Determinants of Stress in Management of Construction Projects in Pakistan

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ABSTRACT

Construction projects are complex and dynamic which is why professionals in these projects face stress. Aim of the study is to find out important stressor that causes stress in management of construction projects and their impact on management's stress. Determinants of stress include work overload, work-life balance, and role ambiguity. To conduct this study survey was a design from the review of the literature and sent to 200 respondents out of which 173 questionnaires were returned that represents a response rate of 86.5 percent. The results show that work-life balance and role ambiguity affect the stress of management in construction projects while results for work overload were insignificant. This study will help decision-makers to identify important stressors and anticipate their impact on stress, and by taking control over these stressors decision-makers will be able to improve worker performance which reflects in the overall success of the projects.

Key words: *Stress, work overload, work-life balance, role ambiguity, management, construction projects*

INTRODUCTION

Achieving pleasure at the workplace is an art of coping with stress (Larson, 2004). Stress is considered a disease of modern society and at the workplace, it is a well-known situation that can be express in different ways and can affect employees in different styles in a different context (Larson, 2004). Patchinga & Besta, (2014) state in their paper that stress affects individuals, and factors other than work are also involved in information and expression of stress. According to ILO (International Labor Organization, 2010), job stress can cause up to a 10 percent decrease in a country's GNP.

Silva, Samanmali & Silva, (2017) states in their research paper that amongst other industries, the construction industry has long been ranked as a stressful industry. One of the recent studies by Willaert et al., 2021) argued that this is because the construction industry is recognized for complex work, challenging environment, and growing demand for higher productivity. Construction projects are stressful because project staff has to achieve quality, time, and cost targets (Silva, Samanmali & Silva, 2017; Wang et al., 2020).

PMI (Project Management Institute) defines projects as "Projects are temporary endeavors undertaken to create a unique product, service or result". As they are temporary, they have few constraints such as time, cost, and scope. These constraints cause stress in the management of construction projects. Researchers and practitioners in this industry are not clear about the important stressors that cause stress and the impact of these stressors on stress.

This study is aimed to find out the important stressor that causes stress in management of construction projects and to check the impact of these stressors on the stress of management in construction projects.

LITERATURE REVIEW

Stress in construction projects

The word stress was originally coming from the field of physics and later on it was transferred to psychology the idea is that human beings show resistance to the outside forces acting upon them as other physical objects do (Larson, 2004). In today's world, the concept of stress is widespread

but it's still very controversial and it's defined in different ways, the following table shows different authors' definitions of stress.

Table 2.1 Key Stress definitions

Author	Year	Definition
Selye	1980	“nonspecific result of any demand upon the body”
Cox	1993	“a perceptual phenomenon arising from a comparison between the demand on the person and his ability to cope”
Greenberg & Baron	2003	“The pattern of emotional states and physiological reactions occurring in response to demands from within or outside an organization (stressors)”
Raitano & Kleiner	2004	"From a collaboration of sources, occupational stress is defined as an event or sequence of events, non-physical in nature, perceived by the receiver as an attack resulting in a physical, mental, and or emotional fight or flight response"
Michael, Court & Petal	2009	“An extreme powerful stimulation which happens as a result of loss and threat factors or stress is a reaction of individuals to a particular event or action”.
Enshassi, El-Rayyes & Alkilani	2015	"Jobs stress is the combination of harmful emotional and physical responses which occurs when employees face an imbalance between their work demands and their abilities".
Silva, Samanmali & Silva	2017	"Stress is the harmful physical and emotional response that occurs when the requirement of the job do not match the capabilities, resources or need of the workers".

Table 2.1 shows different author’s definition of stress in different contexts like Selye (1980) define stress in the context of animal physical reactions, Michael, Court & Petal (2009) define stress in the context of human physical reactions while Cox (1993) and Greenberg & Baron (2003) defined it from the organizational point of view. One thing is common whoever defines stress entails the person's response to a stressful situation and its impact on a person's performance and health. Table 2-1 also shows that there is no single definition of stress but its definition depends on the situation or context in which a study is carried out.

