghanistan but all over the world. It has become a growing concern in many sectors, not to mention the construction sector. It is important to ensure that workers can perform best, considering the highly competitive demands and competition of the construction industry. Stress risk has been identified as an important factor influencing an organization's success as it negatively affects the organization's productivity, professional's health and safety and efficiency as well as costs. The issue of the work-related stress risk assessment in construction sector of Afghanistan is not commonly discussed. Stress risk among construction professional should be address with proper assessment method in order to understand the magnitude of the stress and hence control measures could be proposed. The objectives of this study are to identify the sources and causes as well as the prevalence of job stressor or job hazards and the risk level at work place. Finally, the possible control measure based on the assessment of level of risk will be proposed. The methodology of this study includes literature reviews, data collection, and data analysis. Data was collected using questionnaire survey in Afghanistan through email from the construction industry professional such as project manager, site supervisor, project engineer, quantity surveyor, and architect. The data was analyzed using frequency analysis, the average index and the stress risk assessment method. To visualize the result, tables and figures like bar and pie charts were used to clarify the results. The research revealed that the physical environment, the job itself, and the organization is the key factor for the stress risk at construction industry of Afghanistan. For causes of work related stress risk the main issues were the lack of management and control over work, increasing the employee's expectation using the standard of safety. The prevalence of job stressors appeared in all six-factors such as, demand, control, support, relationship, change, and role. Based on the response, the deadline, time pressure and the problematic colleagues and inappropriate training were serious issues. Changes without consultation and no encourages policy among the construction professional were also a risk. Based on the analysis of likelihood and severity thirty-four factors were in the very high and high stress risk category for the factors such as workload, work pattern, and work environment. A possible control was proposed based on the high and very high classification to mitigate the stress risk such as the company should give the workers a safe environment and adequate time to complete tasks. A job description, time pressure all-round suitability dependent on recruitment, should be simple within the capability of the construction profession of Afghanistan were among the proposed measures.

## ABSTRAK

Kajian ini dilakukan untuk menilai risiko tekanan di kalangan profesional pembinaan Afghanistan. Risiko tekanan adalah masalah utama bukan sahaja di Afghanistan tetapi di seluruh dunia. Sudah menjadi perhatian yang semakin meningkat di banyak sektor, lebih-lebih lagi sektor pembinaan. Penting untuk memastikan bahawa pekerja dapat menunjukkan prestasi terbaik, dengan mempertimbangkan permintaan dan persaingan industri pembinaan yang sangat kompetitif. Risiko tekanan telah dikenalpasti sebagai faktor penting yang mempengaruhi kejayaan organisasi kerana memberi kesan negatif terhadap produktiviti organisasi, kesihatan dan keselamatan profesional, kecekapan serta kos. Isu penilaian risiko tekanan yang berkaitan dengan pekerjaan di sektor pembinaan Afghanistan jarang dibincangkan. Risiko tekanan di kalangan profesional pembinaan harus ditangani dengan kaedah penilaian yang tepat untuk memahami besarnya tekanan dan oleh itu langkah-langkah kawalan dapat dicadangkan. Objektif kajian ini adalah untuk mengenal pasti sumber dan sebab serta kewujudan tekanan kerja atau bahaya pekerjaan dan tahap risiko di tempat kerja. Akhirnya, langkah kawalan yang berpotensi berdasarkan penilaian tahap risiko akan dicadangkan. Metodologi kajian ini merangkumi tinjauan literatur, pengumpulan data, dan analisis data. Data dikumpulkan menggunakan tinjauan soal selidik di Afghanistan melalui e-mel dari profesional industri pembinaan seperti pengurus projek, penyelia tapak, jurutera projek, juruukur kuantiti, dan arkitek. Data dianalisis menggunakan analisis frekuensi, indeks purata, dan kaedah penilaian risiko tekanan. Keputusan kajian akan dipersembahkan dalam bentuk jadual, carta bar dan pai untuk menjelaskan hasilnya. Penyelidikan ini menunjukkan bahawa persekitaran fizikal, pekerjaan itu sendiri, dan organisasi adalah faktor utama risiko tekanan pada industri pembinaan Afghanistan. Untuk sebab risiko stres yang berkaitan dengan pekerjaan, masalah utama adalah kurangnya pengurusan dan kawalan terhadap pekerjaan, meningkatkan harapan pekerja menggunakan standard keselamatan. Kelaziman tekanan kerja muncul dalam semua enam faktor seperti, permintaan, kawalan, sokongan, hubungan, perubahan, dan peranan. Berdasarkan respons, tarikh akhir, tekanan masa dan rakan sekerja yang bermasalah serta latihan yang tidak sesuai adalah masalah serius. Perubahan tanpa perundingan dan tidak mendorong dasar di kalangan profesional pembinaan juga berisiko. Berdasarkan analisis kemungkinan dan keterukan tiga puluh empat faktor berada dalam kategori risiko stres yang sangat tinggi dan tinggi untuk faktor-faktor seperti beban kerja, corak kerja, dan persekitaran kerja. Kawalan yang berpotensi berdasarkan klasifikasi tinggi dan sangat tinggi untuk mengurangkan risiko tekanan seperti syarikat harus memberi pekerja persekitaran yang selamat dan masa yang cukup untuk menyelesaikan tugas dicadangkan. Huraian pekerjaan, kesesuaian tekanan masa yang bergantung pada pengambilan pekerja, haruslah sederhana dalam kemampuan profesion pembinaan Afghanistan adalah antara kawalan yang dicadangkan.

