STRESS LEVELS AMONG CONSTRUCTION WORKERS IN KIBERA RESETTLEMENT ACTION PLAN PROJECT IN NAIROBI CITY COUNTY, KENYA.

RUTH KAMENE KIOKO (BACHELOR OF ENVIRONMENTAL STUDIES)

Q22/CTY/PT/27344/2014

ENVIRONMENT AND OCCUPATIONAL HEALTH

A RESEARCH THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF THE DEGREE OF MASTER OF SCIENCE IN OCCUPATIONAL HEALTH AND SAFETY IN THE SCHOOL OF PUBLIC HEALTH AND APPLIED HUMAN SCIENCES KENYATTA UNIVERSITY

NOVEMBER, 2020

DECLARATION

I declare that this thesis is an original and personal work for the fulfillment of the award of Masters degree at Kenyatta University and has not been submitted in any other University.

Signature …….. Date ……

Ruth Kamene Kioko (Q139/CTY/PT/27344/2014)

This research report has been submitted to the University for Examination with an approval from the Supervisors.

Signature.…… Date …….

Eng. Dr. Fidelis Kilonzo

Department of Biosystems Engineering

Signature.…… Date ……..…

Dr. Christine Majale

Department Environmental Planning

DEDICATION

I wish to dedicate this report to my family that is my parents, husband, my friends and colleagues for of their unending support, patience, understanding and encouragement during the entire study.

ACKNOWLEDGEMENT

I would like to pass my gratitude and appreciation to each and every person who contributed in making this research a success. Beginning with my supervisors, Dr. Fidelis Kilonzo, Dr. Christine Majale and Dr. Gladys Mokua for their liberal advice and kind help, I appreciate you for all your time and important encounters that have imparted to me with respect to this Research. Without your help, this dissertation could have not been successful as it is.

Secondly, I would like to appreciate the respondents to my interviews during data collection for taking time to participate in my study through sharing views, information and encounters. I equally appreciate my friends who closely offered a helping hand in gaining information from respondents when carrying out the project.

Lastly, my gratitude goes to my lovely family for their unending support when carrying out this research project.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS

HSE	-	Health Safety Executive
MBI	-	Maslach Burnout Inventory
OS	-	Objective stress
RAP	-	Resettlement Action Plan
SPSS	-	Statistical Package for Social Sciences
SS	-	Subjective Stress
UK	-	United Kingdom
RO-BO	-	Rust Out Burn Out
KMO	-	Kaiser Meyer Olkin

DEFINITION OF TERMS

Resettlement action plan project- RAP is a development project that follows procedures by ensuring mitigation of adverse effects, compensation of losses and development benefits to the communities and people affected by the project.

Stress- Is a feeling that originate from excessive emotional and mental pressure.

Objective Stress- Is the difference between expected and real ability to handle a job

Subjective stress- The adverse response people have to unreasonable pressure or some other sort of demands put on them.

Burn out- Is the state in which an individual experience physical, mental and emotional exhaustion which is brought about by being overwhelmed and being emotionally drained making it impossible to achieve demands.

Rust out- Rust out is the stress that comes up when skills are not utilized completely.

ABSTRACT

Professionals engaged in the construction industry operate in highly competitive environment as they aim to keep pace with the global and national demands of infrastructural development. Workers engaged in the construction industry are expected to deliver designed projects within strict time lines and defined budgets. In this regard construction workers are subjected to emotionally and mentally demanding circumstances that contribute towards stress levels. Different studies done in segregated countries provide qualitative data concurrence that stress levels are high among construction workers. In Nigeria a study established there was high stress factors among construction workers. The contributing factors were insufficient thermal comfort, high work load; insufficient feedback on previous and ongoing building projects, inadequate security/ safety measures on site, and fragmentation of building work into specialized fields. In the United Kingdom, it was discovered that construction professionals were progressively viewing their work as being stressful. In Hong Kong, high levels of job burnout were evident among construction professionals. This has endangered their well-being and diminished their industrial efficiency and long-term competitiveness All things considered, to ensure that a given task is done considering spending plan and time, development laborers and specialists need to work for longer hours to achieve the targets that are set hence resulting to stress levels. This research looks at levels of stress in the construction business in Kenya with a focus on Kibera Resettlement Action Plan Project. In particular, the research investigates on what causes stress, stress levels and approaches to manage stress among work forces. This examination used a cross sectional descriptive investigation plan and focused on 176 employees working with H. Young and Company, (East Africa) Ltd to carry out the Kibera Resettlement Action Plan Project. The findings of the study found that the principal causes of work stress among construction workers are work overload, role conflict, complexity of roles and feedback which fall under task and organization stressors. The finding revealed that stress in construction firm is managed using different strategies that are either problem or emotional focused at the individual and company level and it established that male workers in the construction company had the highest levels of subjective stress while female workers in this construction company had the highest levels of objective stress. The study further found that general workers had the highest levels of subjective and objective stress followed by skilled workers and managers. The study thus postulates key recommendations in mitigation work stress among the construction workers. Foremost, the study recommends that construction firm to place more emphasis on task and organizational stressors especially with regard to role conflict, complexity of roles, work load and feedback. The second recommendation pertains to efforts by the management of construction firms in developing strategic ways that ensure the low cadre employees are not overburdened with work. The third recommendation is with regard to efforts by management of construction firm in regularly revising the company stress management strategies in order to maintain its efficacy. Finally, the study recommends that construction workers to form worker groups and unions in which they can share their work-related stress and report such stressors to the management for appropriate remedial measures.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

Work stress involves poor work conditions activated by various work environment operations that unexpectedly influences staff productivity and an individual's overall wellbeing (Yahaya,Noridin, Ismail, Sharif, Muhammad, Azlina, Noraffandy & Abbas, 2011). It is likewise referred to as unfavorable responses that an individual may have due to excessive stress emanating from work demands for target achievement placed on employees. Moreover, pressures associated to working conditions are the responses that workers can elicit in the event that they are confronted by work stressors beyond their capacity for accomplishment. As such, this frequently results to scenarios whereby the workers ability is frequently challenged to adapt to toxic work environments (Mxenge, Dywili, and Bazana, 2014).

In the contemporary world, work related pressure is not constantly viewed as an inconsistent individual issue that can be reduced with controls. Clearly, it develops continuously to a worldwide phenomenon affecting all work forces' groupings, work places and countries (Health and Safety Executive, 2007). In this manner, work related pressure impacts the welfare and wellbeing of individuals working in the construction industry. This is evidently perceived as an extreme pressure working environment (Bowen, Govender, Edwards & Cattell, 2014).

Since the advent of industrialization the world has experienced massive infrastructural development spurred by the construction industry. This has been through organizational and institutional revolution worldwide. As such professionals engaged in the

construction industry operate in highly competitive environment as they aim to keep pace with the global and national demands of infrastructural development. Workers engaged in the construction industry are expected to deliver designed projects within strict time lines and defined budgets. In this regard construction workers are subjected to emotionally and mentally demanding circumstances that contribute towards stress levels. At a global level past studies done by different researchers do not provide a singular quantitative statistics on the global stress levels. However, different studies done in segregated countries provide qualitative data concurrence that stress levels are high among construction workers within the countries of study. In this regard, studies done in countries such as Nigeria (Ibem, Anosike, Azuh& Mosaku, 2011), United Kingdom (Campbell, 2006), Hong Kong, (Yip & Rowlinson, 2005), Taiwan (Lin & Chan, 2009) all provide research proof of the high stress levels among construction workers.

In Nigeria a study by Ibem et al., 2011 established there was high stress factors among construction workers. The contributing factors were insufficient thermal comfort, high work load; insufficient feedback on previous and ongoing building projects, inadequate security/ safety measures on site, and fragmentation of building work into specialized fields. Campbell (2006) discovered that in the United Kingdom, construction professionals were progressively viewing their work as being stressful. Yip et al., 2005 discovered that in Hong Kong high levels of job burnout was evident among construction professionals. This has endangered their well-being and diminished their industrial efficiency and long-term competitiveness.

Lin and Chan (2009) noted that physically burdened construction workers were among the most vulnerable to the negative impact of temperature on their productivity and health. As such, they established that relative humidity above 74% and temperatures above 30°C affected the health of construction workers in Taiwan.

In the local context, Kenya's economy construction industry accounts for 5% of the country's GDP and employs about 1 million people with an estimated annual wage bill of K.sh. 3.2 billion according to recent findings of the first quarter of 2011 by Kenya National Bureau of Statistics (KNBS). Worldwide, the development businesses generate high contributions to the socioeconomic improvement of many countries. As such, the business is equipped for making explicit commitments to the economic physical facilities basic for development, in addition to circulation of more items and services (Sermolo, 2014). The development business produces occupation and income for a considerable division of the populace, and manages an expansive scope of operations together with advancements on various measures (Reem, Marwa, and Naanes, 2013).

Presently the development business has experienced real advancement and change. In addition, the developing economy places pressure on individuals taking an interest in the construction business (Ibem, Anosike, Azuh, & Mosaku, 2011). This change has occurred during industrial improvement, science and innovation, sub-urbanization, transformation, mechanization, an expanding population and unemployment (Bano and Jha, 2012) the development business has additionally seen contentious adjustment in the construction industry, characterized by fast paced working conditions due to increased production demand. This is as a result of the world becoming increasingly globalized

due to scientific improvement as well as consumer preference change (Ibem, *et al.*, 2011). When all these factors are combined, it contributed to both emotionally and mentally demanding construction work environments (Wahab, 2010; Ibem et al., 2011).

Construction industries are characterized by high ranks of work stress, mainly among the expert workforce (Bowen *et al.,* 2014). In this regard, work correlated pressure is a characteristic element of the job environment and goes beyond personal existence (Love, Edwards and Irani, 2010). The Chartered Institute of Building, (2006) posits that among building experts, sixty eight percent of the building experts experience anguish as a result of sadness, tension or stress.

Development organizations in continents that are developing like Africa and Asia, face difficulties in work stress management as a result of the general state of the financial and social burden of workers in such nations. This is further hampered by their inability to oversee key work process related issues in those nations (Ofori, 2002). Construction sectors in countries that are still developing ordinarily work in very aggressive condition that are characterized by the expectation of completion of activities in tight timetables within controlled spending budgets. To guarantee that assignments are done on schedule, within the budget margins, and to the right specifications, specialists in development firms in developing nations are compelled to work for longer hours (Wong, Teo and Cheung, 2010). Consequently, in underdeveloped countries, development experts are always exposed to stressors within the work environment. This ultimately increased the likelihood for burn out and fatigue (Yip and Rowlinson, 2006).

The construction sector has a significant role to play in a country's socio-economic progress (Majale, Morumbasi and Mutuli, 2000). Moreover, development exercises in developing nations have a significant influence in the strategy of financial advancement and development, based on their infrastructure and services that emanate from the processes of construction (Mitullah and Wachira, 2003). Foreigners, particularly the Asians, have highly dominated the construction industry (Mitullah and Wachira, 2003). At present, African countries have seen an inundation of Chinese development organizations, and this has greatly upgraded business development environment.

1.2 Problem Statement

The development business has seen continuous adjustment in the construction industry, characterized by fast paced working conditions due to increased production demand. This has been as a result of industrialization the world has experienced which has spurred massive infrastructural development. As such, workers engaged in the construction industry operate in highly competitive environment as they aim to keep pace with the global and national demands of infrastructural development. Workers engaged in the construction industry are expected to deliver designed projects within strict time lines and defined budgets (Ibem, *et al.,*2011) In this regard construction workers are subjected to emotionally and mentally demanding circumstances that contribute towards stress levels (Wahab, 2010; Ibem *et al*.,2011).

Construction industry having been marked as an amazingly stressful business in view of heaps of work, job uncleanliness, poor operational circumstance, regulatory organization and interpersonal relations that are complicated at the workplace (Leung,

Chan, & Yu, 2009). All this makes workforce in the construction industry to ceaselessly be presented to various stressors within their working condition. Consequently, construction experts and general laborers have persistently experienced elevated amounts of work related pressure, prompting mental, physiological, and sociological impacts and driving them to receiving distinctive ways of dealing with stress to relieve their condition (Bowen, et al., 2014). Therefore, there is better need to understand causes of stress in construction industry, levels of stress and stress coping mechanism as it can have major implications on project productivity and achieving project objectives.

A few investigations have additionally been done on stress levels in relation to the construction sector internationally and locally. For example, studies by Nigeria (Ibem, Anosike, Azuh & Mosaku, 2011), United Kingdom (Campbell, 2006), Hong Kong, (Yip & Rowlinson, 2005) , Taiwan (Lin & Chan, 2009) focused on work pressure in the building industry. This explores were done in various nations and analyzed various objectives subsequently and therefore their discovery may not be summed up to this examination setting. Further to this, majority of researches under the study topic have focused on different sectors, example (Kariuki, 2013), thus stress levels among workers in the construction business in Kenya especially on Resettlement Action Plan (RAP) ventures has not been widely considered, consequently, there is a gap which this investigation means to address, by looking at levels of stress amongst workers involved with carrying out Kibera RAP Project in Nairobi County.

1.3 Justification

This research was carried out on this specific area of study because unlike other construction sites, this site is located in the midst of the Kibera slum, with a lot of demolitions expected to happen so as to clear way for the project, delays expected and this could make the contractor work extra hard in respect to time frame of the project. The researcher chose this particular construction site because it could clearly highlight levels of stress among construction workers in Kenya especially on RAP ventures since stress in the job environment is an increasing issue globally, there is need to readily comprehend stess levels and manage it since it can have significant impacts on the welfare and wellbeing of people engaged in construction business (Bowen *et al*., 2014).

This research equally looked at causes of stress, stress levels among construction workers and ways in which we can manage stress in the building business. The findings will be relevant to firms in construction basing on the fact that they feature the likely sources of stress, stress levels and the potential approaches to adapt in order to cope with stress both at organizational and individual levels as they can get a clear understanding on the competencies needed by the management in order to averting and lessen the feelings of anxiety at building site and create a sound working environment.