Silva, Samanmali & Silva, (2017) referred to seyle (who is considered as the father of stress) that he was the first researcher in 1976 who separated stress as eustress (good stress or positive

stress) and distress (bad stress or negative stress). They further argued that eustress is generally short term and leads to better focus on the job, increased motivation at the workplace, helps to improve personal coping abilities, and better performance of employees while distress may be acute (short term) or chronic (long term). Silva, Samanmali & Silva, (2017) and Lehmann et al. (2021) also stated that distress leads employees to decreased performance, physical and mental illness, unpleasantness, and anxiety. Larson, (2004) argues in his paper that stress is essential for a person's growth, development, and performance both at the workplace and in personnel life. A person's response to a stressful situation depends upon a variety of individual factors but once the individual's stress level exceeded the threshold the stress symptoms will start to show up (Silva, Samanmali & Silva, 2017).

Work-related stress is a universal phenomenon and now a day's projects staff is more likely to experience stress at their workplace (Khoury & Analoui, 2010). Their results indicate that 71 percent of the total respondents were victims of job stress. Out of these 71 percent, 46 percent were highly stressed, 38 percent were averagely stressed and only 16 percent were experiencing low stress. Khoury & Analoui, (2010) argued that the majority of the stressed respondents identified that the main stressor was their relationship with peers, poor work condition, poor communication level, and salary while few of the stressed respondents shows that the main stressors were their economic conditions, personal condition, and political conditions.

Important stressor

A stressor is defined as “the demand caused by any environmental factor either external or internal which upset the individual balance and for which restoration is demanded” (Larson, 2004).

Work overload

Workload means the amount of work performed or being able to perform within a specified period and work overload means exceeding that limit of performed work (Bliese & Castro, 2000; Bailenson, 2021). Avery et al., (2010) defined work overload as it is a situation with too little time and too much work. Work overload is outlined as incompatibility among the necessities, time constraints, and resources associated with work offered to accommodate these needs (Bliese & Castro, 2000). Their results suggest that work overload and role clarity were found to have a

significant effect on psychological stress. They argue that as we were expecting work overload was positively related to stress while role clarity was negatively related to stress. A higher level of workload results in poor performance of employees (Karatepe, 2013; Cham et al., 2021). Leung et al., (2005) state in their research paper that construction projects are subject to high risk because of changes in requirements, clients, laws, regulations, and designs that give rise to excessive workload. They also argue that work overload in construction projects can be of two types, quantitative (intensive work with little time provided) or managerial ineffectiveness. Leung et al., (2005) stated in their results that work overload causes low self-esteem, depression, pointlessness, dissatisfaction, and intention to leave the project. Work overload, role ambiguity, and working environment are the critical stressors in construction projects (Leung et al., 2005).

Work-life balance

Drew & Murtagh, (2005) defined work-life balance as "a concept which includes proper prioritizing between work and the lifestyle, work means career and ambitions while lifestyle means health condition, family and spiritual development, etc". Lack of adequate work-life balance causes frustration (Drew & Murtagh, 2005; Dousin et al., 2021). They argue that if work-life balance amongst members continues to be poor, findings indicate that they often neglect their personal life and miss out on vital activities as a result of job stress. Work-life balance is important to both people and organizations for the last few decades because it is a key factor in increasing the productivity and overall performance of employees in the organization (Hassi, 2016). The issue of job stress and work-life balance is more complex than it seems at first when we see in term of worker-manager contrast, flexible working practices have either positive or negative impact on work-life balance that depends upon the situation of individual employee (Moore, 2007). Au & Ahmed, (2014) state in their research paper that if employees in any organization feel an imbalance between their work and personal life they will try to find a place somewhere else to get happiness. Lingard & Francis (2006) state in their research paper that most researchers had ignored the work-life balance aspect in the construction industry through work-life balance plays an important role in modeling employees' work-related attitudes and behaviors.

