



Occupational stress and burnout in India's IT workforce: An empirical analysis of job demands, workforce attributes, and strain outcomes in a digital work context

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Abstract

This study provides a comprehensive empirical analysis of occupational stress among IT professionals in the Indian Information Technology (IT) sector, examining its sources, impact, and associations with workforce attributes. A descriptive research design was employed, collecting data from 655 employees across two leading Hyderabad-based IT firms: CGI and Value Labs. Statistical tools, including Chi-Square tests, Z-tests, and multiple regression, were applied to assess the dynamics of occupational stress and its relationship with personal strain.

Findings reveal that most workforce attributes—organizational position, work experience, income, age, educational qualification, and marital status—are significantly associated with perceived occupational stress, while gender showed no such association. Occupational stressors were found to be strongly and positively correlated with personal strain ($R = 0.733$), with regression analysis indicating that stress variables collectively explained 74.1% of the variation in personal strain. Although no significant differences in overall stress levels were observed between CGI and Value Labs, specific workplace stressors such as work overload, inadequate resources, limited growth opportunities, underutilization of skills, role ambiguity, role conflict, poor working conditions, and lack of work-life balance significantly contributed to personal strain.

The results underscore the need for targeted organizational interventions to mitigate workplace stressors and safeguard employee well-being in India's evolving IT landscape. The study highlights the importance of addressing specific job demands, fostering supportive work environments, and developing resilience strategies to ensure a healthier and more sustainable IT workforce.

Keywords: Occupational stress, workplace stressors, personal strain, Indian IT sector, workforce attributes

Introduction

Stress has become a defining feature of contemporary life, reflecting the physical, psychological, and emotional reactions individuals experience in response to everyday challenges. The World Health Organization (2016) [20] has described stress as the "21st-century health epidemic." Folkman (1984) [6] defined stress as a process in which individuals respond to circumstances detrimental to their well-being, while Hans Selye (1936) [18], a pioneer in stress research, described it as the "wear and tear" the body experiences in adapting to a changing environment.

Although often perceived negatively, stress is not inherently harmful. Positive stress, or *eustress*, can drive motivation, sharpen awareness, and enhance performance (Lazarus & Folkman, 1984) [6, 12]. In contrast, negative stress, or *distress*, is associated with distrust, rejection, anger, depression, and health problems ranging from headaches to hypertension (Cooper & Dewe, 2004). The challenge lies in managing stress at optimal levels: too little stress can reduce motivation, while excessive stress can overwhelm.

Unmanaged stress has profound implications for individuals and organizations. Research indicates that most illnesses are linked to chronic stress, which spills over into diminished work performance, absenteeism, and job abandonment (Ganster & Rosen, 2013; Cooper & Marshall, 1976) [4, 7]. Mental Health America (2023) [13] reports that workplace stress accounts for approximately one million daily employee absences in the U.S. Goetzel *et al.* (2001) [8] found that employees with chronic stress and anxiety missed 25 workdays annually, compared to only six days for nonfatal occupational injuries. Stress also compromises

concentration, increases errors, and escalates workplace conflicts (American Institute of Stress, 2022) [1]. Even when employees remain present, stress-induced presenteeism can reduce productivity by more than 4% (Hemp, 2004) [9].

India's IT and ITES sector has, over the past decade, become a global hub, bringing with it long work hours, shifting lifestyles, and altered family structures. These changes have amplified stress, anxiety, and depression among employees (NASSCOM, 2022) [14]. Stress is now recognized as a critical business issue, with annual productivity losses exceeding \$300 billion globally (American Institute of Stress, 2022) [1]. In India's IT workforce, stress manifests as sleep disorders (32%), digestive issues (25%), and vision-related problems (20%) (Dataquest, 2019) [5]. The sector's knowledge-intensive nature, 24/7 operations, flexible work models, and relentless demand for innovation heighten vulnerability to stress (Sethi & Saini, 2016) [19].

Despite research on workplace stress, there is limited evidence linking multiple job stressors to employee well-being within the Indian IT sector, particularly in Hyderabad. Most existing studies are narrow in scope and lack cross-firm comparisons. This study addresses this gap by examining occupational stress and personal strain among employees of CGI and Value Labs, providing localized insights that complement international literature.

Theoretical Background of Stress

Stress is widely defined as a dynamic condition arising when individuals face opportunities, constraints, or demands with uncertain outcomes (Robbins & Judge, 2019) [16].

While commonly viewed negatively, stress can also be performance-enhancing, as seen in “clutch” performances in sports or high-stakes professions (Lazarus & Folkman, 1984) [6, 12]. The distinction between *eustress* (positive, motivating stress) and *distress* (negative, harmful stress) is therefore crucial (Selye, 1974).