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## LIST OF ABBREVIATIONS

AI	-	Average index
NR	-	Number of Respondent
PR	-	Percent of Respondent
RT	-	Rating
H & S	-	Health and safety
GDP	-	Gross domestic product
HSE	-	Health and safety executive
AISA	-	Afghanistan investment agency
ILO	-	International labour organization
TR	-	Total number of Respondent
L	-	Likelihood
S	-	Severity
RV	-	Risk value

## LIST OF SYMBOLS

$\Sigma$	-	Summation
$\times i$	-	Frequency of response
$\alpha_i$	-	Index of a class
$i$	-	1,2,3,4,5 and clarified
$n$	-	Response frequency
$N$	-	Total number of respondents
$\bar{c}$	-	average covariance between item-pairs.
$\bar{v}$	-	average variance.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

In the last few decades, the construction industry is the witness of incredible changes both institutional and organizational all over the world. The speedup and complexity of work and continuous changes in the building process as well as, the increasing demand for productivity has become a common issue in the construction industry (Wong et al., 2010). construction has a very important role in the global economy it facilitates the opportunity for a huge number of workers for the execution of construction projects. It's also well known that the construction employees face a lot of difficulties even though some time with severe accident and injuries (Enshass et al., 2013). All the construction industry is obligated to have like moral, legal and financial obligations to provide a very safe environment to the workforce that have zero accident at the construction site. The international lab or organization (ILO) has stated that the work environment should be safe as well as the conditions do not cause damage to life and the health of the professional workers (Thomas & Turnbull, 2018). As we know that in the most construction industry they do not apply safety rules to their workers (Lee Larson, 2004). In this case, due to not very tight safety rules in the construction industry especially in the developed countries for instance in China, the construction death toll rate is bigger than coal mine (Shuai & Li, 2013). If we search about the united states construction industry the rate of injuries and death is more than compare to the other industry in the US (Konda et al., 2016).



The construction industry is one of the oldest sectors but nowadays it developed well and plays an important role in the economy of each country. It also facilitates the environment of many jobs and increases the economic growth of the country that contributes to finding the solution for the issue of pollution and energy shortage all over the world (Meng, 2012). Due to a long time, high demand for the construction industry in New Zealand led to the very fast growth of the country's economy (Elms, 2017). If we look at the population of Ghana is about 22 million, the only sector that plays a vital role in the development and economic growth of Ghana is the construction industry. Thus the construction industry is the largest in Ghana that its GDP in 2013-2014 was 8.8% (Enshass et al., 2013). All over the world construction industry is a major sector that can make up approximately 9% of the GDP of the world (Yu, 2012).