1.4 Research Questions

The following research questions formed the basis of the study:

1. What are the main causes of stress among construction workers in Kibera RAP project?

2. What are the levels of objective and subjective stress among construction workers in the Kibera RAP project?
3. Which work stress coping strategies are employed in by both the organization and individuals in the Kibera construction site?

1.5 Hypothesis

Null Hypothesis

There is no significant relationship linking stressors and levels of stress amongst construction workers in Kibera RAP Project.

1.6 Research Aims

1.6.1 General Objective

General objective of the study is to determine stress levels among construction workers in Kenya with focus on Kibera Resettlement Action Plan Project.

1.6.2 Specific Objectives

1. To identify the causes stress among construction employees in Kibera RAP Project.
2. To determine the subjective and objective stress level amongst construction employees based in Kibera RAP project.
3. To determine the strategies of coping up with stress at work used by both the company and people in the Kibera construction site

1.7 Significance of the study and Anticipated Output

Outcome of research findings will be relevant to firms in construction based on the fact that they feature the likely sources of stress, stress levels and the potential approaches to adapt in order to cope with stress both at organizational and individual levels as they can get a clear understanding on the competencies needed by the management in order to averting and lessen the feelings of anxiety at building site hence improving efficiency as well as performance of the organization.

Many studies concerned with work related stress in other fields both the public and private sector have been done (Sharma, 2015, Kariuki, 2013). This particular study will help cover the existing gap in the construction sector, although with a lot still to be done in helping toward understanding work stress and stress levels in the construction industry, this investigation will help significantly towards achieving this target.

1.8 Limitations and Delimitations of the Research

1.8.1 Limitations

The level of stress in construction business was a major area of concentration of the study, hence the study findings may fail to sum up to non-associated industrial sectors since various segments have various reasons for pressure and therefore, they apply various kind of techniques to oversee/adapt to work related pressure. Having Subcontractors, the examination just centered on H-young employees at the site due to the weakening dimensions of subcontractors. During the period the research was being carried out, general laborers 49 of them had been transferred to another construction

project by the company, 7 workers were on leave 11 workers were less than 3 months employed, while 5 declined to take part in the research hence a response rate of 59%.

1.8.2 Delineations

The study aimed at examining stress associated with work at constructions sites in Kibera. The examination was focused on Kibera RAP Project in Kibra Constituency in Nairobi County. This examination included every one of the representatives working at the building site. The research was conducted from October 2015 – July 2018

1.9 Models of Stress

I. Richard Lazarus Stress Model

The stress model was pioneered by Richard Lazarus .(Lazarus & Folkman, 1984) It underlines that focus should not only be directed towards the environment or stressors but also on the individuals who go through the stressful conditions on a daily basis hence forcing them to adjust. The model's notion of exploration revealed that the ability of humans to reason and plan for the imminent days makes them susceptible to stress. In this way the pressure impact on an individual depends on that individual's feeling of susceptibility and their capacity to adapt.

Significance of this model is the ability to adjust to stressful conditions. In this regard, Lazarus & Folkman (1984) illustrate that adaptive actions can be identified based on a number of elements arising from an unpleasant or stressful encounter that can result to changes on an individual's environment that is characterized by negative emotions., As such, that is the concept of problem focused coping.

An individual can as well as relate to the internal elements and also attempt to lessen the negative emotional situation. As such, this is the concept of emotional focused coping.

II. The stress model of Cox's

As indicated by (Mackay, Cox, Burrows & Lazzerini , 1978). An individual can become stressed when there is a difference between their recognized levels of stressful demands along with their recognized capability to respond and cope with the demands.

In this regard, an unevenness emerges linking recognized demands and recognized coping capabilities. The coping capabilities are dependent on an individual's view of the work environment and the emotional expertise of it aiding an individual to perceive the work stressors. The Cox model further recommends that if an individual can distinguish between the psychological and environmental call/demands placed on him/her, through counselling he/she can learn the best resources to apply when faced with familiar stressful demands. This consequently enables an individual to know whether they are encountering harmful stress levels.

III. Conceptual Framework

As set by Leung *et al*, (2009) the organizational, task, physical and individual stress factors makes up the major classes of work stressors. The stressors leads to escalated stress levels both SS & OS. The various sorts of stressors and their impacts can be controlled through utilizing different strategies of managing stress and this can be Problem focused or emotional focused and can be at organizational or individual based as depicted in the figure 1.1 below.

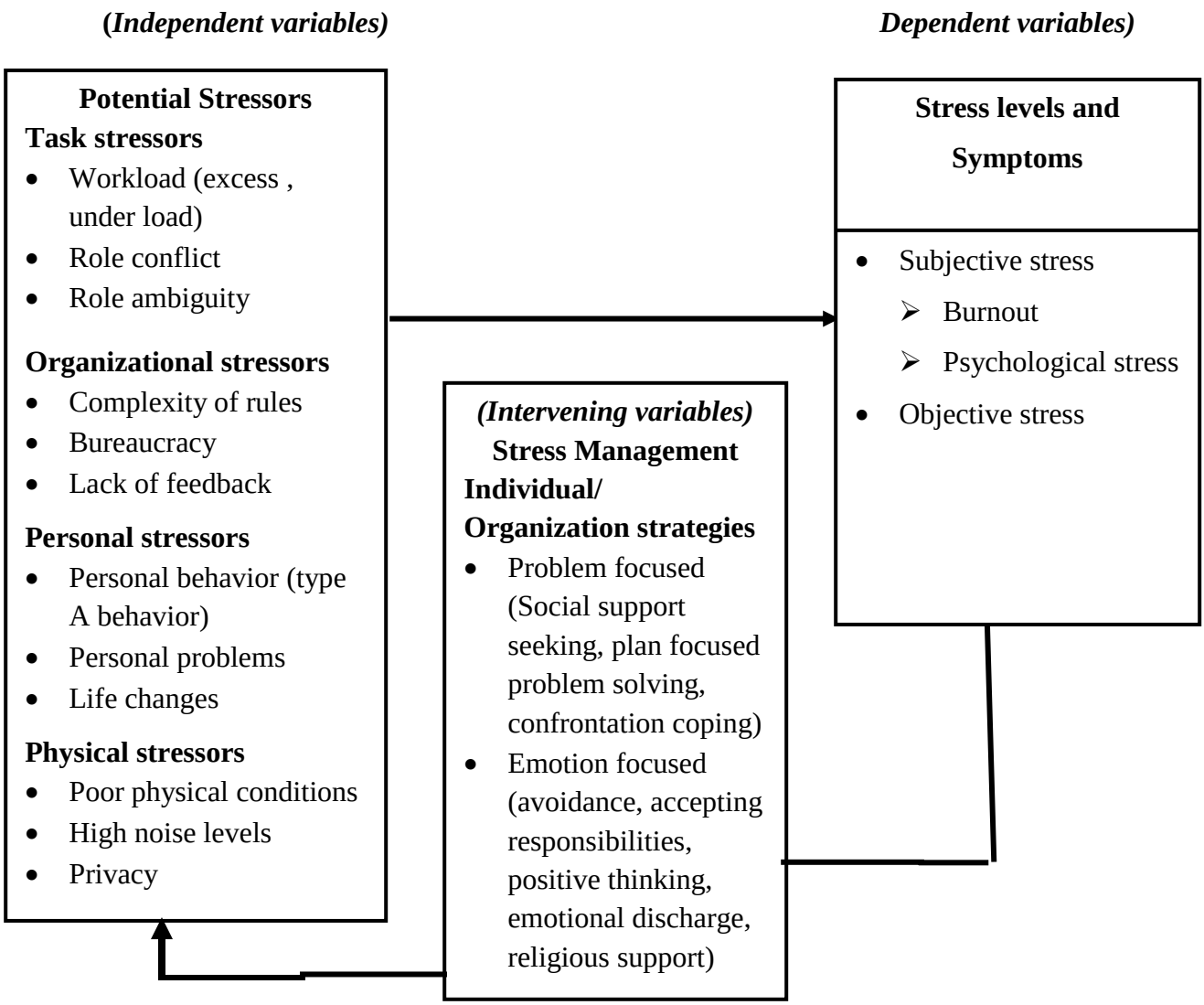

Figure1.1 The Conceptual Framework

The framework depicts a short summary of what causes stress (independent variables). It exhibits the probability of being impacted by dimension of pressure due to task, which incorporates remaining task at hand (over-burden, under burden), role ambiguity and role conflict (Leung *et al,* 2009). Then again, organizational factors incorporate; lack of feedback, complexity of roles and absence of feedback to workers about the

state of work, which incorporates assured job security. All this are considered to make workers get stressed.

Moreover, individual factors incorporate; person's behavior (type A conduct), and accentuation that type A behaviours are more affected by stress, individual issues that an employee encounters and life transformations that may occur in the life of somebody are additionally depicted to cause stress (Leung *et al,* 2009).

Additional are the physical factors which cause stress and they can include; high levels of noise, unfavorable physical conditions and privacy. Additionally, the model shows the dependent variables which include; Subjective stress which comprises of Burnout and Psychological stress and Objective stress , finally, the model shows ways of coping with stress(intervening variables), employed by both organization and employees. The systems to manage stress include problem and emotional focused stress management mechanism.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

Chapter two details an in-depth literature review of work/job pressure and stress levels. The section shows the likely job stressors, the side effects/results of occupation-associated pressure and ways to manage stress. In addition, the section delves into past studies in relation to the study topic.

2.2 Potential Work Stressors

The stressors are the conditions that regularly result to pressure. The stressors are depicted as demands and can be physical or psychological in nature (Mxenge, Dywili & Bazana, 2014). Work stressors are commonly viewed as occasions that stir strain and defined as any attributes in the work environment that can cause danger to an individual (Shikieri & Musa, 2012). As indicated by Leung *et al.*, (2009) four categories of stressors exist particularly in development business, incorporating task, individual, physical and organizational stressors.

2.2.1 Task Stressors

The task stressors pertain to under or over burden, job conflict, and job ambiguity in everyday work of development experts (Leung, *et al.*, 2009). Overburden implies that requests of work are unreasonably high for an individual. Work conflict occurs development-oriented employees are unsure or conflicted between varying work requests. On the other hand, job ambiguity implies an absence of clarity concerning the job and the tasks involved (Leung, *et al.*, 2009; Enshassi & Al-Swaity, 2015). Task stressors ordinarily emerge amid the typical course of the activity and they include work

under burden similarly to abundance work, clashing tasks at work, exhaustive work and also disruptions (Nekzada and Tekeste, 2013)

As indicated by Ibem et al., (2011), task stressors allude to stress sources that emanate from an individual's activities. Stress is brought about by excessive work pressure to attain deadlines, excessive number of choices and decisions to make, exhaustion due to physical strain at the workplace environment, working for long hours, adapting to new working conditions and costs associated with errors. Task stressors occur when it is unclear to a worker on the type of work to be prioritized when faced with short deadlines (Nekzada and Tekeste, 2013). Task stress issues are strengthened by lack of job distinction in form of unclear scope of works, job objectives and lines of responsibility. Insufficient or over abundance of work is an extra source of work stress which often leads to despair, dismay, low confidence and a feeling of futility (Leung, Zhang and Skitmore, 2006).

2.2.2 Organizational Stressors

These are usually viewed as pressures originating from within the business itself, including the managerial framework such as control of freedom space given to employees within the work space (Leung, *et al.*, 2009). Administration perspectives in most cases are experienced by workers in a job environment. They include issues such as uncertainty in job roles whereby the worker lacks the ability to precisely recognize what is expected of him/her (Nekzada and Tekeste, 2013**).**

As indicated by Enshassi & Al-Swaity, (2015), the existence of hierarchies and bureaucracies leads to poor organizational structure in the building industries. Enshassi

& Al-Swaity, (2015) state that people working in an overly combative environment are normally involved careless conduct, exhibit inferiority complexes at work, exhibit a bad attitude to the work assigned, and have a low occupation gratification and commitment levels.

2.2.3 Individual Stressors

These are identified with relational features that form foundations of uneasiness among development experts (Enshassi & Al-Swaity, 2015). Individual stressors incorporate how an individual behaves at the workplace as a result of strained social relationships at home. People have various identities and behaviors and as such stress affects various individuals in different ways. Behaviours are categorized into two according to Enshassi & Al-Swaity, (2015). These are Type A and B behaviors. Type A behavior are characterized by traits such as; faster, overly aggressive, very competitive, insecurity in status, extreme impatience, time consciousness, highly intimidating behaviour and inability to exercise composure. On the other hand, type B behavior are characterized with high levels of tranquility.

Individual stress can be triggered by stressful issues from an individual's family, home-work fight and monetary issues. Worry at work environment is brought about by various things (Greenberg, 2011). Individual stress may likewise originate from grieving or separation with spouse. Other life events which are stress provoking involve; sickness, joblessness, money related pressure (Health and Safety Authority, 2011).

Good social relationships particularly at the job environment has been recognized as a significant capability for construction specialists and other workers to achieve perfect work execution and enhanced sense of wellbeing (Leung, *et al.*, 2009).

2.2.4 Physical Stressors

These are environmental related causes of stress found at the work or home environment of construction workers (Leung, *et al.*, 2009). This kind of environment is characterized by work deprivation for a worker in the construction sector that can be arise from poor illumination**,** extreme variations in temperatures, excessive noise levels, untidiness, among negative environmental factors (Enshassi & Al-Swaity, 2015).

Wahab (2010), states that poor working conditions increases stress as well as affecting the operational execution of laborers. Greenberg, (2002) states that unsafe tasks, lethal chemicals, high noise levels, poor hygiene, unfriendly fragrances similarly to other stressful issues can result to health ailments detrimental to workers.

