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A Field Study on Construction Workers Stress in Erode District

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Abstract

Purpose: The aim of this study to identified the construction workers stress factors and its impact on workers job satisfaction.

Design Methodology /Approch: The scope of the study is restricted only to mazdoor, painter, electrician, mason, plumber involved in the construction work. This study focused its attention only in perundurai taluk of erode district. The researcher used questionnaire method for collecting data from construction workers.

Findings: The study noticed dimensions of construction workers stress, namely infrastructure, recognition, pollution, safety, target, communication, relationship, job security and hazardus job.The study also revealed that there is a significant impact on infrastructure, communication and relationship dimensions of construction workers stress and job stress satisfaction.

Research Implication: The identified stress dimensions may help the construction workers in particular.

1. Introduction

The construction industry has been challenged to be able to deliver projects that are predictable on cost, time and quality through an understanding of customer requirements (Egan, 1998; OTZ, 2002). The construction industry is important in any nation's economic development. Construction process requires high physical activities that are stressful particularly to the lower part in the pyramid of personnel. (M. O. Agwu and Jessica Adobi Tiemo (2012)

M. O. Agwu and Jessiea Adobi Tiemo (2012), "problems and prospects of stress management in the Nigeria Liquefied Natural Gas construction project Bonny", Journal of Emerging trends in Economics and management sciences, Vol 3 (3), PP No.266-271.

The construction industry is one of the most hazardous in terms of safety issues (Larsson & Field, 2002; Mohamed et al; 2009; Niza et al; 2008; Sanshall, 2005).

Employee stress has been documented by many researchers since it has perceived consequences for both individuals and organizations (Lee & Ashforth, 1993; Meyerson, 1998; wrightand Hobfoll, 2004, Zohar, 1997).

Several researchers studied causes of stress namely work overload (De Frank and Ivancevich, 1998; sparks and cooper, 1999, Taylor et al, 1997) and role based factors such as lack of power, role ambiguity and role conflict (sparks and cooper, 1999),certain behavior of the leader (carlopio et al,1997;cooper and marshall, 1976).Apart from this, physical conditions such as high noise levels, overcrowding in the work place or lack of privacy have been associated with stress (Burke,1988).

Statt (1994) also identified multilevel sub contracting, time pressure, constant work rotation and unstable work due to temporary contracts were the important factors of phychological stress among workers and human being stress are manifested in the form of crying, smoking, excessive eating, drinking alcohol, fear, anxiety, anger, guilt, grief, depression and disgust, fast talking (Lazarus, 1966, Levng et al, 2005, yip et al.2005; wanab, 2010)

Stress is not limited to any particular profession (Ng et al., 2005; Lath, 2010). Statt (1994) Identified that construction work is third most stressful profession after mining and police work. Camp bell (2006) Identified that in construction professionals were increasingly perceived their works as being stressful in United Kingdom.

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2. Review of Literature

Ibem et al (2011) identified that the stress &strain among construction workers. They found that work load, fixed time frame, lack of training, poor communication among the workers as well as supervisors are the important stress factors.

Ng et al (2005) identified lack of innovation, lower wages, ambiguity of job requirements, inadequate knowledge of project objectives, long working hours, tight schedules and un favourable working condition were the important factors of stress and strain among the workers.

Kaminskas and antanaitis (2010) noticed that occupational diseases found in construction workers were multifunctional in nature. Lin and chan (2009) identified that temperatures above 30 degree c and relative humidity above 74% posed health threats to construction workers in Taiwan.

Even though several studies has been conducted most of the studies have been conducted in foreign countries. Only few studies have been conducted in India perspectives. Therefore the researchers intend to fill the gap by studying construction workers stress and its impact on construction workers satisfaction. The variable relating to the project studies are drawn from Sutherland and Davidson (1989), Ng et al (2005), Wahab (2010), Ibem E O et al (2011).

3. Objectives of The Study

The following are the objectives of the study,

1. To identify different dimension of stress among the construction workers
2. To measures the impact of stress on construction workers.

4. Research Methodology

The scope of the study is limited only to mazdoor, painter, electrician, and mason, plumber, involved in construction work.

In Erode district six talucks are there. Out of six taluks the researcher selected perundurai taluck for the study. In perundurai thaluck there are 40 house construction related works, 5 road construction related works, and 10 bridge construction works were taking place. Therefore the total numbers of construction work were come to 55 construction related work.

The researchers explained the purpose of the study to the respondents and encouraged to participate in the study. The researchers adopted questionnaire method for collecting data from the respondent. The questionnaire has been translated in to regional language.

The researchers were collected 255 questionnaires. Out of 255 questionnaires 124 questionnaires has been dropped for further analysis because of incomplete data in the questionnaires. Therefore the total response rate of the questionnaire is 51.37%. Before conducting survey a pilot study has been conducted among the respondents. Based on the opinions of respondents some modification has been made in the questionnaire.

The questionnaires consist of three parts. The first part of the questionnaire consist of demographic profile of construction workers, second part of questionnaire consist of variable relating to construction workers stress factors and third part of the questionnaire consist of construction workers Job satisfaction. The respondent have been asked to expressed their opinions with regard to the questionnaire is 5 point level.