Recently the impact of construction activity on the environment is recognized across the globe and it is now the need bylaw in most of the countries to evaluate the impact of the construction activities on the environment (Gangoellis et al., 2011). The environment can be caused by the construction site and may also cause to daily lives of the local people. The damage caused by the construction site activities includes dust, noise, waste material decomposition in public spaces, soil and water contamination, damage to the drainage system, destruction of plants, etc. (Esin & Cosgun, 2007).

On the other hand, the construction industry can play a pivotal role in protecting, sustaining, and creating a process to yearning environment to maintain sustainability by applying and encouraging the adoption of environmentally friendly methods, materials, and renewable energy methods that contribute to the reduction of environmental pollution. Thus priority to sustainability day by day increasing in many countries to protect the environment and adopt sustainable construction and also boost the development and future construction (Tan et al., 2011). Where more countries joining environmental pacts the construction industry is becoming more important in sustainable development (Kim et la., 2016). As well as renewable energy, which can be secured from natural resources that clearly have environmental advantages over conventional sources and methods and constantly being replenished.

particularly, the construction sector is responsible for using the renewable energy to protect the environment from the pollution and achieving sustainable environment (Nabeel et al., 2016).

South Asia is the fastest region in the world because of the low salary of labourers. The growth of this region for the last few years is 7% of world GDP. The population in South Asian countries make one quarter approximately the 40% of the all over the world poor, and they still need to change the standard of living in the region and bring sustainable infrastructure through the construction industry to help in the reduction of poverty in the region (Khan, 2015). Nowadays, according to the report world economic forum (2016-2017), South Asia is the fastest-growing region, for example, Pakistan, India. Sri Lanka and Bangladesh have upgraded the construction industry sector now they witness high-quality infrastructure, high standard building, good transportation, telecommunication system, and renewable energy sector (Zhao et al., 2019).

Afghanistan is a landlord country that is the bridge from south Asia to central Asia but Afghanistan was unfortunate to suffer from four decades of civil war, which caused tragedies and severely damaged the infrastructure of the country. In 2001 after the international forces came to Afghanistan they have started a very big project, especially in the construction sector. The project that did not we have seen from the decades and these directly awarded and monitored by NATO/ ISAF. This program is for a long time planned by USACE about 95 strategic projects all around the Afghanistan and billions of dollars projects till now ongoing and some of them are already completed (Ghosh et la., 2006). Afghanistan newly developing country where the construction sector plays an important role especially the infrastructure sector Afghanistan investment support Agency (AISA).

Coming to the GDP Afghanistan is GDP is very low because of four decades of war as we know that Afghanistan newly developing with the support of foreign aid and still not stand on its resources besides, Afghanistan is very rich in natural resources and oil, gases, gold and has the world's largest copper resource. The GDP is about 20.63 billion (3%) till 2020. Since 2001 Afghanistan is witnessing great

development in the construction sector especially in infrastructure and forms of buildings residential and commercial as a result of the return of many Afghani businessmen from abroad, which invested in different sectors without that still the situation of Afghanistan is not good. They were migrated to different countries like Pakistan, Iran, Russia, and Gulf countries during the Soviet Union war. They gain a lot of money along with experience in the construction industry.

Besides, the most challenging, risky, and dynamic business is the construction industry. This sector is exposed to predictable and unpredictable risks (Mills, 2001). Construction is a very hazardous industry that the whole life cycle is full of different types of risks. The risks can come from unanimous sources because for instance collecting labours from other site various projects, it also depends on the size and complexity of projects. In this case, to avoid risk during the project execution we should maintain the highest standard of safety. Furthermore, The Company should identify the risk and try to bring this risk to a tolerable level. The construction sector is a very hazardous sector the workers always concern with various types of risks and may sometimes cause accidents (loss or injuries), property damage, the interruption to development aspects (Zavadskas et al., 2010).

The most dangerous sector of the economy is the construction sector. Across the globe, according to ILO international labour organization each year, 60000 fatal work-related injuries occurred in the construction site this means that every 10 minutes in the construction sector one fatal injury can happen. The deep stud of an expert they have mentioned Some of the following reasons of occurring the fatal injuries in the construction site such as lack of supervision over the work execution, unserviceable equipment, deficiency of training, poor work production plan, poor quality development, and safety rules. Thus the construction sector is known for the highest rate of fatal injuries and some lower levels in other organizations.