2.3 Consequences of Occupational pressure.

Professional pressure has various harmful impacts to an individual and the equally affects the whole business operation (Herbert, 2011). Stress in organizations negatively impacts both the individual and the organization. The stress reactions can occur immediately and spontaneously (present moment) or manifest after a long time span (long term responses). There is a likelihood of stress to cause either positive or negative effects. As such, if stress levels are appropriate, it will yield positive results by increasing efficiency. Conversely, if stress levels are high, it prompts an inverse impact on job productivity (Leung, Zhang and Skitmore, 2006).

This investigation will focus on two classes of pressure and they include objective and subjective stress. Subjective Stress is brought about by the result of activities people go through, while Organizational Stressors are brought about by external elements Leung *et al.,* 2007).

2.3.1 Objective stress

Objective Stress pertains to an individual's view on their capability of accomplishing or undertaking a certain task in the face of eminent hurdles in its achievement (Leung *et al.,* 2007). Objective Stress originates from the fact that there is an inherent contrast between the expected capacity and the realistic ability to manage a specific task productively. Components that causes of OS include: absence of self-governance, decision making, the load of work, number of errands, job conflict, biased rewards, and domestic strife (Leung *et al.*, 2007).

2.3.2 Subjective stress

This kind of stress is recognized by a person via their own independent judgment. Subjective stress is weighed by how an individual is satisfied with the environment, degree of self-confidence with the organization and the feeling of misery or contentment (Leung *et al.,* 2007). There are two categories under SS. These are; burnout and psychological stress (Leung *et al.*, 2007).

2.3.2.1 Burnout

It is viewed as a condition of psychological, physical and emotional fatigue caused by high levels of stress. It manifests when an individual perceives his/her incapability of

attaining continuous workload. It's recognized as a principle issue in construction industry (Leung, *et al.,* 2008). Burnout normally emanates from job over-burden, uncertain expectations, unfair distribution of tasks, poor employment where job does not match skills, absence of social support and work.

2.3.2.2 Psychological stress

Construction employees experience psychological pressure more in contrast to workers from different sectors. Psychological pressure gradually exhibits itself in the following ways; continuous headaches, lack of appetite, insomnia, gastrointestinal issues, back problems as well as skin irritations (Leung *et al.,* 2008)

2.4 Stress Measurement Levels

Scales can be used to measure Levels of stress as described in the subsequent sections.

2.4.1 Objective Measurement Levels of Stress

These are the proxies for uncovering the variations linking expectations to one's actual capabilities. Objective Stress is usually evident when actual capacities are far less than the foreseen capacities. The widely recognized scale in quantifying Objective Stress is the (RO-BO) scale. The ratio is used in a no. of tasks when assessing the strain of assignment to be completed (Leung *et al*., 2007). Stress levels are estimated equitably by acquiring the deviation between an individual's expected capabilities and the real capabilities dependent on 7 proclamations (Leung *et al*., 2007). This implies that excessive levels of stress can result to burnout while minimal work pressure results to laxity that leads to reduced productivity.

2.4.2 Subjective Measurement Levels of Stress

Subjective Stress (SS) is estimated through utilization of Maslach burnout list (MBI). MBI was first utilized by experts specializing on human services which comprised of 22 factors used in measuring burnout. These factors were further categorized into three wholistic groups of emotional exhaustion, depersonalization and personal accomplishment (Maslach *et al.,* 1996). A few researches have reduced a portion of some of the items to fit the construction industry (Leung. *et al.,* 2008). In this examination, the altered scale with decreased items will be used.

2.5 Work Stress Management Strategies

Strategies used to manage stress include coping strategies, reincorporation, and recovery. These are measures are applicable to individuals experiencing work related pressure who seek to embark on changes that ultimately lead to stress reduction (Wahab, 2010). As indicated by Enshassi & Al-Swaity (2015), there exists two classifications. These are problem focused and emotional focused. The principle goal of problem focused way of managing stress is to address the situation either by changing the condition or by acquiring basic data, capacities or assistance (self-coordinated). On the other hand, emotional focused way of managing stress aspires to eradicate negative emotions central to the problem through approaches such as wishful reasoning and distraction (Enshassi & Al-Swaity, 2015).

Stress especially at working environment is mainly reduced through the use of various methods and strategies (Love. Edwards and Irani, 2010) For example, at an individual level this entails cognitive techniques, good relaxation and exercise. Moreover, at an

individual level, actions for managing work related pressure may involve taking part in relaxations, participating in various ways of entertainment, exercising, family gatherings and other groups, and seeking assistance from line managers, colleagues and friends (Bowen *et al.*,2014). At the group level, methods may involve team building and trainings**.** At an administrative dimension, strategies may emphasis on altering working shifts, reducing physical dangers, profession ranks, innovations and work variety (Love, Edwards & Irani, 2010).

Organizational involvement may be of numerous sorts. Examples include dimensions of staffing, physical environment, working schedules**,** regulation of work, participation and communal support (Michie, 2002).

Oladinrin, Adeniyi, & Udi, (2014) illustrate that in order to limit pressure and manage stress, it is pertinent for an individual to adopt measures such as activity time allocations, reducing work overtime schedules, adopting team work attitude, and spending time with friends and family members. Kariuki (2013), similarly states that work-related pressure can be successfully managed by offering employees preferential work time shifts, pay increments, fairness in work appraisals and due diligence in staff promotions. Bowen *et al.*, (2014), advices organizations to focus on improving managerial and complementary help for development specialists. Organizations must depict some official programs, like programs to support workers in need of career guidance. All the stages are aimed at addressing problems of pressure by training workers in various pressure administration techniques like recreation and consideration (Greenberg, 2011).

2.6 Initially done studies on Work Stress

Table 2.1 Literature Findings on Work Stress

Researcher	Objectives	Findings
Saikala and Selvarani , 2015	To identify the key stress factors among construction professionals including architects, engineers, builders and other related specialists involved in building construction industry	The study findings established that the principal foundations of stress were heavy volume of job, work pressure, lack of provisions at site, non-coordination of people from various levels, improper administration, lack of response on prior and continuing construction projects and finally charges in choice of work in ongoing construction projects.
Sharma , 2015	To discover the aspects prompting occupational stress faced by Indian army soldiers and to evaluate the applicability of the scale used for measuring occupational stressors	Exploratory Factor Analysis established that lack of control at work, role conflict, inadequate awareness about profession, workload and job pressure, and indifferent organizational attitude as the major occupational stressors in the Indian army.
Bano and Jha , 2012	To explore the differences in work-related stress between communal and private sector employees based on ten role stressors. The study too examined the role of population variables on the stress intensities of both public and private segment sets	The study findings established that both public and private sector workers face moderate levels of stress. In addition, the study established that there is no noteworthy transformation overall between public as well as private sector workers in terms of total stress echelons, confident distinct stressors like job experience and instructive qualifications do yield changes.
Leung, Chan and Olomolaiye, 2008	To investigate the impact of stress on the performance of Building Project	The study findings established that objective stress decreases job performance whereas exhaustion

Researcher	Objectives	Findings
	Directors	can have a constructive effect on task performance. The study also established that relational performance is exploited with a reasonable level of neutral stress and increases in line with the improvement of the task performance of individuals and that administrative performance has U-shaped relations with both stress and physical pressures and is deteriorated by neutral stress.
Yip and Rowlinson , 2006	To investigate the coping behavior of construction professionals in their working environment	Factor analysis revealed that four dimensions could satisfactorily describe the coping behaviors observed i.e. lucid problematic solving, reconciled distancing, seeking provision/ventilation and passive hopeful thinking. Among these 4 managing scopes, lucid problem solving was found to be used most regularly and to be clarified by the most noteworthy percentage modification.

Researcher	Objectives	Findings
Loosemore and Waters , 2004	To investigate whether there are alterations in sources as well as levels of stress amid male and female specialists in the building business.	The results indicate that overall, men experience slightly higher levels of stress than women do. The findings further revealed that though there are mutual bases of stress for both males and females. there are equally some changes males appear to agonize more stress in relation to hazard taking, penal matters, and inferences of errors, redundancy, and career development. The study also revealed that the factors that reason a lot of stress for women were prospects for individual expansion, amounts of pay, keeping up with new philosophies, occupational travel, as well as the incremental effect of minor jobs.

2.7 Literature Review Summary

Current/existing literature shows that there are various work stressors. These include task, individual, organizational and physical stressors. Furthermore, investigations have been done focusing on different objectives on work stress levels and mitigation of work-related stress. As such, several strategies were utilized. Majority of the studies have been done in different countries and focused on different objectives with a few conducted in Kenya. In this regard, there is an evident gap within the local context in relation to the study topic at hand that justified the investigation of stress levels amongst construction workers in Kibera RAP development in Nairobi County, Kenya.

CHAPTER THREE: MATERIALS AND METHODS

3.1 Introduction

This chapter shows research design, study variables, the investigation area, population and the sampling techniques. Similarly, the section exhibits the examination tools, the experimental, validity and reliability and information collection techniques. This section further presents the techniques that were used for data analysis and logistics and ethics consideration.

3.2 Research Design

A cross sectional descriptive study design was applied to achieve the study objectives in the study. The rationale for the design was because it allows the researcher to carry out the research at that particular point in time, since the project would have definitely come to an end, cross sectional design was relevant to this study (Kesmodel, 2018).

3.3 Variables

The examination sought to analyze the levels of stress among construction workers in the Kibera RAP development venture. In this regard, the independent variable was based on work stressors within development business. As such, the work stressors pertained to task, organizational, individual and physical stressors whereas the dependent factors included; potential outcomes of work-related stress which included objective stress and subjective stress. Equally, the mediating variables analyzed pertained to the management strategies of stress. The factors were estimated utilizing inferential as well as descriptive statistics.

3.4 Area of study

The investigation was completed and it involved construction workers situated at Gatwekera area in Kibera area; Nairobi, Kenya, working under Kibera RAP Project. Co-ordinates of the project undertaking area were within - 1.3148818 and 36.7812489. The construction workers had been engaged by, H. Young and Co. (E. A) Ltd.

3.5 Study Population

The investigation population involved 176 construction workers engaged by H. Young and Co. (E.A) Ltd for development work of the Kibera RAP Project in Gatwekera section in Kibera area. During the study, 104 workers participated in the study 49 general workers had been transferred to a new project which was starting up 7 workers were on leave and 5 workers declined to participate in the study, 11 workers had been employed for less than 3 months

3.5.1 Inclusion criteria

Data was collected from employees of Kibera RAP Project who consented to participate in the research and involved workers who had been employed for more than three months. This is because the workers employed for less than three months might not have the real feel of the work and they may be stressed because they are not used to the work

3.5.2 Exclusion criteria

Workers undertaking the project who did not give consent to participate in the investigation were kept out. Those with exceptional conditions, for example, being

away from work because of sickness, accidents or on vacation/ leave were also kept from the investigation.

3.6. Sample size determination

The investigation completed a census of the 176 workers at the building site. Census was considered because the population was little, this helped in avoiding and reducing statistical errors.

3.7 Study Instruments

The data of the study was collected using an observation checklist and questionnaires. The observation checklist was based on a Likert scale and collected data on work load, work under burden, job strife, job ambiguity, bureaucracy, feedback, complexity of roles, interpersonal and physical stressors during the morning, afternoon and the evening hours. Questionnaires on the other hand had 5 sections and which included; background information, causes of stress, RO-BO scale, MBI and stress management section. RO-BO scale was used to measure objective stress levels while the MBI was used to measure subjective stress levels.

3.7.1 Pre- Testing and Pilot Study

The questionnaires were pre-tested using 10 respondents who were randomly selected from another building site of H. Young & Co. (E.A) Ltd situated in Mlolongo. The pre-test was done in order to ensure correctness and accuracy of the questionnaire before the actual survey. After the respondents responded to the questionnaire, they were asked the challenges they faced when responding to the question. The pilot study outcomes were not used when compiling final findings.

3.7.2 Validity and Reliability

To ensure validity, 10 respondents were selected randomly from a site that belongs to H. Young & Co. (E.A) based in Mlolongo so as to help test appropriateness of the tools to be used before using them to complete the study sample, the respondents were then asked of the challenges they faced when responding to the question for the purposes of identifying and correcting any errors. To achieve Reliability of questionnaire Cronbach's Alpha Coefficient was used and it yielded an Alpha estimation of 0.753 which was viewed as satisfactory since it was higher than the value recommended of 0.7.

3.8 Data Collection Techniques

Data collection was carried out through interview-administered questionnaire and observation checklist (see appendix II). Data collection was done with the aid of 2 research assistants, degree holders with good knowledge on Occupational Health and Safety and were also trained on how to administer the questionnaires and conduct inspection. The principal researcher coordinated all the activities to ensure that the data collection process was properly carried out.

3.9 Data Analysis

Accumulated data was analyzed by use of descriptive statistics, inferential statistics and SPSS. Descriptive statistics involved the utilization of frequencies, percentages and the mean. Inferential statistics was utilized to draw inferences. As such, socio-demographic information was analyzed using frequencies and descriptive analysis; Factor analysis was used to check for inter-relationship as well as decrease the number of the variables

into a smaller number of variable; Mann-Whitney was used to check stress level distribution among the sex of the respondents; Kruskal Wallis tested stress levels among the different job levels; and, Chi-square utilized to test for significant relationship among stressors and the levels of stress among Kibera RAP Project workers.

3.10 Logistical and Ethical Considerations

The motivation behind the research was shared by the researcher to the participants so that the study could get informed consent from the participants. As such, each participant was approached at an individual level and taken through the purpose of the study and process of data collection. Verbal consent for participation was consequently sought and attained.

The anonymity and confidentiality of participants was guaranteed by not indicating their names in the data collection forms or study findings.

Data privacy was ensured during data collection by conducting the interviews in private areas free from crowded areas with each participant to avoid the possibility of discussion being heard by other people.

The ethical approval was sought and granted from Kenyatta university graduate school, Kenyatta University Ethical Committee and NACOSTI. Prior to this approval, permission was first pursued and from the relevant authorities of the study site in Kibera.

.