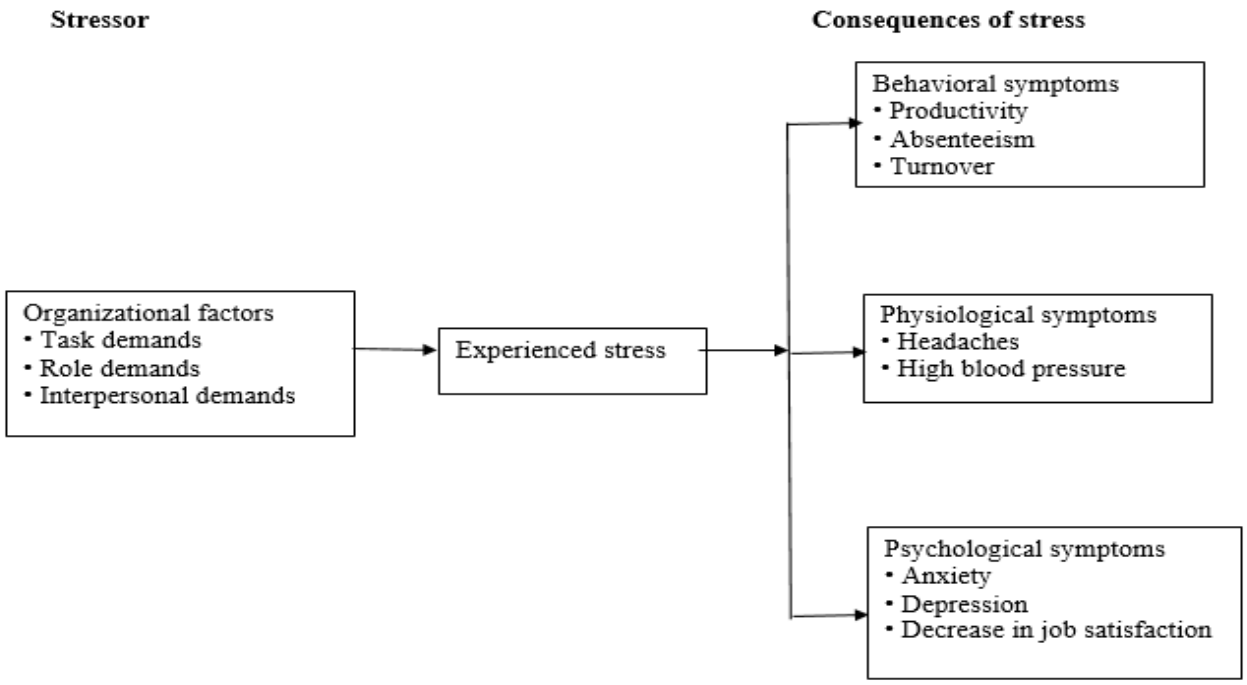
Role ambiguity

Clercq & Belausteguigoitia, (2017) defined Role ambiguity as "it is a situation at a job which prevents the employees from understanding clearly that how they can conduct their jobs which create stress for them". Therefore when there is a high level of role ambiguity employee feels uncertain about how to achieve the desired work performance. They argue that unclear role or role ambiguity leads organizations to a higher level of employee turnover. Role ambiguity is related to specific aspects of job stress, a considerable amount of researchers have stated that role ambiguity is a source of job stress (Koustelios, Theodorakis & Goulimaris, 2004; Kim et al., 2021). Hill, Chênevert & Poitras, (2015) states in their research paper that in complex organizations, roles are not formally described which leads employees to role ambiguity. Hill, Chênevert & Poitras, (2015) states in their results that role ambiguity causes conflict development through creating negative cognition and emotion, and there is a greater chance that employees experiencing high role ambiguity involve in ego-defensive behaviors and interpret the environment in a self-serving manner. Jaramillo, Mulki & Solomon (2006) states that theories related to job stress suggest that role ambiguity is one of the most important role stressors that cause psychological stress in workers.

Current gaps in the literature

The first and important gap in the literature is that mostly the studies on stress were focused on workers rather than management. As the literature suggests that management is more important than workers because they have to make decisions that not only affect the organization's profit but also the productivity and quality of life of workers. The second important gap identified in the literature is that mostly one or two of these variables (work overload, work-life balance & role ambiguity) were studied in the same study at a time while Jamal, (1984) stated in his paper that it is suggested that a set of more than one and two stressors should be included to examine the impact of stress in working setting. The third gap identified in above literature is that most of the studies are conducted in developed countries and in developing countries like Pakistan very few studies on stressor that causes stress in construction projects are carried out.