Despite these, each construction industry needs a lot of manual workers which is one of the most important sectors in the country's economy. Most of the time the working conditions, workplace change, and work-related risk also change to the workers. On the other hand, a big number of the migrants from the other

countries on low wages they hired in this field according to the Timofeev a, 2017 some factors effect on the construction workers and can affect their health and may decrease in the efficiency of work production such factors such as vibration, dust, and fumes and despite these also the severity and intensity of labours process and it also found that more than 16% construction workers are exposed to chemicals like paint, resins, lubricant materials, and combustion during electrical and gas welding, and exhaust of gas vehicles in the construction site that can cause of severe health issues like stress, insomnia, headache, and others health-related disease (Timofeeva et al., 2017).

Stress in a job site is an important problem for safety and health (Hassard et al., 2018). Stress at job site belong to the workers approach on all around the place necessity which is free from a negative attitude to the existing sources (Ibrahim, 2017). Stress can be called an external force that can affect the human being and material property (Spielberger & Reheiser, 2003). Despite, we cannot call stress disease, but if remain for a long time its impact would be very bad on employee and their provided environment maybe goes for serious accidents and we will be the evidence of the construction employees mental and health issues. Stress can make the demand quicker when you target a goal to perform with full achievement. Finally, when the performance and pressure reached the peak it produces stress which is very harmful to the employee and the company (Konkolewsky, 2005). When job-related stress occurred it does not only slow down the industry performance but might also impact employee health like heart attack and migraine which can bring causality in case of death and serious injuries (Yahaya et al., 2010).

All those risks that cause to our health and our company make us do something in the reduction of stress. Excessive stress risk can minimize the performance of our work (Mahmood & Yadav, 2017). The problem is that work-related stress risk increasing day by day according to the survey which dons by full and part-time jobholders by the national institute of occupational safety and health (NIOSH) the percentage increase 37% in 2001 to 45% in 2002. This issue will increase if the organization did not take any appropriate step to the mitigation or elimination of this issue it would not damage that organization but can invite a lot of

illness who are involved (Campbell, 2006). It is very important to have enough knowledge of work-related stress risk and should do possibly when it becoming serious to the workforces (Hamid et al., 2010).

In the modern world, the work-related stress risk is one of the important and very common issues to the worker health and safety. Job stress indicates the employee's experience in the workplace. In different job sites, it impacts negatively on productivity and works satisfaction. It will lead to workers' absenteeism and low morale, and high accident rates at the construction site and may impact on medical expenses of organizations and also impact on profitability and development of the organization. Health and Safety Executive (2002) identified that workplace stress is a direct result of a person`s job. For that reason, in the last recent years the researches into job-related stress have been increased (Whetten et al., 2002). Several studies have shown that stress at work can be physically and mentally harmful to employees and is related to physical condition, organizational structure, interpersonal conflict, personal characteristics, and nature of work ( Skitmore et al., 2005).

A review of the literature showed that no research has examined the work-related stress risk among construction professionals in Afghanistan. Therefore, this study aims to reveal key sources and causes of work-related stress risk in the Afghanistan construction industry and what is the stress hazards at the workplace and what the stress level at the job site is and I will discuss the suitable control measure for the stress risk according to the stress level.

## **1.2 Problem Statement**

Nowadays the stress risk is an essential issue for the construction professional and other sectors to increase productivity and avoid the project from the delay. In recent decades, major changes in the organization and management of employment (e.g. outsourcing, employment-related task intensification, increased job insecurity, aging of the workforce, emerging technology, etc.) have resulted in increased risks to workplace safety and health. Two of the key problems that need to be addressed are

psycho-social risks and work-related stress risk, mostly because they are widely spread across Europe and have high socio-economic costs to businesses and society overall.