CHAPTER FOUR: RESULTS

4.1 Introduction

This chapter shows study results based on the study objectives. The chapter presents the outcomes on the response rate, respondents profile and causes of work stress. Further, the chapter presents the results on stress levels and ways for stress management. Finally, the chapter presents the inferential statistics which comprises of factor analysis, Kruskal -wallis and Mann-Whitney test and finally the chi square test.

4.2 Response Rate

The research carried out census of 176 employees who had been engaged by H.-Young and Co. (E.A) Ltd for the Kibera RAP Project in Nairobi. Eight questionnaires were administered to the management staff, 74 to the skilled worker and 94 to the general labourers. All the questionnaires administered to the management staff were fully responded to while 45 and 51 questionnaires were collected from the skilled and general labourers. Thus, complete data was obtained from 104 respondents since some of the respondents especially skilled workers and general labourers 49 of them had been transferred to other construction projects by the company, 7 workers were on leave 11 workers were less than 3 months employed, while 5 declined to take part in the research hence the rate of response was at 59%. Response rate was however considered adequate for this particular study since it was more than 50%.

4.3 Respondents Profile

This sought to establish gender of the respondents, period worked, respondents age level of education, marital status and the number of children.

4.3.1 Gender of the Respondents

78% of the respondents were male while 22% were female. As such, the results depicted that the Kibera construction project was largely dominated the male gender. This results were useful in finding out the subjective and objective stress levels among male and female construction workers.

4.3.2 Period Worked by respondents working in Kibera RAP Project

The results on the period the respondents had worked with the construction industry are shown in figure 4.1

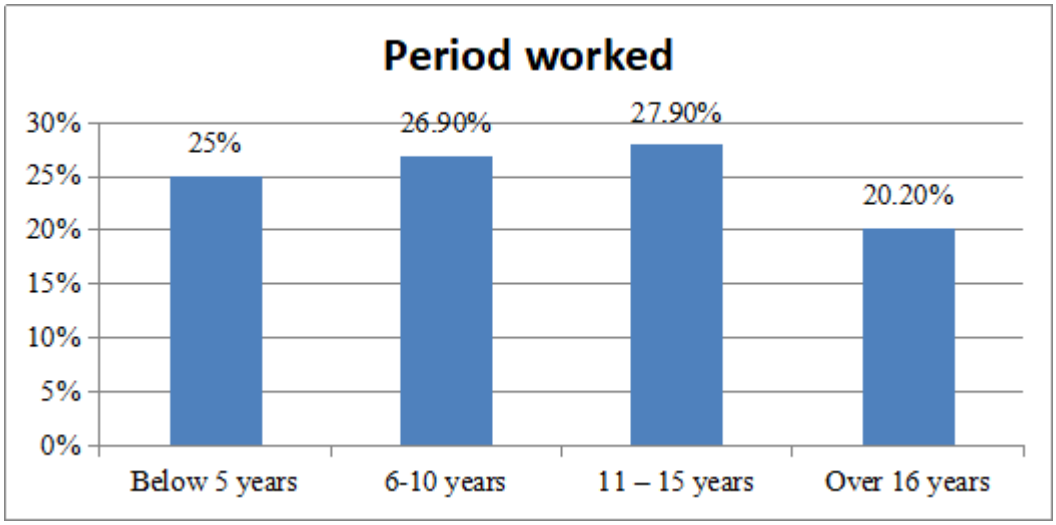

Figure 4.1 Period Worked by respondents working in Kibera RAP Project

The results of the period worked on figure above indicates 27.9% of respondents had worked in the construction industry between 11-15 years. Conversely, 26.9%, 25% and 20.2% had been working for 6-10 years, for less than 5 years and for more than 16 years respectively. On average this finding indicates that most of the respondent in the construction firm had been working for more than 5 years, this section was important to this study because number of years worked could have an influence on how a worker perceives stress.

4.3.4 Age of the respondents

The results of the age of respondents who had worked with the construction industry are shown in figure 4.2

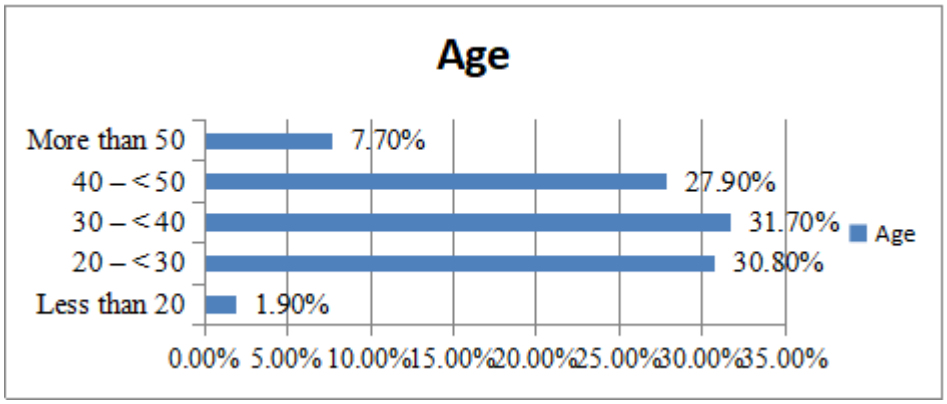

Figure 4.2 Age of respondents working in Kibera RAP Project

The findings on figure above reveals 31.7% of respondents were aged between 30 and 40 years while 30.8% were aged between 20 and 30 years respectively. The results likewise show that 27.9% of the respondents were between the ages of 40 and 50 years whereas 7.70% were aged above 50 years. 1.90% of the respondents were aged less than 20 years. Findings on the age cohorts were pertinent to this study since it would elicit the effects of how workers perceived and responded to stress.

4.3.5 Education Level among workers in Kibera RAP Project

The result indicated that 45% of total respondents were secondary school graduates whereas 40% were college graduates while 15% were university graduates. This indicates that the respondents had education skills and none was without education. Having high number of workers with high levels of education could be a cause of stress because some workers may feel like their skills are not being put into use.

4.3.6 Marital Status of workers in Kibera RAP Project

Figure above clearly reveals 85% of total respondents were married while 15% were not married hence an indication that most of the respondents had a family to take care of which could result to stress at the work place. The workers participated in the study despite their marital status.

4.3.7 Number of Children of workers in Kibera RAP Project

Figure 4.3 shows the number of children the respondents had

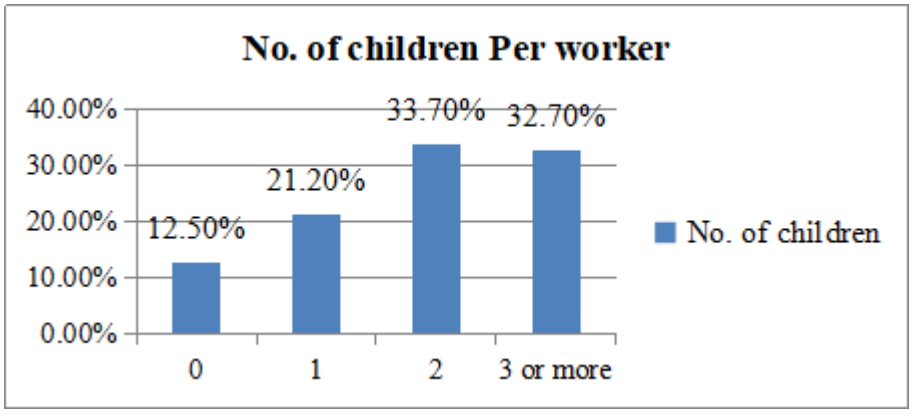

Figure 4.3 Number of Children per worker

Figure above indicates that 33.7% of respondents had 2 children while 32.7 had 3 or more children. The results further indicate that 12.2% of the respondent had 1 child while 12.5% had no children. These results were significant to research because number of dependents a worker has could also lead to high stress levels.

4.4 Causes of Work Stress

4.4.1 Task stressors

Table 4.2 Task stressors faced by workers in Kibera RAP Project

Work Overload	**Agreed Freq (%)**	**Disagreed Freq (%)**
I frequently work for long hours	71(68.3)	33(31.7)
The tasks I have to work on often have tight deadlines	66(63.5)	38(36.5)
I am always required to multi-task and make many decisions	72(69.2)	32(30.8)
I have to put much efforts in guiding my subordinates in their work	43(41.3)	61(58.7)
Work under load		
I am given very limited authorities	50(48.1)	54(51.9)
I feel my skills and abilities are not being used well	32(30.8)	72(69.2)
I frequently face unplanned delays in work	48(46.2)	56(53.8)
Role conflict		
I am often caught by conflicting demands between different parties	55(52.9)	49(47.1)
My personal and organizational goals do not match	32(30.8)	72(69.2)
I am often assigned tasks which are not part of job specification	40(38.5)	64(61.5)
Role ambiguity		
My job responsibilities are generally unclear and inconsistent	12(11.5)	92(88.5)
I have inadequate understanding of duties and responsibilities	26(25.0)	78(75.0)
My role and scope are ill-defined	37(35.6)	67(64.4)

The results on table 4.2 show the findings on task stressors comprising of work over/under load, role conflict and role ambiguity. The results on work overload indicate

that most of the respondents were required to frequently work for long hours (68.3%), adhere to tight deadline (63.5%) s and constantly required to perform multiple tasks and decisions (69.2%). On the other hand, 58.7% of the respondents elicited disagreement that they were required to apply more effort in guiding subordinates in carrying out their respective work deliverables. The outcomes on work under burden depict that majority of the respondents expressed disagreement with the following; being given limited authorities (51.9%); lack of adequate utilization of their skills and abilities (69.2%); and that they frequently faced unplanned delays in work (53.8%).

The results on role conflict showed that 52.9% of respondents agreed that they were regularly caught in between by clashing demands among various parties. Alternatively, 69.2% of respondents expressed disagreement with the perceptive statement that their personal goals and organizational goals were mismatched. Respondents equally did not concur that they were usually assigned jobs that were not part of their respective job descriptions (61.5%).

The task stressors assessed under role ambiguity elicited general disagreement among the respondents. As such, 88.5% did not agree that their job responsibilities are generally unclear and inconsistent, neither did they approve of having an inadequate understanding of their jobs and responsibilities (75.0%). Furthermore, majority did not feel that their work roles and scope are inadequately defined (64.4%).

4.4.2 Organizational Stressors

Table 4.3 Organizational Stressors faced by workers in Kibera RAP Project

Complexity of roles	**Agreed** Freq (%)	**Disagreed** Freq (%)
Our organization is characterized by unclear reporting structure	19(18.3)	85(81.7)
I have to carry out the work in complicated work procedures	37(53.6)	67(64.4)
The organization policies and procedures adequately support employees	79(76.0)	25(24.0)
Bureaucracy		
I have to consult other people before making a decision	73(70.2)	31(29.8)
Many of the rules/procedures make doing a good job difficult	38(36.5)	66(63.5)
There is adequate room for innovation and freedom to use personal ideas	40(38.5)	64(61.5)
Feedback		
I can get feedback from my supervisor on how well I am doing	64(61.5)	40(38.5)
It is hard to get information from my supervisor on my job performance	31(29.8)	73(70.2)
It is very hard for me to know how secure my job is	26(25.0)	78(75.0)

The results on table 4.3 demonstrate the outcomes of organizational stressors which incorporate feedback, role complexity and bureaucracy (i.e. extremely complex and complicated management procedures). The findings on complexity nature of roles demonstrate that 81.7% and 64.4% of the respondents disagree that their organization was described by misty reporting structure and needed to complete the work in complicated work techniques/procedures. Conversely, 76% differ that their policies and procedures of their organizational are adequate when it comes to supporting employees.

With regard to bureaucracies which in essence are the extremely complex and complicated management procedures, the findings show that 70.2% of the respondents demonstrated that they needed to consult other individuals before settling on a choice while 63.5% and 61.5% differ that numerous procedures and rules make working superbly troublesome and that the organizations had a satisfactory space for advancement and opportunity to utilize individual ideas. Finally, the results on feedback show that 61.5% concurred that they get input from their heads (supervisors) on how well they are getting along while 70.2% and 75% differ that it was difficult to get information from their boss/heads on their activity execution and to realize how secure their jobs were.

4.4.3 Personal Stressors

Table 4.4 Personal Stressors faced by workers in Kibera RAP Project

Interpersonal relationship	**Agreed** Freq (%)	**Disagreed** Freq (%)
I have poor personal relationship with my colleagues	17(16.3)	87(83.7)
I can get along with others at work well	83(79.8)	21(20.2)
I don't like the people I work with	12(11.5)	92(88.5)
I have respect and trust for those that I work with	92(88.5)	12(11.5)
Type A behavior		
People sometimes say that I easily lose my temper	52(50.0)	52(50.0)
I enjoy competition and I feel like I always have to win	58(55.8)	46(44.2)
I am an achievement-oriented person	93(89.4)	11(10.6)
It is hard for me to focus on one activity for a long time	30(28.8)	74(71.2)
Life changes and Family		
Demands of my family conflict with demands of my job	33(31.7)	71(68.3)
Losing property or a loved one makes me unwilling to work	43(41.3)	61(58.7)
Family problems always weigh me down	46(44.2)	48(55.8)
I would like to spend more time with my family and friends	67(64.4)	37(35.6)

The findings on table 4.4 show the results on personal stressors which comprise of interpersonal relationship, type A behavior and life changes and family. The results on interpersonal relationships show that 83.7% and 88.5% of the respondents disagreed that their personal relationship with colleagues is poor and they dislike their workmates. In contrast, 79.8% and 88.5% agreed that they get along with others at work well and they have respect and trust with their workmates. The results on type A behavior indicate that the 50% of respondents agreed and disagreed that they easily lose their temper respectively. The results similarly show that 55.8% and 89.4% concurred that they like competition and that they feel like they have to always win and they are

achievement oriented while 71.2% disagreed. The results on life changes and family show that 68.3%, 58.7% and 55.8% disagreed with the concept that their family problems always weigh them down. While 64.4% of responses revealed that they could like to stay more with their family and friends.