2.4 Framework of stress



Source: Stephen P. Robbins, Organizational Behavior, p.737

Above framework shows that how stressor causes stress and what are its consequences. It can be seen that different organizational factors like task demand, role demand, and interpersonal demands act as a stressor and causes stress which results in psychological, behavioral and physiological problems. It is clarified here that to denote task demand, work overload is used as a stressor, for role demand role ambiguity is included in this study and for interpersonal demand work-life balance is used as stressor instead.

2.5 Hypothesis

H1: Work overload causes stress in the management of construction projects.

H2: Work-life balance causes stress in the management of construction projects.

H3: Role ambiguity causes stress in the management of construction projects.

Research Methodology

The research protocol for this study was structured into two phases. In the first phase, an extensive literature review was conducted to identify important stressor that causes stress in management of construction projects and association of this important stressor with stress. Findings of literature were used to formulate the pilot questionnaire for the study which include the literature findings on

- A stressor that causes stress in management of construction projects;
- Their association with stress

Selection of Sample

The population for this study was the management of all construction projects in Khyber Pakhtunkhwa. The group that was targeted for the survey was the management of large construction projects in Peshawar that were carrying out projects under the umbrella of Peshawar Development Authority (PDA) or Defence Housing Authority (DHA). The logic behind the selection of this sample was that limited time and financial resources made it impossible to survey that large population. The selection of this representative sample was made in such a way that this sample closely represents the total population. A list of large ongoing construction projects in Peshawar was obtained from Peshawar Development Authority (PDA) and Defence Housing Authority (DHA) offices. It was found that under Peshawar Development Authority currently, Bus Rapid Transit (BRT) project was under construction and under Defence Housing Authority (DHA) the Defence Housing Colony was under construction. This study selected the management of both these projects for data collection.

Sampling technique

A simple random sampling technique was used to select a sample for this study. Simple random sampling is the basic sampling technique where we select a group of subjects for a study from a larger group, each individual is chosen entirely by chance and each member of the population has an equal chance of being included in the sample.