Cooper and Marshall (1976) [4] identified five primary workplace stressors: (1) job-related factors (e.g., poor physical conditions, excessive workload), (2) organizational role issues (e.g., ambiguity, conflict), (3) career development challenges (e.g., insecurity, stagnation), (4) workplace relationships, and (5) organizational structure and climate. Subsequent research has added work–life balance, job satisfaction, and autonomy as important determinants (Behr & Newman, 1978) [2].

Potential stressors fall into three categories (Robbins & Judge, 2019) [16]:

- **Environmental factors:** economic fluctuations, political instability, and technological change (Ivancevich & Matteson, 1980) [11].
- **Organizational factors:** task demands, role overload, interpersonal conflict, bureaucratic structures, and leadership style (Cooper & Marshall, 1976) [4].
- **Individual factors:** personal and family issues, financial pressures, and individual differences such as locus of control and self-efficacy (Rotter, 1966; Bandura, 1997) [17].

Stress manifests in physiological (e.g., cardiovascular strain, headaches, gastrointestinal issues), emotional (e.g., anxiety, irritability, depression), and behavioral (e.g., absenteeism, turnover, reduced performance) forms (Ganster & Rosen, 2013; Lazarus & Folkman, 1984) [6, 7, 12]. The Yerkes–Dodson Law (1908) [21] illustrates that performance improves with moderate stress but deteriorates when stress becomes excessive.

Stress management strategies operate at both individual and organizational levels. Personal approaches include time management, exercise, meditation, and social support (Quick *et al.*, 1997) [15]. Organizational strategies involve improved recruitment, training, communication, corporate wellness initiatives, and structural reforms to reduce stress-inducing conditions (Cooper & Cartwright, 1994) [3].

Objectives of the Study

Based on the identified research gaps, the study pursued the following objectives:

1. To examine the role of workforce attributes in occupational stress.
2. To assess the relationship between occupational stress and personal strain.
3. To analyze the impact of occupational stress on personal strain.
4. To compare occupational stress and personal strain among employees of CGI and Value Labs.

Hypotheses

The following null hypotheses guided the study:

- **H01:** Workforce attributes (organizational position, educational qualification, work experience, gender, income, age, marital status) are not associated with perceived occupational stress.

- **H02:** There is no significant difference in perceived occupational stress between CGI and Value Labs employees.
- **H03:** There is no significant difference in personal strain between CGI and Value Labs employees.
- **H04:** Occupational stress variables are not correlated with personal strain.
- **H05:** Occupational stress has no significant linear relationship with personal strain.
- **H06:** Occupational stress variables have no significant impact on personal strain.

Methodology and Analytical Framework

This study adopted a descriptive research design to examine occupational stress, personal strain, and workforce attributes among IT employees in production support teams at CGI and Value Labs in Hyderabad. Data were collected from 655 employees (54.5% from CGI and 45.5% from Value Labs), covering a range of organizational positions, educational backgrounds, work experiences, income levels, marital statuses, genders, and age groups.

A convenience sampling approach was used, making this study more of an in-depth case analysis than a generalizable survey. Primary data were collected through structured questionnaires and informal interviews, using instruments such as the Perceived Stress Scale alongside targeted workplace stress measures. Workforce attribute information was also gathered. Secondary data from books, online resources, and published studies provided theoretical support.

Data analysis employed MS Excel and IBM SPSS, applying Chi-Square tests, Z-tests, and multiple regression to investigate relationships between workforce attributes, occupational stress, and personal strain. Reliability testing using Cronbach’s Alpha demonstrated strong internal consistency for both occupational stress (0.901) and personal strain (0.950), ensuring the robustness of the study’s findings.

Analysis

The study collected 655 valid responses from IT employees in the production support teams of CGI and Value Labs in Hyderabad. The sample included a diverse representation across various workforce attributes and organizational levels, providing a robust foundation for analyzing the influence of these factors on occupational stress and personal strain. The majority of respondents were from CGI (54.5%), held mid-level positions (55.6%), had postgraduate qualifications (49.3%), and less than 5 years of experience in their current organization (66.0%). The sample was predominantly male (64.0%) and married (64.3%), with the largest age group being less than 30 years (40.2%) and the predominant income bracket below 10 lakhs (53.3%).

For analysis purposes, key variables were categorized as follows:

- **Personal Strain:** Total scores (13–65) were classified into: No Strain (13–25), Moderate Strain (26–38), High Strain (39–51), and Very High Strain (52–65).¹
- **Occupational Stress:** Total scores (35–above) were classified into: Low Occupational Stress (35–60), Moderate Occupational Stress (70–104), and High Occupational Stress (105 and above).¹

Influence of Workforce Attributes on Occupational Stress (Hypotheses H1-H8)

Chi-Square tests were conducted to analyze the independence of workforce attributes and perceived Occupational Stress, which was classified into Low, Moderate, and High Occupational Stress.