4.4.4 Physical stressors

Table 4.5 Physical stressors faced by workers in Kibera RAP Project

	Agreed Freq (%)	Disagreed Freq (%)
My place of work is very noisy and crowded	61(58.7)	43(41.3)
It sometimes gets very cold or hot in my place of work	77(74.0)	27(26.0)
All required resources are unavailable to me	34(32.7)	70(67.3)
Lighting and ventilation at my workplace is not conducive	18(17.3)	86(82.7)
There is little use of technology use in my work	44(42.3)	60(57.7)
My workplace lacks privacy and security	33(31.7)	71(68.3)
The comfort I am provided at work is low	42(40.4)	64(59.6)

Table above reveals results on physical stressors. Results show that 58.7% and 74% of the respondents agreed that their work place was noisy and swarmed and once in a while its gets cold or hot in their work place separately. Then again, 67.3%, 82.7%, 57.7%, 68.3% and 59.6% differ that all resources required were inaccessible to them, lighting and ventilation at their working environment was not helpful, there was little utilization of innovation use in their work, their work environment needs privacy and security and the solace they are given at work was low in a specific order.

4.5.1 Subjective Stress Level

Table 4.7 Subjective Stress Levels

Emotional Exhaustion (n=104)	**SA** F (%)	**A** F (%)	**N** F (%)	**D** F (%)	**SD** F (%)
After my day at work I normally feel emotionally drained	16(15.4)	39(37.5)	16(15.4)	33(31.7)	0
I always don't feel like going to work in the morning	0	0	0	73(70.2)	31(29.8)
I feel so much stressed working with people directly and every day	0	0	12(11.5)	50(48.1)	42(40.4)
I am always worried about work	0	15(14.4)	21(20.2)	45(43.3)	23(22.1)
I always feel unhappy and frustrated by my job	0	0	14(13.5)	48(40.4)	48(46.2)
Reduced achievement					
I can deal effectively with my co-workers	45(43.3)	48(46.2)	11(10.6)	0	0
I feel like I have accomplished	18(17.3)	32(30.8)	22(21.2)	32(30.8)	0
I feel very energetic	49(47.1)	49(47.1)	6(5.8)	0	0
I feel confident that I am effective at getting things done at work	30(28.8)	51(49.0)	14(13.5)	9(8.7)	0
Depersonalization					
I doubt the significance of my work	0	0	15(14.4)	52(50.0)	37(35.6)
I have become less interested with my work since I started this job	0	9(8.7)	10(9.6)	49(49)	36(34.6)
Co-workers blame me for their	0	16(15.4)	21(20.2)	40(38.5)	27(26.0)

Emotional Exhaustion (n=104)	**SA** F (%)	**A** F (%)	**N** F (%)	**D** F (%)	**SD** F (%)
problem					
Physiological Consequences					
I sometimes have sleeping problems	0	16(15.4)	5(4.8)	55(52.9)	28(26.9)
I loose appetite when I am faced with challenges at work	0	27(26.0)	0	51(49.0)	26(25.0)
I usually have constant headaches	0	9(8.7)	0	54(54)	41(39.4)
I have skin problems	0	0	0	43(41.3)	61(58.7)
I have gastrointestinal problems	0	5(4.8)	11(10.6)	46(44.2)	42(40.4)
Sometimes have back pains	0	15(14.4)	0	53(51.0)	36(34.6)

Key:
SA=Strongly Agree
A=Agree
N=Neutral
D=Disagree
SD=Strongly Disagree

Table (4.7) shows the results on subjective stress levels and symptom which comprises of emotional exhaustion, reduced achievement, depersonalization and physiological consequences. The findings on emotional exhaustion show that 37.5% of responses agreed that after their days they normally feel drained while 31.7%, and 15.4% disagreed, were neutral and strongly agree respectively. The findings also show that most of the respondents (70.2%, 48.1%. 43.3%) differ that they generally don't have a craving for getting down to business in the first part of the day, they feel so much focused on working with individuals straightforwardly and consistently and were constantly stressed over work. Further, the outcomes demonstrate that 46.2% of the

respondents emphatically differ that they generally feel troubled and baffled by their activity.

The findings on reduced achievement indicate that most of the respondents (46.2%, 47.1% and 49%) agreed that they effectively deal with their co –workers, are energetic and are confident that they were effective at getting things done. The results also show that that 30.8% of the respondents agreed and disagreed that they felt like they had accomplished something while 21.2% were neutral while 17.3% strongly felt they had accomplished something. The results on depersonalization show that most of the respondents (50%, 47.1%, and 38.5%) disagreed that they doubt their significance at work, they become less interested with work and their coworkers blame them for their problems respectively.

The findings on physiological consequences show that most of the respondents (52.9%, 49%, 54%, 44.2% and 51%) disagreed that they sometimes experience sleeping problems, they lose appetite when faced with work problems, have constant headaches, gastrointestinal problems and back pains respectively. The results also show that 41.3% and 58.7% of the total respondents didn’t agree and they strongly disagreed that they have skin problems respectively.

4.5.2 Objective Stress Level

Table 4.8 Objective Stress Levels

Attribute		1 F (%)	2 F (%)	3 F (%)	4 F (%)	5 F (%)
Number of tasks	I have to meet	0	15(14.4)	39(37.5)	47(45.2)	3(2.9)
	I can meet	0	9(8.7)	40(38.5)	36(34.6)	19(18.3)
Level of difficulty in my work	I have to deal with	2(1.9)	33(31.7)	49(47.1)	17(16.3)	3(2.9)
	I can deal with	0	10(9.6)	43(41.3)	46(44.2)	5(4.8)
The quality of work	I have to do	2(1.9)	4(3.8)	28(26.9)	44(42.3)	26(25.0)
	Capable of doing	0	0	37(35.6)	43(41.3)	24(23.1)
The degree to which my skills	Are used	3(2.9)	15(14.4)	45(43.3)	30(28.8)	11(10.6)
	Could be used	2(1.9)	4(3.8)	36(34.6)	41(39.4)	21(20.2)
The number of projects	I have to deal with	6(2.8)	29(27.9)	39(37.5)	27(26.0)	3(2.9)
	I can deal with	0	8(7.7)	31(29.8)	62(59.6)	3(2.9)
The number of people	I have to work with	0	20(19.2)	21(20.2)	60(52.9)	3(2.9)
	Would like to work with	0	6(5.8)	30(28.8)	55(52.9)	13(12.5)
The scope of work	I have to handle	0	19(18.3)	36(34.6)	42(40.4)	7(6.7)
	I can handle	0	6(5.8)	44(42.3)	49(47.1)	5(4.8)

Note: 1 – None, 2 – Little / Some, 3 – Average, 4 – A lot, 5 – A very great deal

The results on table 4.8 show the findings objective stress levels and symptoms. The findings on the number tasks, 45.2% and 37.5% of the respondents indicated they had to meet a lot and also average tasks while 38.5% and 34.6% indicated they can meet

average and a lot of tasks respectively. The results on the level of difficulty of the respondents work, 47.1% and 31.7% indicated that they have to deal with average tasks and little or some of the tasks while 44.2% and 41.3% indicate they can deal with average and a lot of the tasks respectively. The findings on the quality of work, most of the respondents (42.3%, 26.9% and 25%) indicated that they had to do a lot of tasks, average tasks and a great deal of the tasks while (41.3%, 35.6% and 23.1%) indicate the a capable of doing a lot of tasks, average task and a great deal of the tasks respectively.

The results on the degree of the respondents skills, 43.3% of the respondents indicated that average of their skills is used while 28.8% indicated their skill are used a lot while 39.4% indicate that the can use their skill to achieve a lot of tasks. The findings on the number of projects, most of the respondents (37.5%, 27.9% and 26%) indicate that they have to deal with average projects, little/some and a lot projects while (29.8% and 59.6%) can deal with average and a lot of projects. On the number of people, most of the respondents (52.9% and 20.2%) indicated that they have to work a lot and average number of people while (52.9% and 28.8%) indicates that they would like to work a lot or average number of people respectively. The findings on the scope of work most of the respondents (40.4% and 34.6%) indicate that they have to handle a lot and average tasks while (47.1% and 42.3%) indicate that they can handle a lot and average tasks respectively.

4.6 Stress Management

This entailed the individual and organizational stress management strategies with each of them comprising of problem and emotional focused strategies.

4.6.1 Individual Stress Management Strategies

Table 4.9 Individual Stress Management Strategies

Problem focused	**Agreed Freq (%)**	**Disagreed Freq (%)**
I come up with different solution to my problems e.g. time management, skill enhancement and self-compromise	104(100)	0
I put attention in planning my schedule rather than acting on impulse	85(81.7)	19(18.3)
I appraise the problem again to see whether there are any controllable variables, either about the personal or environmental problem.	82(78.8)	22(21.2)
I talk to someone who could do something concrete about the problem	80(76.9)	24(23.1)
I express anger to the person who caused stress	28(26.9)	76(73.1)
Emotional focused		
I try to get emotional support from friends, relatives or even colleagues	60(57.7)	44(42.3)
I try to lose myself for a while by either smoking or taking alcohol	42(40.4)	62(59.6)
I sometimes discharge my emotions through scolding others	25(24.0)	79(76.0)
I try to keep my feelings to myself that things will be different next time	58(55.8)	46(44.2)
I escape from stress by thinking about relaxing and happy times	64(61.5)	40(38.5)
Sleep is the most important way for me to relieve my stress	31(29.8)	73(70.2)

The results on table 4.9 shows the finding on the individual stress management strategies which are divided into problem and emotional focused. The findings on problem focused singular pressure the executives systems demonstrate every one of the

respondents concurred that they think of various answers for their issues like time management, expertise improvement and self-bargain, The outcomes additionally demonstrates that the majority of the respondents (81.7%, 78.8% and 76.9%) show that they place consideration in arranging their timetable instead of following up on motivation, likewise reevaluate the issue to decide any controllable factors, either about the individual or natural issue and converse with somebody who could accomplish something concrete about the issue separately. The findings additionally demonstrate that 73.1% of the respondent differ that they express outrage to the individual who caused pressure.

The results on emotional focused individual stress management strategies show that most of the respondents (57.7%, 55.8% and 61.5%) agreed on seeking emotive care from close ones, they equally keep their feelings to themselves hoping that things will change and also avoid stress of concentrating on good experiences. Results likewise show that a good number of respondents (59.6%, 76% and 70.2%) disagreed that they relieve themselves from pain by taking drugs and sleep helps them relieve stress respectively.

4.6.2 Organizational Stress Management Strategies

The results on organizational stress management strategies are shown by table 4.10

Table 4.10 Organizational Stress Management Strategies

Problem Focused	**Agreed Freq (%)**	**Disagreed Freq (%)**
Use of preferred shifts and time offs	58(55.8)	46(44.2)
Salary increments and prompt wages/incentives	59(56.7)	45(43.3)
Fairness when dealing with promotions	69(66.3)	35(33.7)
Increase in resources, individual competencies and skills	72(69.2)	32(30.8)
Delegation of tasks and responsibilities	94(90.4)	10(9.6)
Emotional focused		
Continuous guidance and counseling	72(69.2)	32(30.8)
Social and family support	94(68.3)	10(31.7)
Regular feedback and performance recognition	68(65.4)	36(34.6)
Managerial and colleague support	79(76.0)	25(24.0)
Control over work	71(68.3)	33(31.7)

The findings on table above reveals that organizational stress management strategies which are divided into problem and emotional focused. The findings on problem focused organizational stress management strategies show that a higher number of respondents (55.8%, 56.7% and 66.3%) agreed that the organization uses favored moves and time offs, compensation additions and brief wages/motivating forces and reasonableness when managing advancements. The findings likewise show that the vast majority of the respondents (69.2% and 90.4%) concurred that the association expands assets, upgrades singular skills and furthermore appointment of errands and duties.The

results on emotional focused organizational stress management strategies indicate that most of the respondents (69.2%, 68.3% and 65.4%) agreed that they organization offers continued support to family members as well as recognizing best performing workers. Additionally, a good number of respondents (76% and 68.3%) indicate that the organization offers managerial and colleague support to the workers.

4.7 Inferential Statistics

4.7.1 Factors Analysis

These are proxies for the observations on the study variables which can be decreased from the many to less variables with similar variations, a factor commonly referred to as dimensionality (Yong & Pearce, 2013). Thus, Factor analysis was used in identifying the major causes of stress amongst Kibera RAP construction workers. To determine whether factors analysis is viable the Kaiser-Meyer-Olkin sampling measures and Bartlett's test were carried out.

4.7.1.1 KMO and Bartlett's Test

KMO statistics predicts if the data produce varied consistent factors based on correlation and partial correlation. The KMO ranges between 0 and 1 with values closer to 1 revealing close relations an indication of good fit for analysis hence values of 0.5 and above are considered acceptable. Bartlett measure of sphericity on null hypothesis indicates the identity correlation matrix (Yong & Pearce, 2014). The results on table 4.11 show that the KMO statistics value is 0.620 which above the recommended 0.5 value hence factor analysis is deemed fit for analysis. Similarly, the Bartlett's Test

statistics value is 0.000 which indicates that Bartlett's test is highly significant since ($p < 0.05$), hence factor analysis is suitable.

Table 4.11 KMO and Bartlett's Test

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.620
Bartlett's Test of Sphericity	Approx. Chi-Square	150.859
	df	55
	Sig.	.000

4.7.1.2 Variables Correlation

Correlation indicates how each item is associated (correlated) with other variables. Highly correlated variables indicate high relation linking 2 variables and are clustered by through factor analysis while variables with insignificant correlation are associated with low loading with similar factor.

