

Impact of Stress on Performance of Construction Employees in Mumbai Region

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Abstract— The construction industry is the rapidly growing industry since last decade in India. These construction projects are surrounded by huge financial investments and time. Lack of construction management causes stressful conditions on the construction employees due to time bounding, extra working. This study reveals correlation and effect of stress on performance of employees in Mumbai region. Feedback of questionnaire survey analysed further and correlation analysis was done. Results of the correlation analysis states that, (1) Objective stress affects negatively with task performance and Interpersonal performance, but has positive impact on Organizational performance. (2) Burnout has negative effect on both task and interpersonal performances. (3) Physiological stress has negative impact on all the job performances. Also feedback from the study shows that heavy workload, time deadlines and travelling are the most responsible factors for stress on construction employees in Mumbai.

Key words: Construction management, construction employees, work stress, stress-performance relation, human resource Mumbai

I. INTRODUCTION

Stress is a condition of strain on one's emotional feelings that leads to make effect on his/her physical condition. Employees with high demands and having little control over skills are likely subjected to the stressful life. This way stress on worker affect performance of the worker. Construction industry is huge and rapidly growing industry in India since last decades with largely investment of funds and time. Lack of construction management leads to big financial loss as well as project delays. There are many factors that induces stresses on employees like time deadlines, lack of skills, uncertainties etc.

This study is based on the study done by Mei-yung Leung on construction project managers, but in this study focus is on stresses on construction employees like site engineers in Mumbai also aims to find out causes of stress on construction employees in Mumbai.

Towers Watson reports reasons of stress on Indian employees, 1) 'physical inactivity and obesity follow stress is list of most pressing lifestyle risk factors 2) unclear job expectations and lack of work/life balance among top contributors to work related stress for Indian employees[9]. Again role ambiguity, workload, lack of job security, interpersonal issues are some of the common causes of work stress. Since every single step taken by construction employees has impact time, quality, sometimes they may have to face situations like accidents. Construction employees also need to report higher management authorities about how is the progress of work. All these factors are responsible to put stress on construction employees.

II. WORKPLACE STRESSES & JOB PERFORMANCES

Stress is often regarded as subjective feeling of individuals, in which the demands of work or life exceeds the belief of individual in his or her capacity to cope (Mei-yung Leung, Yee-Shan Chan, and Paul Olomolaiye, 2008). Different types of stresses arises on employees depends which stress inducing factors worker is facing. Commonly there are following types of stresses which are focused into this study are: Objective stress, Burnout, Physiological stress [2]. These three stresses are commonly mostly observed in work environment.

A. Objective Stresses

Objective stress is refers to the evaluation of threat arising from cognitive factors [2]. This type of stress depends upon individuals own capacity deal with stress. There are two types of people generally type A and type B. Type A people set themselves for high standards, and they are capable of fulfilling high demands, whereas type B people are comparatively more relaxed. This type of stress generate due to difference between individuals actual ability and his expected ability.

B. Burnout

Burnout is state of emotional, mental phase in which worker lose his will to work and will to be alone in life. This kind of stress is the cause of role ambiguity, heavy workload, job insecurity etc. Avoiding people at work and private life is one of the symptom of burnout.

C. Physiological Stress

Stress can directly effect on human body when body is subjected to stressful situations. In this condition human brain generated certain hormones to support parts and activities of body during stressful conditions. This process in which body prepares itself to deal with threat, is named the "fight-or-flight" response [2]. But if stressful condition continues on body it will cause headaches, back pain blood pressure problems. Reference [11] reports in following pie chart main causes off stresses.

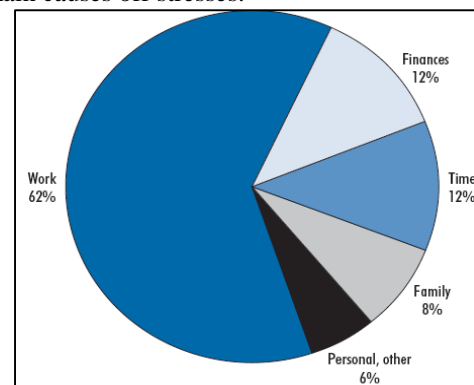


Fig. 1: Causes of stress

Performance of the construction employees leads to productivity. Lack of performance will hence generate time related problems. Under stressful conditions worker don't feel their work exciting, decreases co-ordination with other employees, they don't get fit into the organization ultimately decreases job performance. In this paper effect of stress on following job performances are studied, Task performance, Inter-personal performance, organizational performance [2].

