IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

A Mixed Method Approach In Analysing The Effect Of Job Stress On Construction Employees

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***Abstract*—** The study investigates the **causes and impacts of job stress in construction workers,** one of the most challenging industries because of unsafe working conditions, long working hours, illness, and intra-organizational conflict. The study used a mixed-method, **Structural Equation Modeling (SEM) for examining relations between major stressors—risky work environment, overtime, health issues, and workplace conflicts**—and **Logistic Regression to categorize workers according to levels of stress.** Information from 205 employees, comprising laborers, supervisors, and engineers, showed that **workplace conflicts had the most significant positive effect on stress,** and **overtime, which was found to have a negative correlation,** implying that paid overtime might reduce stress since it is voluntary and well-compensated which gives financial relief. **Married and older employees were discovered to experience lower levels of stress.** The results highlight the importance of managing workplace conflicts and improving employee well-being in the construction sector.

***Index Terms*—Job stress, Structural equation modelling, Logistic regression, Construction, Mixed method approach, workplace conflicts.**

I. INTRODUCTION

The construction sector is recognized for its demanding and risky nature, subjecting workers to high job stress from unsafe working conditions, long working hours, ill health, and labor conflicts. The purpose of this research, employing a mixed-method method based on Structural Equation Modeling (SEM) and Logistic Regression, is to analyze the effects of five key factors of stress: hazardous work environment, overwork, illness issues and work conflicts. SEM will examine the direct and indirect associations between these factors, while Logistic Regression will categorize employees according to their stress levels and determine high-risk groups. The results will assist construction companies in applying targeted interventions to minimize stress, enhance work environments, and promote employee well-being and performance. Additionally, this study emphasizes the need for organizational support, open communication, and a culture that values mental well-being. It also highlights the importance of proactive management strategies like employee assistance programs and dispute resolution mechanisms to effectively deal with job stress. The research seeks to contribute to the overall discussion in occupational stress management in high-risk sectors.

II. OBJECTIVES

- To analyse the effect of job stress on construction employees using mixed method approach.
- To determine the major factors contributing to job stress among construction employees.
- To analyse the direct and indirect relationship between the factors using Structural Equation Modelling.
- To classify the employees based on their stress level (high – low) using logistic regression.

III. SCOPE

The scope includes the identification of major stress factors like risky work environment, overtime, health issues and workplace conflicts among construction workers. It analyzes their direct and indirect effects on the well-being and performance of employees through Structural Equation Modeling and Logistic Regression. The research also includes categorizing employees in terms of stress level, evaluating organizational behaviors such as safety protocol and assistance programs, and examining coping methods. The research seeks to offer sound advice for stress minimization and increased workforce effectiveness in the construction industry.

IV. REVIEW OF LITERATURE

Alaeldin Abdalla, Xiaodong Li, Fan Yang (2025) Expatriate construction professionals (EXCPs) face unfamiliar environments, cultural differences, and non-traditional project demands, leading to job burnout. This study, using the Job Demands-Resources (JD-R) model, surveyed Chinese EXCPs to identify burnout factors through factor analysis and structural equation modeling. Results revealed that early-career EXCPs experience the highest burnout, which negatively affects job performance and their willingness to stay in international roles. Effective expatriate management practices were found to reduce burnout both directly and indirectly.

Azizur Rahman et.al (2025) This study systematically reviews 68 publications (1992–2022) to highlight psychological risk factors in the construction industry, such as job insecurity, long hours, high demands, poor work-life balance, and workplace bullying. These factors are linked to increased stress, anxiety, and depression among workers. The study also identifies a significant lack of mental health support and awareness in the sector. It emphasizes the need for industry-wide interventions, including policies, awareness programs, and counseling services, to enhance mental health and guide future research.

Tülay Çivici, Gulden Gumusburun Ayalp (2025) This study investigates occupational stress among architects in Turkey's construction sector, where diverse roles contribute to burnout, absenteeism, and turnover. A systematic review and survey of 320 architects identified 37 critical stressors using normalized mean value analysis, grouped into six factors through exploratory factor analysis. Structural Equation Modeling revealed money issues, project changes, and poor communication as key stressors. Notably, two previously undocumented stress factors were also discovered.

Manuel B Garcia (2024) This study examines the key determinants influencing teachers' adoption of productivity software using the Technology Acceptance Model (TAM). Analyzing 947 responses from teachers across various education levels, the study finds that perceived ease of use and perceived usefulness are crucial factors in shaping teachers' intention to adopt such tools. Additionally, factors like job relevance, professional reputation, and output quality impact adoption indirectly, while self-efficacy and facilitating conditions affect it through ease of use. The results validate the modified TAM model for understanding software adoption in education.

Soo Jeong, Byoung-Hee Lee (2024) This research explored the link between occupational musculoskeletal disorders (WMSDs), occupational stress, and health-related quality of life (HRQoL) among construction workers. A survey of 178 workers revealed that 53.9% had WMSDs, mainly affecting the lower back. Workers with WMSDs experienced higher occupational stress and lower HRQoL. WMSDs were identified as a key predictor of HRQoL and a moderator between occupational stress and HRQoL. The findings highlight the need for measures to reduce occupational stress and prevent or treat WMSDs to improve worker health.