Table 4.12 Correlation Matrix

Correlation Matrix[a]											
	1	2	3	4	5	6	7	8	9	10	11
1	1.000	.000	.122	.133	.264	.157	.095	-.269	.030	-.178	.044
2	.000	1.000	.260	.244	.137	.003	-.049	-.051	.384	.197	.186
3	.122	.260	1.000	.099	.150	.008	.019	.288	.046	-.028	.365
4	.133	.244	.099	1.000	.204	.016	-.135	-.114	.105	.224	.116
5	.264	.137	.150	.204	1.000	.314	-.038	.170	.120	.189	.190
6	.157	.003	.008	.016	.314	1.000	-.011	.015	-.016	.073	.045
7	.095	-.049	.019	-.135	-.038	-.011	1.000	-.133	.036	.270	-.032
8	-.269	-.051	.288	-.114	.170	.015	-.133	1.000	-.211	-.052	.125
9	.030	.384	.046	.105	.120	-.016	.036	-.211	1.000	.077	.154
10	-.178	.197	-.028	.224	.189	.073	.270	-.052	.077	1.000	.149
11	.044	.186	.365	.116	.190	.045	-.032	.125	.154	.149	1.000
a. Determinant = .216											

Key: 1-Work overload, 2-Work under load, 3-Role conflict, 4-Role ambiguity, 5-Complexity of rules, 6-Bureaucracy, 7 –Feedback, 8-Interpersonal relationship, 9 -Type A behavior, 10-Life changes and family, 11-Physical stressors

Table 4.12 shows determinant of 0.216 which is greater than 0.0001 and not close to zero which indicates that there is no collinearity among the variables. Additionally, all the correlations among the variables are less than 0.7 which also indicates the absence of multicollinearity among the considered items.

4.7.1.3 Commonalities

They indicate the percentage/ratio of variables variations which emanate from the model. The original commonalities compare one variable correlation with others in the model before rotation while the extraction values column indicate the ratio of particular variable which is impacted by other factors outside the model which is revealed in table 4.13.

Table 4.13 Commonalities

	Initial	Extraction
Work overload	1.000	.818
Work under load	1.000	.611
Role conflict	1.000	.731
Role ambiguity	1.000	.512
Complexity of rules	1.000	.662
Bureaucracy	1.000	.553
Feedback	1.000	.858
Interpersonal relationship	1.000	.762
Type A behavior	1.000	.529
Life changes and family	1.000	.824
Physical stressors	1.000	.501

Extraction Method: Principal Component Analysis

The results on table 4.13 show that all the variables are well presented in the common factor space since they have high extraction values range between 0.501 and 0.858. The extraction values also indicate that high proportion of variance is explained by the variables. For example, 81.8% of variance for the variable, "work overload" is accounted for by the factors extracted.

4.7.1.4 Factor Extraction

In factor extraction the total number of common components or factors that could be extracted are equal or less to variables involved. For this study 11 factors were considered and these factors included; Work overload, Work under load, Role conflict, Role ambiguity, Complexity of rules, Bureaucracy, Feedback, Interpersonal relationship, Type A behavior, Life changes and family, and Physical stressors. The factor extraction table also generates Eigen values, Extraction sums of squared loadings and Rotation sums of squared loadings. The Eigenvalue for a given factor measures the variance in all the components, which is accounted for by that factor and all factors that are above the eigenvalue of 1 are normally retained (Yong & Pearce, 2013). The table likewise generates the percentage of variance which indicates the percent of co-variation among items accounted for by each factor before and after rotation. Table below reveals the findings.

Table 4.14 Factor Extraction

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.106	19.147	19.147	2.106	19.147	19.147	1.720	15.637	15.637
2	1.531	13.914	33.061	1.531	13.914	33.061	1.600	14.543	30.180
3	1.382	12.564	45.625	1.382	12.564	45.625	1.504	13.670	43.850
4	1.238	11.253	56.878	1.238	11.253	56.878	1.285	11.684	55.534
5	1.106	10.058	66.936	1.106	10.058	66.936	1.254	11.403	66.936
6	.929	8.444	75.380						
7	.740	6.730	82.110						
8	.682	6.197	88.307						
9	.522	4.749	93.056						
10	.416	3.781	96.837						
11	.348	3.163	100.000						

Extraction Method: Principal Component Analysis.

The results on table 4.14 demonstrated that only five components were extracted. The five components accounted for 66.936% of the variance while 33.064% was representative of the other components. Table 4.14 exhibited that component 1 accounted for 19.147% while component 2, 3, 4 and 5 accounted for 13.914%, 12.564%, 11.253% & 10.058% respectively. The scree plot below (Figure 4.7) depicted a graphical presentation of greater than 1(no.) for the five components. In accordance with the Kaiser rule, this implied that all the five components elicited a high reliability

since an Eigen value of less than 1(no.) would have implied a negative reliability of the components.

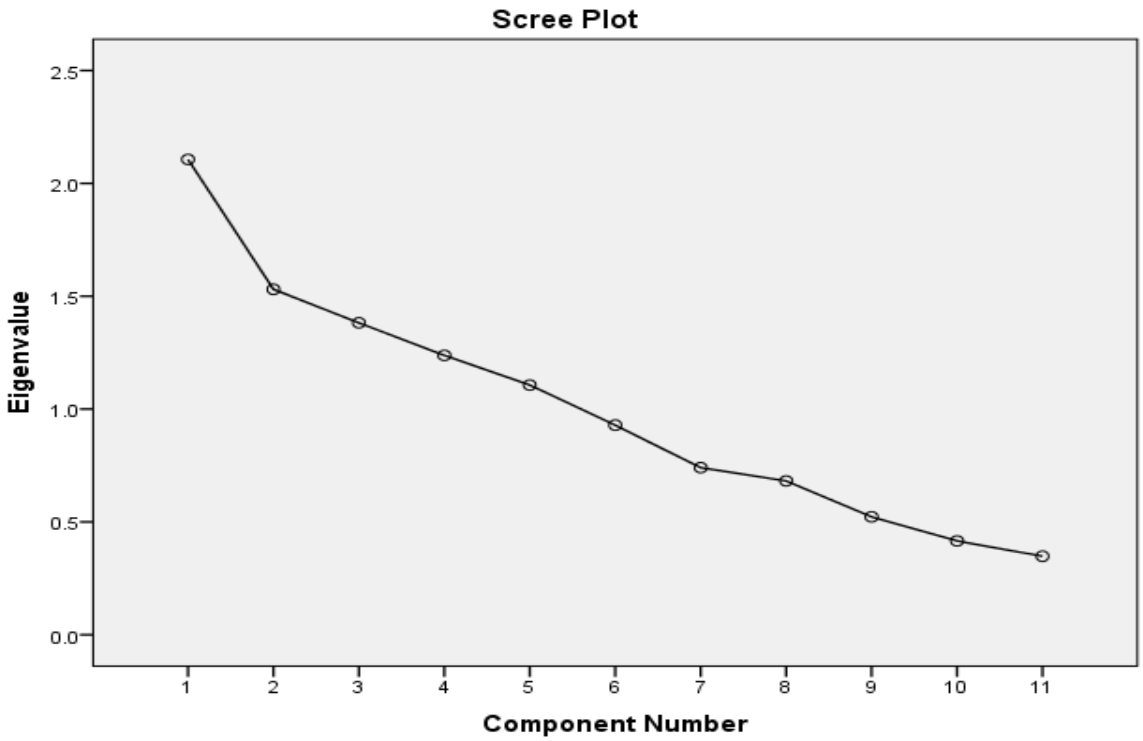

Figure 4.4 Scree Plot of components extraction.

4.7.1.5 Rotated Component Matrix

Factors are normally rotated for them to be interpreted with ease hence different items are expounded by the variables affecting the model with each explaining various factors. Table 4.15 shows the obtained results.

Table 4.15 Rotated Component Matrix

Rotated Component Matrix[a]

	Component				
	1	**2**	**3**	**4**	**5**
Work under load	.721	.288	-.006	-.086	-.032
Type A behavior	.695	.076	-.121	.131	.092
Role ambiguity	.569	-.061	.358	-.072	-.226
Role conflict	.078	.842	.006	.124	-.001
Physical stressors	.237	.652	.114	-.033	.073
Interpersonal relationship	-.424	.553	.115	-.445	-.255
Complexity of rules	.125	.241	.765	.058	-.024
Bureaucracy	-.125	-.042	.724	.106	.025
Work overload	.068	.051	.315	.839	.088
Life changes and family	.331	-.055	.343	-.565	.525
Feedback	-.087	.031	-.050	.078	.917

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

a. Rotation converged in 10 iterations.

Table 4.15 shows the rotated component matrix which was generated to achieve the factor loading that were easy to interpret using a Varimax rotation which has a differentiating effect of the original variables by factor. The effect is that it minimizes the number of variables and leaves which had high loadings on any one given factor. By analyzing each of the factors and their cluster variables in table 4.17, Component 1 was regarded as “work under load”, component 2 was labeled “role conflict”, component 3 was labeled “complexity of roles”, component 4 was labeled “work overload” while component 5 was labeled “feedback”. All the chosen variables have the highest loading under each component; however, labeling of the components is a subjective exercise

and there is no guarantee that the factors chosen present the real situation and can be challenged.

4.7.2 Mann-Whitney U Test

The Mann Whitney U test is a non-parametric test used to compare outcomes between two independent groups. The Mann-Whitney U test null hypothesis stipulates that the two independent groups are homogeneous and have the same distribution. The Mann-Whitney U test is based on the comparison of each observation from the first group, with each observation from the second group (Nachar, 2008). In this study, the Mann-Whitney U test was utilized to test the distribution of subjective and objective stress levels among the gender of the respondents. Table 4.16 and 4.17 shows the results obtained.

Table 4.16 Subjective and Objective Stress Levels among Gender of the Respondents

Ranks

	Gender	N	Mean Rank	Sum of Ranks
Subjective stress levels	Male	81	53.96	4370.50
	Female	23	47.37	1089.50
	Total	104		
Objective stress levels	Male	81	51.73	4190.50
	Female	23	55.20	1269.50
	Total	104		

Table 4.16 (column Mean Rank) provides information regarding the output of the actual Mann-Whitney U test, and shows the mean rank and sum of ranks for the two groups

tested. The table shows that male workers have the highest levels of subjective stress levels (Mean rank = 53.96). On the other hand, female workers have the highest levels of objective stress levels (Mean rank = 55.20).

Table 4.17 Subjective and Objective Stress Levels among Gender of the Respondents

Test Statistics

	Subjective stress levels	Objective stress levels
Mann-Whitney U	813.500	869.500
Wilcoxon W	1089.500	4190.500
Z	-.927	-.488
Asymp. Sig. (2-tailed)	.354	.626

a. Grouping Variable: Gender

Table 4.17 shows the results on the calculated z-values and the approximately calculated statistical significance of differences between the subjective and objective stress levels and the respondents' gender. The Z values for subjective and objective stress levels are -0.927 and -0.488 and the P values are 0.354 and 0.626 which are greater than 0.05. Thus, it can be concluded that subjective and objective stress levels among the male and female construction workers is not statistically significant.

4.7.3 Kruskal - Wallis Test

The Kruskal-Wallis Test is a non-parametric test for testing the difference between several independent groups. The Kruskal-Wallis H test is likewise called the one-way ANOVA (Analysis of variance) on ranks and can be used to determine if there are statistically significant differences between two or more groups of an independent

variable on a continuous or ordinal dependent variable (Mehotcheva, 2008). In this study the Kruskal - Wallis test was applied to test the distribution of stress levels among the various job categories (Managers, skilled workers and general labourers) of the respondents. Table 4.18 and 4.19 illustrates the results.

Table 4.18 Subjective and Objective Stress Levels among the Respondents Job Categories

Stress Category	Job category	N	Mean Rank
Subjective stress levels	Managers	8	49.38
	Skilled workers	45	51.30
	General labourers	51	54.05
	Total	104	
Objective stress levels	Managers	8	34.13
	Skilled workers	45	53.47
	General labourers	51	54.53
	Total	104	

Table 4.18 showed the mean rank and sum of ranks for the groups tested. As such, it was evident that general labourers exhibited the highest levels of subjective and objective stress (Mean ranks of 54.05 & 54.53). This was subsequently followed by skilled workers with mean ranks of 51.30 & 53.47; and managers with mean ranks of 49.38 and 34.13. The results equally portrayed that subjective stress in managers was higher (mean rank = 49.38) when compared to objective stress (mean rank = 34.13).

Table 4.19 Subjective and Objective Stress Levels among the Respondents Job Categories

Test Statistics[a,b]		
	Subjective stress levels	**Objective stress levels**
Chi-Square	.293	3.274
df	2	2
Asymp. Sig.	.864	.195
a. Kruskal Wallis Test		
b. Grouping Variable: Job Category		

Table 4.19 illustrated the Kruskal Wallis test results. As such, the table showed that the p-values for subjective and objective stress levels were 0.864 and 0.195 respectively. The stress levels were greater than the significant value of 0.05. This implied that the subjective and objective stress levels among the various job categories of Managers, skilled workers and general labourers in the construction industry were not statistically significant.

4.7.4 Chi-square

Chi-square was used to test whether there was a significant association of stress levels between task, organizational, individual and physical stressors among construction worker in the Kibera RAP Project. The results are presented in the subsequent sections.

4.7.4.1 Task Stressors and Stress Levels

The chi square results on the significant association between task stressors and stress levels are depicted in Table 4.20

Table 4.20 Task Stressors and Stress Levels among workers in Kibera RAP Project

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	2552.044[a]	2310	.000
Likelihood Ratio	624.740	2310	1.000
Linear-by-Linear Association	3.178	1	.075
N of Valid Cases	104		
a. 2414 cells (100.0%) have expected count less than 5. The minimum expected count is .01.			

The results on Table 4.20 displayed the Chi square value as 0.000. This was less than the significance value of 0.05 (0.000<0.005). In this regard, this implied a disregard of the null hypothesis which theorized that there was no significant association between task stressors and stress levels among construction workers in the Kibera RAP Project.

4.7.4.2 Organizational Stressors and Stress Levels

The results as illustrated in Table 4.21 displayed a significant association between organizational stressors and stress levels among construction workers in the Kibera RAP Project.