Based on occupational health and safety (OSH) 51% of employees indicated that work-related stress risk is normal in their workplace and four out of ten said stress risk is not properly handled within their organization. Beyond the severity of the problem and its negative effect on the psychological and physical well-being of staff, there is also increasing evidence of its effects on businesses and society as a whole. In Europe, the total cost of mental health problems, including costs not directly related to employment, is estimated at EUR 240 billion per annum, less than half of which are related to direct costs such as medical care, whereas the loss of productivity for businesses amounts to almost EUR 136 billion, including days lost for sickness absences (Hassard et al., 2014).

Recently the research has conducted health and safety executive (HSE) of UK 13.7 million people lost their job due to the stress risk like depression or anxiety and one in four-person think that their job was very stressful. Besides, more than 510000 people in the UK complained that they have got ill due to the work stress risk than on the CIPD stress is an important problem for the construction industry and other industries. A survey in the UK that half of millions people are affected by stress risk in construction and other smaller organization the cost related to the stress risk accounted for about £9.6bn per year. Recently researched, due to the depression, anxiety, and stress risk about a total of 14.6 billion working days loss (Zoni & Lucchini, 2012). According to Knapp and McDaid (2009), the organization responded 40% increase in absence due to the stress risk (Knapp & McDaid, 2009).

Work stress is one of the major issues among construction professionals in Afghanistan. A large number of employees every year suffered from the occupational work stress risk because the afghan construction industry is newly developing and mostly it depends on foreign aid and ruled their specification, design, and health safety. Due to the work department of Afghanistan, they do not have the proper plan for the health and safety of the workers and another very big issue the

construction companies do not obey the rules of the health and safety of the workers that most the time a very companies came under the blacklist because of the severe accidents. Thus, due to the lack of data in work-related stress risk assessment in Afghanistan in the form of publishing paper or people awareness. This proposal will highlight the major work-related stress risk sources and causes that will contribute to how to assess these issues.

### **1.3 Aim and objective**

The aim of this study is to assess work-related stress risk among construction professionals in Afghanistan. To achieve the aim, the following objectives are set as:

1. To identify the source and causes of work-related stress at the workplace.
2. To identify the prevalence of job stressors or stress hazards at the workplace.
3. To assess the risk level from the stress hazards found in objective 2
4. To propose possible control measures based on the level of stress risk found in objective 3.

### **1.4 Scope of study**

This research will focus on the construction industry stress risk assessment among the construction professionals in Afghanistan. It will be very difficult to address everything about stress risk assessment in a country like Afghanistan due to the lack of data and research in this specific field. Therefore, this research will only focus on the sources and causes of the work-related stress in the construction industry and what is the job hazards at the working site and how severe is the impact of this stressor and what will be the control measure base on the level of stress. In this case, this research was conducted among the local construction professionals in Afghanistan. The aim to collect the correct data related to the topic. The questionnaire survey was conducted randomly to the construction professionals in Afghanistan.

The aim was to produce a selection of around sixty (50) from construction professionals who had been involved in the Afghan projects. Sixty (50) sets of questionnaires were, therefore, randomly distributed to construction professionals in Afghanistan. The scope of this study would make the information gathering process easier to interpret the outcome within a limited time frame. The following type of work will be done to attain the objectives of this study:

- i. The questionnaire will be distributed among construction professionals who will be selected randomly;
- ii. Due to time restriction, some aspects of construction issues may not be discussed in the study;
- iii. Collecting the data from construction projects;
- iv. The data collected via an online questionnaire which be distributed from 02 January to 02 February 2020;

### **1.5 Significant of study**

The health and safety is one the main issue different companies and organization, where the health and safety is the common issue among construction professional that not only affect the construction industry but also effect on the employees' health. The finding of this study stress risk in the construction industry will help site engineer, site manager, project manager, and others partner to specify the positive behaviour and to prevent or mitigate work-related stress risk to make sure the health of workers and to maintain the quality and productivity and economic stability of construction work.

Nowadays is well known that stress risk is the main part of the construction industry. Due to the stress risk, it invites many problems and diseases to the construction projects. The construction companies need to have a proper plan for the management of the work-related stress risk to avoid any happening of severe casualties.



For the stress risk there no proper management especially in growing countries. It was only considered and manage in high developed countries like UK, USA, and the EU when they these type of problems. The find some solution and address some proper methods and ways to get rid of this issue and propose some control measures to reduce the impact of stress risk both on worker and industry.