Before questionnaire has been administering condent validity of the questionnaire has been checked by constituting panel which consist of one HR related experts and construction related experts.

This study was conducted during the periods of 3 months from December-2013 of Feb-2014.

5. Descriptive Statistics

Table: 1. Demographic Profile of the Construction Worker

S. No	Demographic profile variable	Category	No. of Respondents	Percentage
1	Gender	Male	73	55.7
		Female	58	44.3
2	Income per day	Less than Rs 150	9	6.9
		Rs 150- Rs 300	62	47.3
		above Rs 500	54	41.2
		Rs 300- Rs 450	6	4.6
3	Age	Less than 20 years	8	6.1
		21-30 years	63	48.1
		31-40 years	8	6.1
		Above 40 years	52	39.76
4	Experience in construction field	Less than 2 years	15	11.5
		2 years to 5 years	56	42.7
		6 years to 10 years	46	35.1
		11 years to 15 years	6	4.6
		Above 15 years	8	6.1
5	Family type	Nuclear Family	108	82.4
		Joint Family	23	17.6
6	Education qualification	1-5th	53	40.5
		6-10th std	50	38.2
		1-5th std	18	13.7
		12th std & above	10	7.6
7	Marital status	Married	100	76.3
		Un married	31	23.7
8	Native state	Tamil nadu	72	55
		Other state	59	45
9	Occupation	Mazdoor	45	34.4
		Mason	44	33.6
		Painter	22	16.8
		Plumber	10	7.6
		Electrician	10	7.6

Clearly exhibits the demographic profile of the respondent. The sample respondent are predominantly make population (55.7%), around 47.3% of the respondents earned income perday ranging from 150 to 300 rupees per day.

In terms of age 48.1% respondent are falling the age level between 21 to 30 years. with respective experience in construction field 42.7% of the respondent have 2-5 years of experience and 82.4% of the respondents are hailing from nuclear family,38.2% of the consist workers have 6-10 has their education questionnaires 76.3% of the responds are married 55% of responds are belongs to tamilnadu state 33.6% of the responds occupation is mason.

Exploratory Factor Analysis

Prior to the extraction of factors, KMO and Bartlett's test has to be performed.

Table: 2. KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		**.601**
Bartlett's Test of Sphericity	Approx. Chi-Square	2.386E3
	df	406
	Sig.	.000

Factors analysis was administered to identify the important construction workers stress and to establish here suitability for further analysis. The KMO measure of sampling adequacy was 0.601 confirmed that there was

significant correlation among the variable to apply the factor analysis.

Table: 3. Construction Workers Stress Factors

S. No	Stress Factors	No. of Variables Included	Eigen Value	Percentage of Variance Explained	Cumulative Percentage of Variance Explained
1	Infrastructure	6	6.423	14.627	14.627
2	Recognition	5	3.904	8.476	23.103
3	Pollution	3	2.360	8.303	31.406
4	Safety	3	2.257	8.019	39.425
5	Target	2	1.670	7.563	46.988
6	Communication	5	1.495	7.432	57.420
7	Relationship	2	1.445	7.253	61.673
8	Carrier	2	1.159	7.169	68.842
9	Hazardous	1	1.054	6.217	75.059

The narrated nine dimensions of construction workers stress factors explained to the extent of 75.09 percent. The most important perceived stress among the construction worker is 'infrastructure' since its respective eigen value is 6.423. Which consist of six stress factors? Since the second and third factors are 'regognition' and 'pollution', their respective Eigen value is 3.904 and 2.360 percent respectively. The variance explained by these factors is 8.467 percent and 8.303 percent respectively. The next important factor is safety and target which consists of three and two variables respectively. There two stress factors explained to the extent of 7.432 percent and 7.253 percent respectively. The eighth and ninth stress factors is 'Job insecurity' and hazardous job which consists of two variables and one variable respectively. Since its respective eigen value are 1.159 percent and 1.054 respectively.

Multiple Regression Analysis

In order to study the impact of different construction stress level dimensions and its impact on workers satisfaction multiple regression analysis has been administered.

All stress level dimension factors were considered as independent variables and workers satisfaction was considered as a dependent variable.

The results of infrastructure stress dimension of construction workers indicates that $R^2 = 0.399$.

This indicates 0.399 of variance in construction workers satisfaction is explained by independent variable (F = statistics = P > 0.000)

On the individual determinants of infrastructural stress dimensions of construction workers stress responsibility for the situation not fully under my control was highly influenced variable

[$\beta = 0.430$, t= 3.373, P>0.005]

Demographic Profile of the Respondents

The following table describes the profile of the respondents. The respondents are predominantly more construction workers (55.7).Around 47.3 percent of the respondents had earned a income between Rs 150 to 300per day. In terms of age, 48.1 percent of the construction workers comes under the age group of 21 to 30 years old, 42.7 percent of the respondents had 2 to 5 years of experience in construction industry with regard to family types, 82.4 percent of the respondents are hailing from joint family system, 40.5 percent of the respondents are illiterate, 76.3 percent of the construction workers are married, 55 percent of the construction workers native state is tamilnadu.