Table 4.21 Organizational Stressors and Stress Levels among workers in Kibera RAP Project

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	679.925[a]	560	.000
Likelihood Ratio	357.690	560	1.000
Linear-by-Linear Association	3.230	1	.072
N of Valid Cases	104		
a. 639 cells (100.0%) have expected count less than 5. The minimum expected count is .02.			

The results on Table 4.21 exhibited the Chi square value as 0.000. The value depicted was less than the significance value of 0.05 (0.000<0.005). In this regard, this implied a disregard of the null hypothesis which theorized that there was no significant association between organization stressors and stress levels among construction workers in the Kibera RAP Project.

4.7.4.3 Personal Stressors and Stress Levels

Table 4.22 illustrated results on association between personal stressors and stress levels among construction workers in Kibera RAP Project.

Table 4.22 Personal Stressors and Stress Levels among workers in Kibera RAP Project

	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	1630.849[a]	1260	.000
Likelihood Ratio	536.383	1260	1.000
Linear-by-Linear Association	24.994	1	.000
N of Valid Cases	104		
a. 1349 cells (100.0%) have expected count less than 5. The minimum expected count is .02.			

The results on Table 4.22 displayed the Chi square value as 0.000. The value was less than the significance value of 0.05 (0.000<0.005). In this regard, this implied a disregard of the null hypothesis which theorized that there was no significant association between personal stressors and stress levels among construction workers in the Kibera RAP Project.

4.7.4.4 Physical Stressors and Stress Levels

Table 4.23 illustrated the results on the significant association between physical stressors and stress levels among construction workers in Kibera RAP Project.

Table 4.23 Physical Stressors and Stress Levels among workers in Kibera RAP Project

	Value	**Df**	**Asymp. Sig. (2-sided)**
Pearson Chi-Square	557.213[a]	490	.019
Likelihood Ratio	316.702	490	1.000
Linear-by-Linear Association	3.439	1	.064
N of Valid Cases	104		
a. 568 cells (100.0%) have expected count less than 5. The minimum expected count is .02.			

The results on Table 4.23 displayed the Chi square value as 0.019. The value was less than the significance value of 0.05 (0.019<0.005). In this regard, this implied a disregard of the null hypothesis which theorized that there was no significant association between physical stressors and stress levels among construction workers in the Kibera RAP Project.

CHAPTER FIVE: DISCUSSIONS, CONCLUSIONS AND RECOMMENDATIONS

5.1 Discussions

This objective of this study was to examine stress levels among construction workers in Kenya with focus on Kibera Resettlement Action Plan Project. The study sought to examine the major causes of stress in the construction industry, the levels of objective and subjective stress and the stress management strategies employed in the construction industry.

Research question 1: What are the causes of stress among construction workers in Kibera RAP project?

The findings on the main causes of stress among construction workers in Kibera RAP project revealed that only five variables account for 66.936% of the variance while 33.064% is accounted by the other components. Additionally, the study identified work under load, role conflict, complexity of roles, work overload and feedback as the major causes of work stress in the construction industry. As such, work under load, role conflict and work overload are under task stressors while complexity of roles and feedback are under organizational stressors. Thus, individual and physical stressors are not major causes of work stress among construction workers at Kibera Resettlement Action Plan Project a finding similar to that of Enshassi and Al-Swaity (2015) who found that physical stressors were not recognized by Gaza Strip construction professionals as an important source of stress. These findings are similar to that of Leung, Skitmore & Chan (2007) which established that increased levels were found to

be mainly associated with workload, lack of autonomy and inappropriate feedback. Sharma (2015) also established that lack of control at work, role conflict, inadequate awareness about profession, workload and job pressure, and indifferent organizational attitude as the major occupational stressors.

Research question 2: What are the levels of subjective and objective stress among construction workers in Kibera RAP project?

The findings on the levels of objective and subjective stress among construction workers in the Kibera RAP project established that male workers had the highest levels of subjective stress with a mean rank of 53.96 while female workers have the highest levels of objective stress with a mean rank of 55.20. The findings further revealed that general labourers had the highest levels of subjective and objective stress with a mean rank of 54.53 & 54.05 followed by skilled workers with a mean rank of 51.30 & 53.47 and then managers but subjective stress was higher with a mean rank of 49.38 in managers compared to objective stress which had a mean rank of 34.13. However, Leung, Skitmore & Chan (2007) established that stress levels of both the professionals and other personnel are similar, with objective stress being significantly higher than subjective stress.

Research question 3: Which are the work stress coping strategies employed by both the organization and individuals in the Kibera construction site

The findings on problem focused individual stress management strategies established that most of the construction workers come up with different solutions of their problems, plan on the schedules and talk to someone about their problem. On emotional

focused individual stress management strategies, the study established that most of the construction workers sought emotional support from family and colleagues, preferred keeping the problem to themselves with the hope it will change.

The findings on problem focused organizational stress management strategies established that mostly construction firm use shifts that are preferable and time off, increase in salary, motivating incentives and fairness when promoting so that stress amongst their workers can be managed. The findings about emotional focused organizational stress management by the company the investigation found that development firm offer direction and guiding, social and family backing and feed backs given on a regular basis and recognizing the performance by employees. Kariuki, (2013) asserts that work related pressure can be managed effectively by giving preferred shift, increase in salary, reasonableness in doing the quality evaluations and straightforwardness when managing work promotions. (Oladinrin *et al*., 2014) additionally indicates that for stress to be reduced, sharing work load with colleagues, time off work with family and reducing extra time at work are highest positioned plans for managing work stress.

Hypothesis Testing

There is no significant relationship between stressors and the levels of stress amongst construction workers in Kibera RAP Project

Finally, the findings of the relationship between stressors and the levels of stress amongst construction workers in Kibera RAP Project the study revealed that there was a significant association between task stressors, organizational stressors, personal

stressors, physical stressors and stress levels among construction workers in Kibera RAP Project. This is in line with Leung, Skitmore & Chan., (2007) whose findings revealed that increased subjective stress was a function of the relationship between role conflict, work underload, lack of feedback and lack of autonomy. Further, the study found that a statistically significant relationship between stressors and stress levels among construction workers in Kibera RAP Project.

5.2 Summary of the findings

The study aimed at measuring stress levels among construction workers in Kibera Resettlement Action Plan Project in Nairobi County. The specific objectives were to identify causes of stress among construction employees in Kibera RAP Project, to determine the subjective and objective stress level amongst construction employees based in Kibera RAP Project and to determine the strategies of coping up with stress at work used by both the company and workers in the Kibera construction site.

The findings of the study reveal that the principal causes of work stress among construction workers were identified work overload, role conflict, complexity of roles and feedback as the major causes of work stress in the construction industry and they fall under task and organization stressors.

Subjective and objective stress levels among the gender of the respondents established that male construction workers had the highest levels of subjective stress with a mean rank of 53.96, while female construction workers have the highest levels of objective stress levels with a mean rank of 55.2. Stress levels among the various job categories established that general labourers had the highest levels of subjective with a mean rank

of 54.05 and objective stress with a mean rank of 54.53 followed by skilled workers with a mean rank of 51.3 & 53.47 and managers a mean rank of 49.38 & 34.13.

The study further found that stress in construction firm is managed using different strategies either problem or emotional focused at the individual and company level.

Finally, the chi square findings established that there was a statistically significant association between task stressors, organizational stressors, personal stressors, physical

Stressors and stress levels among construction workers at the Kibera RAP Project.

5.3 Conclusions

Therefore, this study concludes that the major causes of work stress among construction workers are task and organization stressors while individual and physical stressors have a minimal effect among workers in construction.

Male construction workers have low levels of gratification with their work atmosphere and low levels of self-assurance with the company while female construction workers have challenges in accomplishing the challenges associated with the construction jobs. Levels of stress among the various job categories established that general labourers had the highest levels of subjective with a mean rank of 54.05 and objective stress with a mean rank of 54.53 followed by skilled workers with a mean rank of 51.3 & 53.47 and managers a mean rank of 49.38 & 34.13, hence the conclusion that stress level are high among the general labourers compared to skilled worker and managers.

The study concludes that the construction firm should use a variety of tools as well as methods at different levels to manage stress among their workers.

Finally, work related stressors significantly influences stress levels among construction workers.

5.4 Recommendations

The study concluded that major causes of work stress among construction workers are task and organization stressors. The study thus recommends that the construction firm should put more emphasis on task and organizational stressors especially role conflict, complexity of roles, work load and feedback to mitigate their effect amongst workers.

The study concluded that stress levels are high among the general labourers compared to skilled worker and managers. The study therefore recommends that the management of the construction firm should develop strategic ways to ensure that the low cadre employees are not overburdened with work so as to reduce their stress levels, and also come up with effective strategies to address the various stress affecting the male and female workers.

The findings of the study revealed that construction firm use several stress management strategies to mitigate the stress effect among workers in the construction sector. This leads to the recommendation that the management of construction firm should regularly revised company stress management strategies to ensure they are effective. The study equally revealed that employees play a part in managing their stress levels through individual emotional and problem focused strategies. The study recommends that construction workers should form work groups and unions in which they can share their work related stress and report such stressors to the management for action.

5.5 Further Research

This study aimed at finding out the major causes of stress, levels of stress among the construction workers and stress management strategies. However, the study did not cover specific stress coping strategies employed by workers in different levels. The study only aimed at establishing the stress management strategies employed by organization and individuals to mitigate stress. However, a study on the specific strategies of coping with stress employed by workers in different levels is recommended so as to better understand stress management strategies employed differently within different job categories and how this helps in reducing stress levels.

REFERENCES

Bano, B. & Jha, R. K. (2012). Organizational Role Stress among Public and Private Sector Employees: A Comparative Study. *The Lahore Journal of Business,* 1(1), 23–36

Bloisi, W., Cook, C.W., & Hunsaker, P. L. (2007) Management and Organizational Behaviour. 2th Edition. London. McGraw publication

Bowen, P, Govender, R, Edwards, P. & Cattell, K. (2014) Workplace stress in the construction industry: An explanatory model In: Raiden, A B and Aboagye-Nimo, E (Eds) Procs 30th Annual ARCOM Conference, 1-3 September 2014, Portsmouth, UK, Association of Researchers in Construction Management, 331-340.

Bowen, P., Edwards, P., Lingard, H. & Cattell. K. (2014). Occupational stress and job demand, control and support factors among construction project consultants. *International Journal of Project Management,* 32 (7), 1273-1284

Bowen, P., Govender, R., & Edwards, P. (2014). Structural Equation Modeling of Occupational Stress in the Construction Industry. *J. Constr. Eng. Manage.,* 10, 1943-7862.

Campbell, F. (2006) Occupational Stress in the Construction Industry, Berkshire, UK: Chartered Institute of Building

Chartered Institute of Building (2006). Accessibility and Usefulness of Construction Labor Market Statistics.CIQ,8 (3),101-178.

Chan, I. Y. S. & Leung, M. Y. (2011) Impact of stress on injury incidents among construction workers In: Egbu, C. and Lou, E.C.W. (Eds.) Procs 27th Annual ARCOM Conference, 5-7 September 2011, Bristol, UK, Association of Researchers in Construction Management, 229-238.

Cox, Tom and Griffiths, A.(2005) The nature and measurement of work-related stress: theory and practice. In:Wilson, J.R. and Corlett, N. (eds.) *Evaluation of Human Work, 3rd Edition.* Abingdon, UK: Routledge. ISBN 9780415267571.

Enshassi, A. & Al-Swaity, E. (2015). Key Stressors Leading to Construction Professionals' Stress in the Gaza Strip, Palestine. *Journal of Construction in Developing Countries*, 20(2), 53 -79.

Greenberg, J. (2011). Behavior in Organizations. (10th Ed.). England: Pearson Education Ltd.

Hashim, A. E., Zarina, I., Ismail, F., Nurul, A. N. & Razali, R. (2012). Occupational Stress and Behavioural Studies of Facilities Management Employees in Commercial Complex. *Journal of Asian Behavioural Studies,* 2 (6), 63-72

Health and Safety Authority. (2011). Work-Related Stress: A Guide for Employers. Health and Safety Authority. Ireland.

Health and Safety Executive. (2007). An analysis of the prevalence and distribution of stress in the construction industry. Health and Safety Executive

Health and Safety Executive. (2007). Managing the Causes of Work-Related Stress: A step-by-step approach using the Management Standards. Health and Safety Executive

Herbert, M. (2011). An Exploration of the Relationships between Psychological Capital (Hope, Optimism, Self-Efficacy, Resilience), Occupational Stress, Burnout and Employee Engagement. *Unpublished Thesis,* University of Stellenbosch, South Africa.

Ibem, E. O., Anosike, M.W., Azuh, D. E. & Mosaku, T. E. (2011). Work stress among professionals in the building construction industry in Nigeria. *Australasian Journal of Construction Economics and Building,* 11 (3) 45-57

Kariuki, A. W. (2013). Employee Perception of the Effectiveness of Occupational stress Management Programmes at the Safaricom Call Centre. *Unpublished Project Report.* University of Nairobi, Kenya

Kenya National Bureau of Statistics, (2011) *National population and Housing report*

Kesmodel, U. (2018). Cross- sectional studies – what are they good for? Acta Obstetricia et Gynecologica Scandinavica, 1.

Koradecka, D., Pośniak, M., Widerszal-Bazyl, M., Augustyńska, D. & Radkiewicz, P. (2010). A Comparative Study of Objective and Subjective Assessment of Occupational Risk, International Journal of Occupational Safety and Ergonomics,

Lazarus, R. S., and Folkman, S. (1984). Stress, Appraisal, and Coping. New York: Springer.

Leung, M., Chan, Y. & Olomolaiye, P. (2008). Impact of Stress on the Performance of Construction Project Managers. *J. Constr. Eng. Manage.*, 8(644), 644-652.