The main purpose of this research is to deeply investigate the construction industry work-related stress risk in newly developing countries like Afghanistan. The focus will be to find out the source and causes of work-related stress. And what type of hazards are existing in the construction site, what is the level of the stress risk, and lastly what should be the control measure for the work-related stress risk assessment?

## **1.6 Methodology**

In the process of carrying out this research, including a summary of the literature and accompanied by a random questionnaire survey among construction industry professionals. The study's literature review was focused on the current risk of stress in the construction industry among Afghan professionals and how to reduce it.

The main purpose of this to identify the source and causes of work-related stress, and to find out the stressor work-related stress in a construction site, and find the level of stress at the construction site what suitable control measure will be proposing to mitigate the level to stress risk among the construction professional in Afghanistan.

The questionnaire was administered among 60 industry professionals to collect data that accomplished the goals of the report. This data will be analysed using quantitative and qualitative methods after considering data types and the aims of the analysis.

### **1.6.1 Development of problem statement aim and objective of the study**

The study's problem statement needs to be developed to set out an idea of the purpose of the study as well as to offer the study's expectation readership. The question argument to be validated as a piece of evidence from prior studies that the problem still exists. The goal is to explain the overall purpose of the research to be accomplished by the study. Goals are subordinate to goals, stressing how goals are to be accomplished. The objectives must be logical, accurately defined, and should be read as an individual statement to express the study's intentions.

### **1.6.2 Overview of methodology**

The following approach has been introduced in this analysis to achieve the research goal, and the research methodology is outlined as shown in Figure 1.1 which will be carried out in five (5) phases.

1. The first and second objectives will be accomplished by reviewing the literature, then preparing questionnaires and distributing them to project managers, site supervisor, estimators, architectures and project engineers in Afghanistan to determine the sources and causes of work-related stress and find out the job stressor at construction industry among the construction professional in Afghanistan.
2. The third and fourth objectives will have accomplished by determination of the level of stress at the workplace base on objective No: 2 and lastly base on the level of stress the control measure will be proposed.

### **1.6.3 Data collection**

The primary data will be obtained from the survey questionnaire. The questionnaire is designed based on a review of the literature. The questionnaire will consist of 3 sections; the history of the respondent, level of risk assessment knowledge, and feasibility of the risk assessment implementation. The questionnaire will be circulated across sectors to Project Managers. Secondary data will be collected through Secondary Data Journal article, Proceedings, Research paper, Published books & Website.

Figure 1.1 shows the methodology flow chart that has four stages the primary stage is to identification issue the, select the topics and propose the objective of for specific topics.

Second stage is the data collection that has two parts the first is raised the questionnaire get the primary data from the respondent and based previous study that has done in the related topics and compare the that topics with our recent report. Stage three and four are the analysis and conclusion as the detail of methodology of flow chart shown in figure 1.1.