4. Analysis

4.1 Results of structural equation modeling in Amos

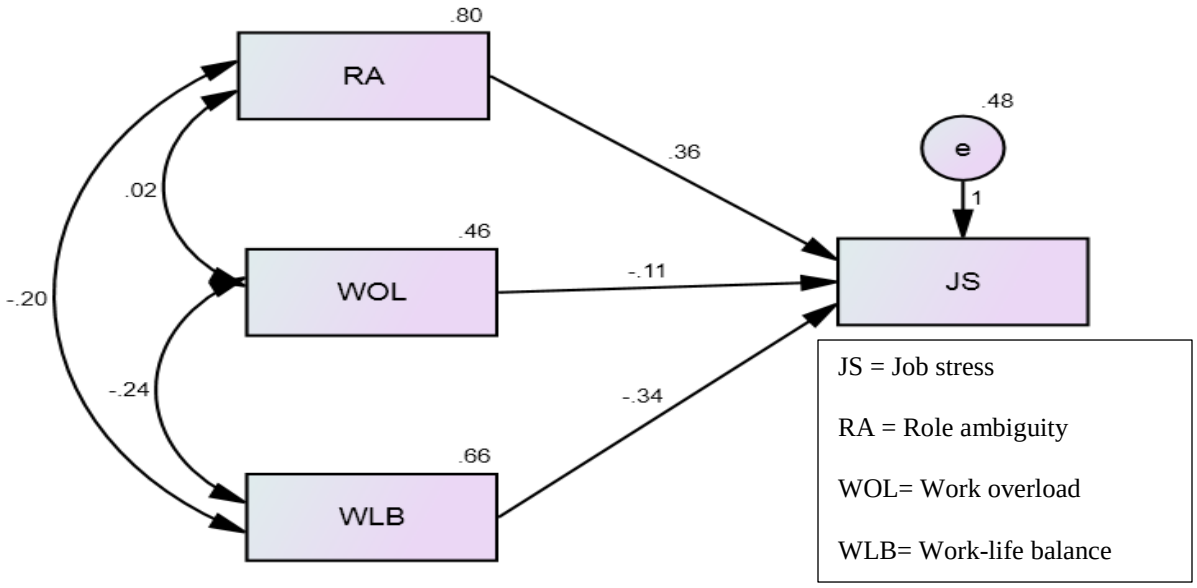


Figure 4.1

Figure 4.1 shows the path analysis for the study, as path analysis is defined as the diagrammatic representation of the theoretical model using standardized notation. In other words figure, 4.1 shows the relationship between dependent variable stress and independent variables work overload, work-life balance, and role ambiguity. As SEM is thought of as path analysis using a latent variable. The logic behind using SEM in this study is that the dependent variable that is stress has a structural relationship with more than one independent variable that is work overload, work-life balance, and role ambiguity. It is clear from the literature that structural equation modeling is a multivariate statistical analysis technique that is used to analyze structural relationships.

Covariances: (Group number 1 - Default model)

			Estimate	S.E.	C.R.	P	Label
Work overload	<-->	Work-life balance	-.240	.046	-5.225	***	
Role ambiguity	<-->	Work-life balance	-.195	.058	-3.390	***	
Role ambiguity	<-->	Workoverload	.025	.046	.533	.594	

Table 4.3

Table 4.1 tells us that role ambiguity and work-life balance significantly affect the stress of management in construction projects because the P-value for both variables is *** which indicates that it is significant and in this case, we accept our alternative hypothesis which states that these two variables significantly affect the stress of management in construction projects.

CONCLUSION AND RECOMMENDATION

Conclusion

Construction projects are more complex and dynamic. Therefore professionals in these projects have to face stress, especially the management of construction projects. Aim of the study was to find out important stressor that causes stress in management of construction projects and their impact on stress. The results of the study for role ambiguity are significant. In this case, our study supports the findings of Abdel-Halim, (1982); JAMAL, (1984); Siegall, (2000); Bashir and Ramay, (2010); Calisir, Gumussoy, and Iskin, (2011); Barhem et al., (2011). Results for work-life balance are significant. In this case, our study is in line with Lingard and Francis, (2006); Lourel et al., (2009); Chiang, Birtch and Kwan, (2010); Løkke and Madsen, (2014); Zheng, Molineux, Mirshekary and Scarparo, (2015) and Johari et al., (2016). In the case of work overload, the results are insignificant. In this case, our study is in line with Slevin and Pinto (1987) which states in their research paper that the role of project staff is characterized by work overload and fast activity hence it does not always affect the stress of employees. The reason for insignificant results may be that employees in construction projects are mentally prepared for work overload because they knew about the triple constraints of projects that are time, cost, and quality constraints. As the literature suggests that due to time limitation, the workload is high in projects which is a routine function for project's employees (Slevin & Pinto, 1987).

This study will help decision-makers to identify important stressors and their impact on stress. This study will help the decision-maker to achieve project success while having control over management stress levels through these identified stressors in this study. This study will help decisions maker to improve the decision-making power of management by lowering down their stress level with these identified stressors.

Future research insights

In light of the literature studied for this study, this study only checks the impact of determinants of stress in construction projects but age group, work experience, and other demographic factors also affect the stress of management in construction projects. This study only takes into consideration the management of construction projects future studies should incorporate both management and workers. It is recommended for future researches to see the impact of age group, work experience, and other demographics factors as well along with these variables, besides this they should include or conduct a comparative analysis of stress in management and workers of construction projects.

LIMITATION OF THE STUDY

The scope of this study is limited to only the management of construction projects in Peshawar Khyber Pakhtunkhwa. This study has taken only three-factor that affects stress of management in construction projects number of independent variables can be increased. Demographic factors like age, gender, and work experience were not take into consideration. A smaller sample size was considered future studies should incorporate a larger sample size. Workers are not included in this study.

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