V. RESEARCH METHODOLOGY

A survey is conducted with the help of a questionnaire. The questionnaire was available in both English and Tamil to accommodate laborers, with face-to-face interviews conducted for illiterate respondents. It was also provided online via Google Forms. The sample size is 205 which is selected from the population of 450 using De-Morgan's sample size determination table.

VI. DATA ANALYSIS AND INTERPRETATION

6.1 Structural equation modelling

Table 6.1.1 Standardised regression weights of SEM model

			Estimate
Jobstress	<---	Risky_work_environment	.038
Jobstress	<---	Overtime	-.437
Jobstress	<---	Health_issues	-.093
Jobstress	<---	Workplace_conflicts	.586
Jobstress	<---	Age	.340
Jobstress	<---	Gender	.102
Jobstress	<---	Maritalstatus	-.880
Jobstress	<---	Jobrole	-.436
Jobstress	<---	Familytype	-.130

(Source: primary data may-2025)(Software: Amos 26.0)

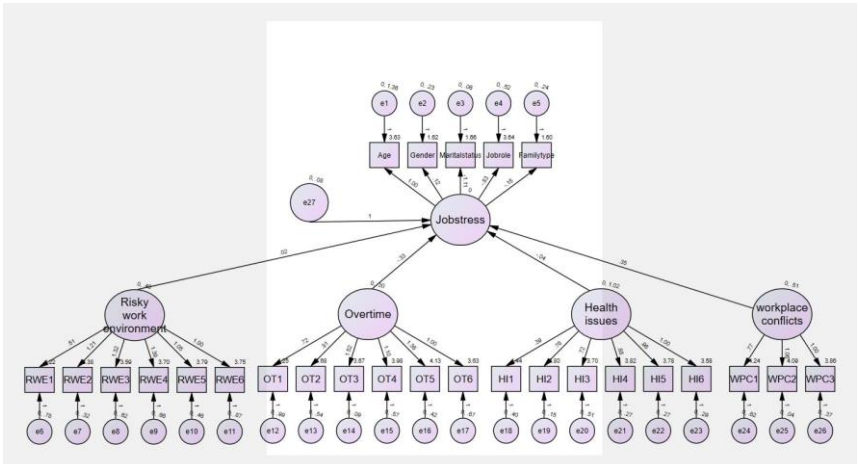
6.1.1 Finding

Workplace conflicts significantly raise job stress (standardized weight = 0.586). Overtime negatively correlates with stress (–0.437), indicating workers perceive it as positive. Risky work environment (0.038) and health issues (–0.093) are not significant stressors. Married employees suffer much less stress than unmarried employees (–0.880). Supervisory or engineering personnel encounter less stress than labourers (–0.436).

6.1.1 Inference

Workplace conflict is the main cause of job stress, while overtime, marital status, and higher job positions help reduce it; other factors have minimal impact.

FIGURE 6.1: SEM PATH DIAGRAM



6.2 Logistic regression

Table 6.2.1 Output Interpretation

Variable	B (Coeff.)	p-value	Exp(B)	Interpretation
Age	-2.085	<.001	0.124	Older age reduces the odds of high stress
Gender	-0.694	0.154	0.499	Not statistically significant
Maritalstatus	-1.425	0.009	0.241	Married individuals are less likely to be stressed
Jobrole	-	<.001	-	Significant but unreliable estimates due to data issues
Familytype	-0.147	0.753	0.863	Not statistically significant

(Source: primary data may-2025)(Software: SPSS)

6.2.1 Finding

Logistic regression showed job role and age as strong stress predictors, with marital status nearly significant; the final model significantly improved prediction accuracy to 86.8% and explained 54.6% of stress variance.

6.2.1 Inferences

Age and marital status significantly influence stress levels. Older age people are likely to feel less stress than the younger employees and married individuals are less likely to be stressed than the unmarried employees. This could be due to the financial support from both the individuals. Job role has a strong effect on stress levels. The laborers feel more stressed than the other employees.

VII. SUGGESTION

- Apply successful conflict resolution measures to minimize the major cause of stress—office conflicts.
- Assist laborers with customized programs, such as safety training and role clarity, to facilitate their increased stress levels.
- Promote work-life balance with wellness programs, flexible work, and frequent feedback to employees.
- Offer extended targeted assistance to unmarried and younger workers, perhaps through mentoring from the senior personnel.
- Ensure access to mental health services such as counseling and conduct ongoing stress tests for early intervention.

VIII. CONCULSION

This research provides serious insights into construction workers' job stress. Intra-workplace conflict proved to be the most potent stressor, whereas overtime unexpectedly lowered stress when well paid. Age and marital status were protective, with older and married workers experiencing less stress. As anticipated, illness and dangerous surroundings were not strong predictors. The results necessitate interventions like conflict management training, enhanced safety measures, role clarity, and work-life balance programs. Mental health support and mentoring of younger, unmarried employees can also be beneficial. These interventions can improve worker well-being and overall productivity in the construction industry.

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