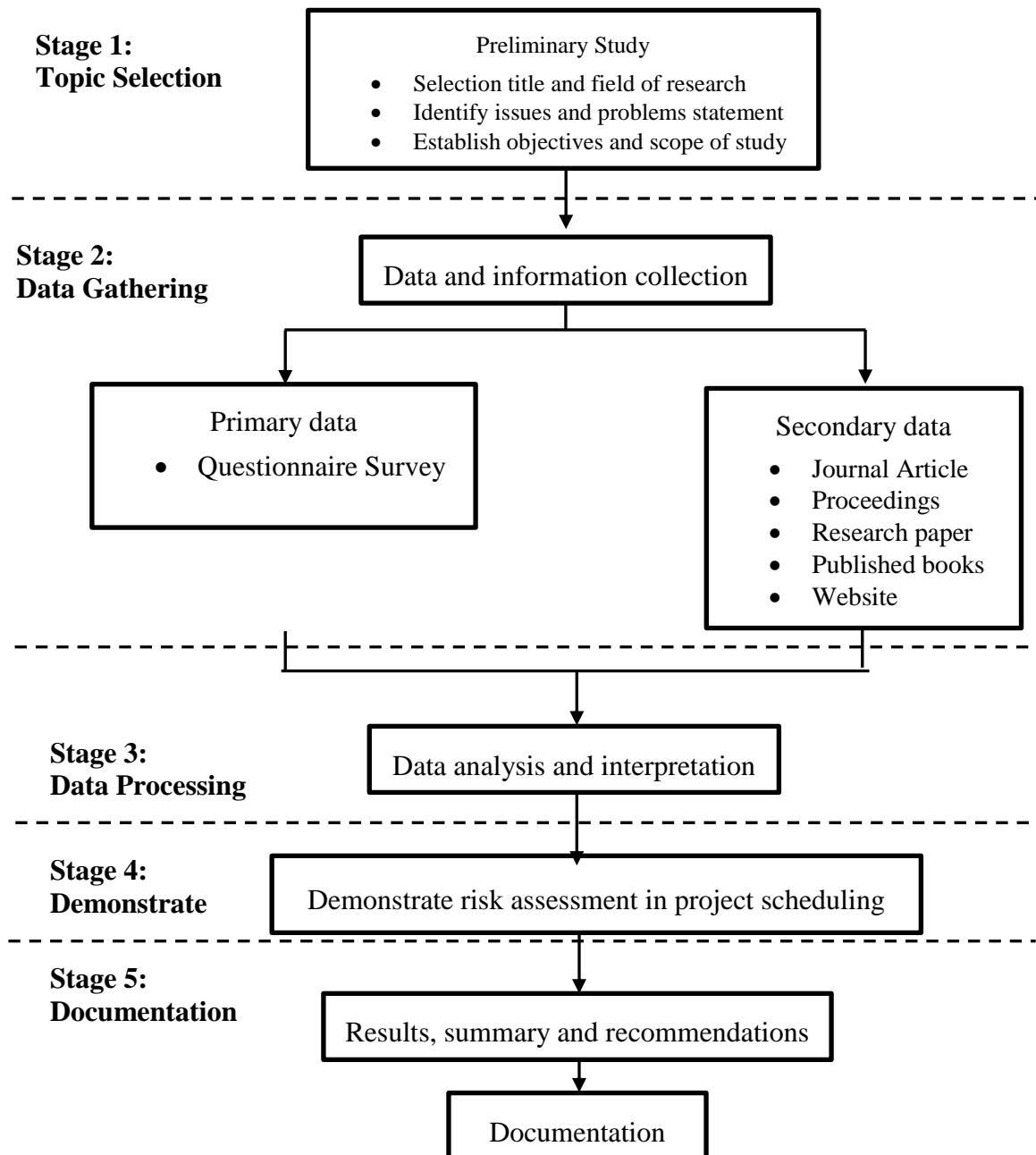


Figure 1.1 Methodology flow chart

#### **1.6.4 Analyzing data**

The primary data will be analysed through quantitative and qualitative methods, after taking into account data types and research objectives. The findings will be used for data analysis and interpretation to provide conclusions and recommendations. This research report, together with concrete suggestions for future research, will conclude with an outline conclusion for the thesis by referring to the research goals and objectives.

#### **1.7 Arrangement of report**

This master's project report is organized into 5 chapters as below:

**Chapter 1** the introduction of this study. It generally describes the background of the study. As well as include the problem statement, scope, and significance of the study and the method to carry out this study. It also clarified the aims and objectives of this master project.

**Chapter 2** discuss the literature review and what has been done by the previous studies in the same field. The stress risk issues in the construction industry have been highlighted as the sources and cusses of work-related stress. And to find out the hazards in the construction site. And what is the level of job stressors and what is the control measure for work-related stress risk assessment?

**Chapter 3** reviews the methodology adopted to justify the study strategy and the method that has been used for collecting the data. As well as it covered the analysis techniques that were used for this research.

**Chapter 4** concentrates on the analysis of the data collected from the questionnaire survey among professionals in the construction industry and the findings are reported in this chapter. The result will be presented in tables, histograms, pie charts, and others for better understanding.

**Chapter 5** will show the recommendations and conclusions of this research. This will include a discussion based on the results of the finding and some recommendations for future studies.

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