D. Task performance

Task performance means effectiveness with which a task can be completed. A poor task performance by construction worker means delayed work, lack of quality in work, lack of planning of doing work.

E. Interpersonal Performance

Projects of construction industry involve multi stakeholders. It involves clients, owner, contractors, sub-contractors, architects. One's interpersonal skills have a direct effect on their ability to interact and get along with others. A construction worker must have good inter personal relationship to smooth running of project work to avoid conflicts.

F. Organizational Performance

The effect of stress is not limited to individual behavior or specific projects. Stress can further impacts on organization of the system. Ineffectiveness in organization performance simply refers to the financial impact on an organization. Intention to leave company, feeling work less interesting are the reasons of poor organizational performance.

III. STRESS AND PERFORMANCE RELATIONSHIP

It is obvious that as stress induces it effects on job performance. Many studies revealed that stress has positive relationship for simple tasks whereas, it has an inverted U shaped relationship for complex tasks. Just like that stress also has negative relationship with performance.

Too much stress causes negative impact on construction employees. Also zero stress does not mean there will be a good performance. For good performance some level of stress is required, say moderate stress. If stress is very less may cause boredom, lack of concentration etc. Therefore, moderate stress is always necessary and considered to be healthy and useful for good performance.

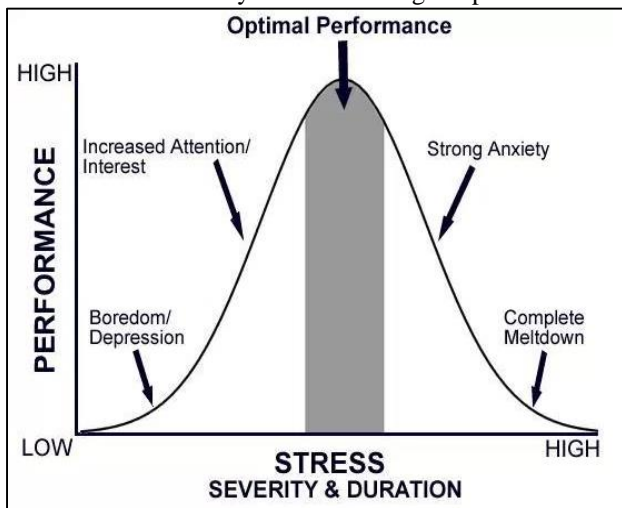


Fig. 2: Stress-performance U shaped relation

IV. RESEARCH METHODOLOGY

In this study first of all causes of stresses were identified by referring various literatures. A questionnaire was designed based on these causes of stress and sent to construction employees for their direct response. The questionnaire were prepared in google forms and distributed to construction employees through mails or in person between Januarys to May 2016. Response to mail was found very low compared to in person feedback. Construction employees working on site in various companies and local sites were included into survey. Nearly half of them (48%) are fresher having work experience up to 5 years, (32%) with 5 to 10 years and (20%) are with above 10 years of experience.

In this feedback was taken for three types of stresses namely objective stress, burnout, and physiological stress. 7-point Likert scale was used. To measure the level of objective stress on employees. They were asked to rate for persons expected and actual ability i.e. Type A and type B behavior was judged in various directions (number of tasks, level of difficulty, time deadlines). The overall objective stress was then calculated in proportion of the 7 point scale. The same procedure was further carried out for burnout and physiological stress and all three job performances using 7 point Likert scale.

Other than Likert scale responses construction employees were asked to fill open ended question about their own opinion about work place stress like (time deadlines, workload, Travelling). Based on this a checklist was prepared to find out the causes of stress in Mumbai region.

V. DATA ANALYSIS AND RESULTS

A. Factor and Reliability Analysis

The reliability test was done on the data followed by the factor analysis showed that objective stress (OS), Burnout(BS), Physiological stress(PS) are statistically qualified for further analysis although burnout stress shows comparatively poor but acceptable reliability (Cronbach's alpha value equals to 0..876,0.564,0.638 respectively).

