

**UNIVERSITI TEKNOLOGI MARA**

**WORK-RELATED MUSCULOSKELETAL  
DISORDERS (WMSDs) AMONG BUILDING  
CONSTRUCTION WORKERS**

**SITI NUR ANIS BINTI HASNAN**

**BACHELOR (HONS.) OF  
ENVIRONMENTAL HEALTH AND  
SAFETY**

**JULY 2015**

### **Declaration by Student**

Project entitled “Work-Related Musculoskeletal Disorders (WMSDs) Among Building Construction Workers” is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Mr. Abdul Mujid bin Abdullah as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

Student’s Signature:

.....  
(Siti Nur Anis binti Hasnan)

2011482682

920417-03-5404

Date:.....

## TABLE OF CONTENTS

<b>Title page</b>	
<b>Declaration</b>	
<b>Acknowledgement</b>	ii
<b>Table of content</b>	iii
<b>List of tables</b>	vii
<b>List of figures</b>	vii
<b>List of plates</b>	ix
<b>List of appendices</b>	x
<b>List of abbreviation</b>	xi
<b>Abstract</b>	xii
<b>Abstrak</b>	xiii
<b>CHAPTER ONE : INTRODUCTION</b>	
1.1 Background	1
1.2 Problem Statement	4
1.3 Study Justification	7
1.4 Study Objectives	8
1.4.1 General Objective	8
1.4.2 Specific Objectives	8

1.5	Study Hypothesis	8
1.6	Conceptual Framework	9
1.7	Conceptual and Operation Definition	10
	1.7.1 Conceptual Definition	10
	1.7.2 Operational Definition	11
1.8	Study Flow Chart	13
<b>CHAPTER TWO: LITERATURE REVIEW</b>		
2.1	Ergonomic Definition	14
2.2	Ergonomic injuries and the workplace	16
2.3	Workplace risk factors	18
2.4	Musculoskeletal Disorders	20
<b>CHAPTER THREE : METHODOLOGY</b>		
3.1	Study background	21
3.2	Study location	21
3.3	Study design	22
3.4	Study variables	23
	3.4.1 Dependent variables	23
	3.4.2 Independent variables	23
3.5	Data collection technique	23
	3.5.1 Observation	24
	3.5.2 Interview	24

## Abstract

### Work-related Musculoskeletal Disorders among Building Construction Workers

SITI NUR ANIS BINTI HASNAN

**Introduction:** The construction industry is often associated with risky and dangerous work. Musculoskeletal Disorders (MSDs) is one of the common work-related disorders among the construction workers. It contributes to the main cause of the absenteeism and loss of productivity in this industry. The purpose of this study was to determine the risk factors of Work-related Musculoskeletal Disorders (WMSDs) among the construction workers. **Method:** A cross sectional study was conducted on 140 of construction workers. Recruitment of the respondents was based on volunteer basis and systemic random sampling. The workers who have part time job are strictly excluded from this study. Modified Nordic Musculoskeletal Questionnaire (MNMQ) was used to complete the data collection and determining the prevalence of the MSDs among them using the technique of face-to-face interview, while Rapid Entire Body Assessment (REBA) was used to assess the risk of getting MSDs among the construction workers. SPSS was used to statistical analysis via chi-square test to indicate the association between the MSDs and the risk factors. **Result:** MNMQ showed the highest prevalence in MSDs in the lower back (69.8%) and followed by MSDs in neck (62.8%) during the last 12 months. The probable risk factors that contribute to WMSDs were mostly lifting and bending in awkward way, static posture during working and repetitive tasks due to the job demand. There were significant association between the MSDs in neck and one motion pattern repeated at high frequency ( $p=0.003$ ). MSDs in lower back showed the significant relationship with prolonged same position; standing, bend over, sitting and kneeling ( $p=0.031$ ). MSDs in lower back also have a significant association with bending and twisting in awkward way ( $p=0.04$ ). Result of the REBA Score revealed that 46% of the workers were under level three of getting MSDs, 31.4% categorized under level four, 17.4 % level two followed by 7% of workers critically under level five. **Conclusion:** Relatively high frequency of one motion pattern repeated and WMSDs among the workers denoting the high circumstances that required special attention. The prolonged of static posture and awkward postures of bending and twisting also play the role as the risk factors for these disorders. Ergonomic interventions must be focused on reducing the exposure to physical risk factors specially, repetitive tasks, prolonged static posture and poor posture.

**Key word:** MSDs, WMSDs, MNMQ, REBA, risk factors, construction workers.