Leung, M., Chan, Y. & Yu, J. (2009). Integrated Model for the Stressors and Stresses of Construction Project Managers in Hong Kong. *Journal of Construction Engineering and Management,* 135 (2), 126–134

Leung, M., Skitmore, M. & Chan, Y. S. (2007). Subjective and objective stress in construction cost estimation. Construction Management and Economics, 25(10), 1063-1075.

Leung, M., Zhang, H. & Skitmore, M. (2006). Effects of organizational supports on the stress of construction estimating participants. Paper for Journal of Construction Engineering and Management.

Lin, R and Chan, C (2009) 'Effects of heat on workers' health and productivity in Taiwan', Journal of Global Health Action, .2, 1-6, viewed 16th May, 2010

www.globalhealthaction.net/index.php/gha/article/view/2024/255

Loosemore, M. & Waters, T. (2004). Gender Differences in Occupational Stress among Professionals in the Construction Industry.*J. Manage. Eng.*, 20(3), 126-132.

Love, P. E. D. Edwards, D. J. & Irani, Z. (2010). Work Stress, Support, and Mental Health in Construction. *Journal of Construction Engineering and Management,* 136 (6), 650–658

Mackay C., Cox, T. Burrows, G. Lazzerini (1978). An inventory for the measurement of self-reported stress and arousal. British Journal of Social and Clinical Psychology, 17, 3, 283-4

Majale, M. M., Morumbasi, J. & Mutuli, D. A. (2000). Occupational Safety and Health in the Construction Industry in Kenya. Proceedings of the Human Factors and Ergonomics Society Annual Meeting July 2000 vol. 44 no. 22, 666-669

Mehotcheva, T. H. (2008). The Kruskal–Walllis Test. Seminar in Methodology & Statistics. Retrieved online on 7/4/2017 from http://www.let.rug.nl/nerbonne/teach/rema-stats-met seminar/presentations

Michie, S. (2002). Causes and Management of Stress at Work. *Occup Environ Med.,* 59: 67-72

Mitullah, W. V. & Wachira, I. N. (2003). Informal Labour in the Construction Industry in Kenya: A case study of Nairobi. Sectoral Activities Programme. *Working Paper No. 204.* International Labour Office

Mxenge, S.V., Dywili, M. & Bazana, S. (2014). Organizational Stress and Employees' Intention to Quit Amongst Administrative Personnel at the University of Fort Hare, Eastern Cape, South Africa. *International Journal of Research in Social Sciences,* 4 (5), 13-25

Nachar, N. (2008). The Mann-Whitney U: A Test for Assessing Whether Two Independent Samples Come from the Same Distribution. Tutorials in Quantitative Methods for Psychology, 4(1), 13-20.

Nekzada, N. & Tekeste, S. F. (2013). Stress causes and its management at the work place -A qualitative study on the causes of stress and management mechanisms at Volvo Trucks AB, Umea. *Unpublished Thesis*. UMEÅ University

Occupational Health and Safety Management. (2005). Solving the Problem: Preventing Stress in the Workplace. Accessed online from http://cgsst.fsa.ulaval.ca on 24/01/2016

Oladinrin, T. O., Adeniyi, O. & Udi, M. O. (2014). Analysis of Stress Management among Professionals in the Nigerian Construction Industry. *International Journal of Multidisciplinary and Current Research*, 2, 21-33

Oyewobi, L. O., Adamu, A. D., Ganiyu, B. O. & Odelade, O. M. (2011). Impact of Stress Management on the Productivity of Workers on Nigerian Construction Sites. *Built Environmental Journal*, 8 (2) 1-8

Reem, A. A., Marwa, M. Z, & Nanees, S. E. G. (2013). Non-Fatal Occupational Injuries and Safety Climate: A Cross-Sectional Study of Construction Building Workers in Mit-Ghamr City, Dakahlia Governorate, Egypt. *Open Journal of Safety Science and Technology*, 3, 69-79

Saikala, L. & Selvarani, A. (2015). A Study on Work Stress among Architects and Construction Professionals in Indian Construction Industry. *International Journal of Management*, 6 (1), 585-593

Sermolo, S. (2014). Study of Occupational Safety and Health in Ethiopian Construction Industry: A Case Study on Addis Ababa and Welkite. *Unpublished Project Report*. Addis Ababa University, Ethiopia

Sharma, S. (2015). Occupational stress in the armed forces: An Indian army perspective. *IIMB Management Review*, 27, 185–195

Shikieri, Ahlam & Musa, Hassan. (2012). Factors Associated with Occupational Stress and Their Effects on Organizational Performance in a Sudanese University. Creative Education. 03. 10.4236/ce.2012.31022.

Wahab, A. B. (2010). Stress management among artisans in construction industry in Nigeria. *Global Journal of Researches in Engineering*, 10(1), 93-103

Wong, J., Toe, M. & Cheng, Y. K. (2010). Cultural determinants of stress in the construction industry' in Proceedings of 2010 International Conference on Construction and Real Estate Management

Yahaya, A., Noridin, Y., Ismail, J., Sharif, Z., Muhammad, S., Azlina, K., Noraffandy, Y., & Abbas, F. (2011). Effects of personality trait, motivation factors on performance of customer service personnel (CSP): A case of MPH bookstores. African Journal of Business Management, 5 (11),4519-4530.https://www.academicjournals.org/AJBM

Yip, B., Rowlinson, S., Kvan, T. and Lingard, H. (2005) 'Job burnout within the Hong Kong construction industry: A cultural perspective' in Proceedings of the CIB W92/T23/W107 International Symposium on Procurement Systems held at Las Vegas, Nevada, USA

Yip, B. & Rowlinson, S. (2006). Coping Strategies among Construction Professionals: Cognitive and Behavioural Efforts to Manage Job Stressors. *Journal for Education in the Built Environment*, 1(2), 70-79

Yong, A. N. & Pearce, S. (2013). A Beginner's Guide to Factor Analysis: Focusing on Exploratory Factor Analysis. Tutorials in Quantitative Methods for Psychology, 9(2), 79-94.

APPENDICES

Appendix I: Consent Letter

Dear Interviewee,

My name is Ruth Kamene, I am a Masters student from Kenyatta University. I am conducting a study on stress levels among construction workers in Kibera Resettlement Action Plan Project, Nairobi City County, Kenya. The results of this research will be of significance to construction companies since it will assist in managing stress at the construction sites by highlighting the potential causes/sources of stress, the stress levels and the possible ways to cope with occupational stress. Participation in this study will require that I ask you some questions that will help in knowing the level of stress and coping mechanisms applied and will record the information in a questionnaire. Please remember participation in this study is voluntarily. You may also ask questions related to the study anytime.

You may refuse to respond to any question and may stop the interview at any time you may also stop being in the study at any time without any consequences. Some of the questions you will be asked are on intimate subject and may be embarrassing or may make you feel uncomfortable. If this happens, you may refuse to answer these questions if you so choose. You may also stop the interview at any time.

If you participate in the study, you will help us learn how to manage stress levels at work and if found to have high stress levels you will be given advise on stress management techniques.

If you agree to participate in this study, advice will be provided on stress management techniques and the results will be shared at the end of the study.

The interview will be conducted in a private setting and your name will not be recorded on the questionnaire. The questionnaire will be kept private.

Contact information

If you have any questions you may contact Dr. Kilonzo 1. On 0725396620or Dr.Christine 2. On 0722429999 or Kenyatta University Ethical Review Committee secretariat on chairman.kuerc@ku.ac.ke, Secritary.kuerc@ku.ac.ke, secreitariat.kuerc@ku.ac.ke

Participant statement

The above information regarding my participation in the study is clear to me. I have been given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be

given a chance to ask questions and my questions have been answered to my satisfaction. My participation in this study is entirely voluntary. I understand that my records will be kept private

Name of participant (Optional) .....

Signature..... Date.....

Investigator's statement

I, the undersigned, have explained to the volunteer in a language she/he understands, the procedures to be followed in the study and the risks and benefits involved

Name of interviewer.....

Signature ..... Date.....

Appendix II: Questionnaire

Section 1: Background Information

1. Please indicate your gender

   Male [ ]

   Female [ ]

2. For how long have you worked in the construction industry?

   Below 5 years [ ]

   6-10 years [ ]

   11 – 15 years [ ]

   Over 16 years [ ]

3. What is your age

   Less than 20 [ ] 20 – < 30 [ ] 30 – < 40 [ ] 40 – < 50 [ ]

   More than 50 [ ]

4. Please indicate your education level

   Graduate [ ] College [ ]

   Secondary [ ] Others (Specify) .....

5. Marital status

   Single [ ] Married [ ] Divorced [ ]

6. Number of children

   0 [ ] 1 [ ] 2 [ ] >3 [ ]

Section 2: Causes of work stress

a) Task stressors

7. Evaluate the following statements on the potential work stressors in the construction industry. Use the following scale where appropriate |

   1- Agree 2- Disagree

Work Overload	**1**	**2**
1) I frequently work for long hours		
2) The tasks I have to work on often have tight deadlines		
3) I am always required to multi-task and make many decisions		
4) I have to put much efforts in guiding my subordinates in their work		
Work under load		
1) I am given very limited authorities		
2) I feel my skills and abilities are not being used well		
3) I frequently face unplanned delays in work		
Role conflict		
1) I am often caught by conflicting demands between different parties		
2) My personal and organizational goals do not match		
3) I am often assigned tasks which are not part of job specification		
Role ambiguity		
1) My job responsibilities are generally unclear and inconsistent		
2) I have inadequate understanding of duties and responsibilities		
3) My role and scope are ill-defined		

b) Organizational Stressors

Complexity of roles	**1**	**2**
1) Our organization is characterized by unclear reporting structure		
2) I have to carry out the work in complicated work procedures		
3) The organization policies and procedures adequately support employees		
Bureaucracy		
1) I have to consult other people before making a decision		
2) Many of the rules/procedures make doing a good job difficult		
3) There is adequate room for innovation and freedom to use personal ideas		
Feedback		
1) I can get feedback from my supervisor on how well I am doing		
2) It is hard to get information from my supervisor on my job performance		
3) It is very hard for me to know how secure my job is		

c) Personal Stressors

Interpersonal relationship	**1**	**2**
1) I have poor personal relationship with my colleagues		
2) I can get along with others at work well		
3) I don't like the people I work with		
4) I have respect and trust for those that I work with		
Type A behavior		
1) People sometimes say that I easily lose my temper		
2) I enjoy competition and I feel like I always have to win		
3) I am an achievement oriented person		
4) It is hard for me to focus on one activity for a long time		
Life changes and Family		
1) Demands of my family conflict with demands of my job		
2) Losing property or a loved one makes me unwilling to work		
3) Family problems always weigh me down		
4) I would like to spend more time with my family and friends		

d) Physical stressors

1) My place of work is very noisy and crowded		
2) It sometimes gets very cold or hot in my place of work		
3) All required resources are unavailable to me		
4) Lighting and ventilation at my workplace is not conducive		
5) There is little use of technology use in my work		
6) My workplace lacks privacy and security		
7) The comfort I am provided at work is low		

Section 3: Stress Levels and Symptoms

a. Subjective stress level measurement

1-Strongly agree 2- Agree 3 – Neutral 4- Disagree 5- Strongly Disagree

Emotional exhaustion					
1) After my day at work I normally feel emotionally drained					
2) I always don't feel like going to work in the morning					
3) I feel so much stressed working with people directly and every day					
4) I am always worried about work					
5) I always feel unhappy and frustrated by my job					
Reduced personal achievement					

1) I can deal effectively with my co-workers					
2) I feel like I have accomplished					
3) I feel very energetic					
4) I feel confident that I am effective at getting things done at work					
Depersonalization					
1) I doubt the significance of my work					
2) I have become less interested with my work since I started this job					
3) Co-workers blame me for their problem					
Physiological Consequences	**1**	**2**	**3**	**4**	**5**
1) I sometimes have sleeping problems					
2) I loose appetite when I am faced with challenges at work					

3) I usually have constant headaches					
4) I have skin problems					
5) I have gastrointestinal problems					
6) Sometimes have back pains					

b. Objective stress level measurement

Fill the number that best reflects your agreement

1 – None, 2 – Little / Some, 3 – Average, 4 – A lot, 5 – A very great deal

Attribute	**Expectations**		**Abilities**	
Number of tasks	I have to meet		I can meet	
The level of difficulty in my work	I have to deal with		I can deal with	
The quality of work	I have to do		Capable of doing	
The degree to which my skills	Are used		Could be used	
The number of projects	I have to deal with		I can deal with	
The number of people	I have to work with		Would like to work with	

Section 4: Stress Management

8. Evaluate the following statements on the extent to which you as an employee of the construction company employ various individual stress management strategies. Use the following scale as appropriate

1- Yes 2- No

Problem focused	**1**	**2**
1) I come up with different solution to my problems e.g. time management, skill enhancement and self-compromise		
2) I put attention in planning my schedule rather than acting on impulse		
3) I appraise the problem again to see whether there are any controllable variables, either about the personal or environmental problem.		
4) I talk to someone who could do something concrete about the problem		
5) I express anger to the person who caused stress		

Emotional focused		
1) I try to get emotional support from friends, relatives or even colleagues		
2) I try to lose myself for a while by either smoking or taking alcohol		
3) I sometimes discharge my emotions through scolding others		
4) I try to keep my feelings to myself that things will be different next time		
5) I escape from stress by thinking about relaxing and happy times		
6) Sleep is the most important way for me to relieve my stress		

9. Evaluate the following statements on the extent to which your construction company employs various organizational stress management strategies. Use the following scale as appropriate

   1- Yes 2- No

Problem Focused	**1**	**2**
1) Use of preferred shifts and time offs		
2) Salary increments and prompt wages/incentives		
3) Fairness when dealing with promotions		
4) Increase in resources, individual competencies and skills		
5) Delegation of tasks and responsibilities		
Emotional focused		
1) Continuous guidance and counseling		
2) Social and family support		
3) Regular feedback and performance recognition		
4) Managerial and colleague support		
5) Control over work		

Thank you for your time