Respondents	Work load	Travelling	Time deadlines	Accidents	Salary
1		✓		✓	
2	✓				
3	✓	✓	✓	✓	
4					
5	✓	✓	✓		✓
...so on					

Table 1: Checklist For Stressors In Study Area

In case of analysis of job performance also factor analysis was carried out with principal component analysis and using varimax rotation using SPSS 23.0. On these three performance factors (Task performance, Inter personal performance, and organizational performance) also reliability analysis was done. Cronbach's alpha value for these factors is also acceptable (TP: 0.696, IP: 0.896, OP: 0.847 respectively). Table2 indicates Cronbach's alpha value is higher than 0.6 thus, considered to be reliable in this study. (TPQ1: question no1 for task performance)

Factors	Factor loading	Alpha value
OSQ1	0.692	

OSQ2	0.698	0.876
OSQ 3	0.513	
OSQ 4	0.916	
OSQ5	0.792	
BSQ1	0.717	0.564
BSQ2	0.675	
BSQ3	-	
BSQ4	0.657	0.638
BSQ5	0.648	
BSQ6	0.737	
PSQ1	0.634	
PSQ2	0.647	
PSQ3	0.791	
PSQ4	0.513	0.696
TPQ1	0.663	
TPQ2	0.674	
TPQ3	0.531	0.896
IPQ1	0.906	
IPQ2	0.906	
OPQ1	0.784	0.847
OPQ2	0.859	
OPQ3	0.731	

Table 2: Stress And Performance Factors With Their Reliability Coefficient

B. Correlation Analysis between Work Stresses and Job Performances

There is always impact of work stress on job performance. So, in order to find out how stress impacts on job performance of the construction employees correlation analysis was done. Pearson’s correlation analysis was done to find out interrelationship between stress (OS: objective stress, BS: burnout, PS: physiological stress) and job performances (TP: Task performance, IP: inter personal performance, OP: Organizational performance). Fig 3 shows interrelation between stress and performance of construction employees in Mumbai region.

Results of correlation analysis clearly shown that, task performance (TP), ($r=0.0429$, $p=0.01$) and interpersonal performance (IP) here are positively correlated whereas positive correlation between Burnout (BS) and physiological stress (PS), ($r=-0.051$, $p=0.01$).

	OS	BS	PS	TP	IP	OP
OS	1					
BS	0.079	1				
PS	0.063	0.183	1			
TP	0.041	-0.276	0.040	1		
IP	0.012	-0.211	0.149	0.429	1	
OP	0.246	0.386	0.009	-0.203	-0.248	1

Table 3: results Of Correlation Analysis

Interrelationship between stress and performance shows that, Objective stress (OS) and Burnout (BS) are negatively correlated with both Task performance (TP) and Inter personal performance (IP). Also, physiological stress (PS) has negative correlation with all the job performances.

As per responses to checklist from the personal opinion of all construction employees following pie chart shows that workload (35%), time deadline (25%), travelling (21%), accident (7%), salary (13%) are the most common causes of the work stress.

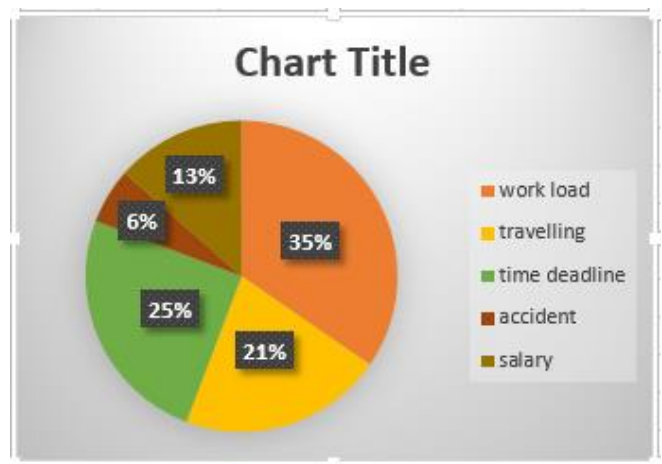


Fig. 3: Pie chart shows causes of stress

VI. CONCLUSION

Study reveals objective stress has positive relationship with all performances. Earlier studies said burnout always has negative impact on job performance. Burnout helps to improve task and interpersonal performance in Mumbai; but it is negatively correlated to organizational performance, means burnout is responsible to reduce the organizational performance of construction employees in Mumbai. Poor organization system leads to workload, time deadline pressure on employees. Hence people with workoholism will also get negatively affected due to poor organization. Use of developing organization culture and use of new technologies needed. Physiological stress also positively related to interpersonal and organizational performance but it is responsible to lower the task performance of employees. By observation to correlation analysis results opinion can be made that there could be u shaped relationship between objective stress with interpersonal performance and physiological stress with task and organizational performance. Earlier studies clearly mentioned that workload is a most affecting workplace factor (stressor). Likewise, in this study heavy work load, time deadlines and travelling are found the main causes of stress in construction employees in Mumbai.

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