As for as occupation is concerned, 34.4 percent of the respondents are falling under the category of mazdoor, 33.6 percent of the respondents are mason, 16.8 percent of the respondents are painter and 7.6 percent of the respondents are plumber and electrician.

Reliability of Data

To Establish Internal Consistency, Cronbach Alpha value was used to assess the reliability of the scale, considering the minimum value of 0.7 (cronbach 1970, Nunnally, 1978). The calculater value was 0.79 which exceeds the threshold limit.

Measuring the impact of different dimensions of construction workers stresses factors and construction workers satisfaction:

In order to measure the impact of different stress factors of construction workers, and construction workers satisfaction. Multiole regression analysis was administered. In the regression model, the construction workers satisfaction was considered as dependent variable, where as the nine dimensions of construction. Workers stress factors was considered as independent variables.

Table: 4. Impact of Infrastructure Dimension of Construction Workers Stress

Dependent variable: Workers satisfaction

Model	Substandard sized Coefficients		Standardized Coefficients	T	Sig.
	B	Std. Error	Beta		
(Constant)	3.406	.309		11.006	.000
Poor lighting(X1)	-.125	.091	-.156	-1.371	.173
Poor ventilation(X2)	-.060	.158	-.056	-.379	.705

Inadequate temperature control(X3)	-.021	.130	-.023	-.165	.869
Responsibility for the situations not fully under my control(X4)	.406	.120	.430	3.373	.001
Travel to and from the job(X5)	-.183	.105	-.197	-1.751	.082
Pressure from weather(X6)	.246	.091	.280	2.699	.008
R Square	0.399				
Adjusted R Square	0.305				
F	13.912				

Y=3.406+0.125(X1) +0.60(X2) +0.021(X3) +0.406(X4) +0.183(X5) +0.246(X6)

The result indicates that there is a significant relationship between infrastructure dimensions of workers stress and workers satisfaction (F=13.912 < 0.000). The R2 value 399 revealed, that independent variables explained 39 percent of infrastructural dimensions of workers satisfaction with adjusted R^2 of percent. On the individual dimensions, responsibility for the situation not fully under control was found to be important determinents (β=0.430, t=3.373, p=0.000<0.05).

Table: 5. Impact of Communication Dimensions of Construction Workers Stress Dependent Variables: Workers Job Satisfaction

Model	Substandard Id Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	1.360	.491		2.768	.007
Poor communication among workers	.085	.072	.108	1.193	.235
Role ambiguity	.081	.058	.123	1.390	.167
Time pressure and deadlines	.238	.072	.276	3.282	.001
High risk nature of the job	.109	.065	.141	1.664	.099
Lack of training	.061	.066	.091	.922	.359
Unfair treatment	.094	.063	.135	1.496	.137
R Square	.319				
Adjusted R Square	.287				
F	15.799				

The result clearly depicit that there is a significant relationship between 'communication' dimensions of construction worker's stress and worker's satisfaction.(F= 15.799< 0.000).The R^2 value revealed that independent variables explained .319 percent of the communication dimensions of construction worker's satisfaction with adjusted R2 of .203 percent. On the individual determinants of communication dimensions of stress, time pressure and deadlines (β=0.276, t=3.282, p=0.000<0.05) was found to be most influencing factor.

Impact of relationship dimensions factors of construction stress workers dependent variable: worker's satisfaction.

Model	Unstinted dazed Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.751	.380		7.245	.000
Ill defined work	.119	.071	.141	1.671	.097
Poor relationship between supervisor	.197	.058	.286	3.395	.001
R Square	.282				
Adjusted R Square	.203				
F	12.101				

The result shows that there is a significant relationship between 'relationship' dimensions of construction workers stress and worker's satisfaction. (F=12.101 <0.000). The R^2 value .282revealed that independent variables explained 20 percent of the relationship dimensions of construction worker's satisfaction. On the individual determinants, it was found that poor relationship with supervisor was found to be the most influencing factor [β = 0.286, t= 3.395, P.000 < 0.05].

6. Conclusions

The study identifies nine dimensions of construction workers stress, these are infrastructure, recognition, pollution, safety, target, communication, relationship, job security and hazards job. Furthermore, the study also identified that there is a significant impact exist between infrastructure, communication and relationship dimensions of construction workers stress and job satisfaction.

7. Limitation and Scope for Further Research

Even though the study achieved its objectives, the researchers encountered certain problems. First, this study considered only the limited variables. In further, similar study can be conducted by incorporating more number of variables. This study has been conducted in Erode District. Similarly this study can be extended to other districts and other states. In addition to this, comparative study can also be conducted with regard to different industries workers and their stress level. The findings of the study can also used for other organized and unorganized sector.

Managerial Implications of the Study

This study may contribute many things to the existing literature. The identified dimensions help the construction industry in general and construction workers stress in particular. Based on the findings of the study, policy makers can formulate suitable policies regarding construction workers stress and training programme can be organized to reduce the stress level of construction workers.

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