Table 1: Summary of Chi-Square Test Results for Occupational Stress

Workforce Attribute	Chi-square calculated value	Degree of freedom	Significance value (p-value)	Null Hypothesis Status
Organizational Position	26.892	4	0.000	Reject H ₀₁
Educational Qualification	37.050	6	0.000	Reject H ₀₁
Total Work Experience	87.116	6	0.000	Reject H ₀₁
Gender	0.515	2	0.773	Do not Reject H ₀₁
Annual Income	49.700	8	0.000	Reject H ₀₁
Age	62.924	8	0.000	Reject H ₀₁
Marital Status	36.735	4	0.000	Reject H ₀₁
Present Work Experience	13.860	4	0.008	Reject H ₀₁

The results indicate that Organizational Position, Educational Qualification, Total Work Experience, Annual Income, Age, Marital Status, and Present Work Experience are all associated with the perception of Occupational Stress. For Gender, the computed Chi-Square value (0.515) was less than the critical value, and the p-value (0.773) was greater than 0.05, leading to the acceptance of the null hypothesis: Gender and perception of Occupational Stress are not associated. This suggests that gender and perception of occupational stress are not associated in this study.

Comparison of Occupational Stress and Personal Strain in Select Organizations

Null Hypothesis H₀₂: There is no significant difference in Perceived Occupational Stress in the two organizations (CGI and Value Labs).

Null Hypothesis H₀₃: There is no significant difference in perceived Personal Strain in the two organizations (CGI and Value Labs).

Z-tests were conducted to compare the levels of Occupational Stress and Personal Strain between CGI and Value Labs.

Table 2: Z-Test Results for Organizational Comparison

Variable	Z-calculated value	Z-table value (5% LOS)	Null Hypothesis Status	Conclusion
Occupational Stress	0.0297	±1.96	Accept H ₀₂	No significant difference in Perceived Occupational Stress between organizations.
Personal Strain	-1.54	±1.96	Accept H ₀₃	No significant difference in perceived Personal Strain between organizations.

Table 3: Correlation between Occupational Stress and Personal Strain

Relationship	Correlation Coefficient (r)	Significance (p-value)	Null Hypothesis Status	Conclusion
Personal Strain & Occupational Stress variables (Work Overload, Lack of resources, etc.)	(All significant)	0.000	Reject H ₀₄	Personal Strain is significantly correlated to all Occupational Stress variables.
Personal Strain & Overall Occupational Stress	0.733 (Positive)	0.000	Reject H ₀₅	Personal Strain has a strong positive linear relation to Occupational Stress.

The Z-test results for both variables (Occupational Stress and Personal Strain) showed calculated Z-values within the acceptance range (less than ±1.96). This led to the acceptance of null hypotheses H₀₂, H₀₃ concluding that there is no significant difference in Perceived Occupational Stress or perceived Personal Strain between CGI and Value Labs.

Correlations and Impact Analysis: Occupational Stress and Personal Strain

Correlation analysis was performed to examine the relationship between Personal Strain and various Occupational Stress variables.

Null Hypothesis H₀₄: Personal Strain is not correlated to Occupational Stress variables.

Null Hypothesis H₀₅: Personal Strain has no significant linear relation to Occupational Stress.

The correlation analysis confirmed that Personal Strain is significantly correlated to all individual Occupational Stress variables. Furthermore, Personal Strain has a strong positive linear relation to overall Occupational Stress, with a correlation coefficient of 0.733, significant at the 0.01 level. This led to the rejection of null hypotheses H₀₄ and H₀₅. Multiple regression analysis was conducted to assess the impact of Occupational Stress variables on Personal Strain.

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				Sig. F Change	Durbin-Watson
					R Square Change	F Change	df1	df2		
1	.861 ^a	.741	.737	.5693521311	.741	183.947	10	644	<.001	1.824

a. Predictors: (Constant), RSCMEANN, LRSMEAN, WLMEAN, WCMEAN, LRGMEAN, RBMEAN, USMEAN, RAMEAN, LWBMEAN, LGRMEAN
b. Dependent Variable: STRAINMEAN

Source: Primary data analysis

Null Hypothesis H₀₆: There is no significant impact of Occupational Stress variables on Personal Strain. The model explained 74.1% of the variation in Personal Strain, with the F-value being significant at the 0.05 level. This led to therejection of null hypothesis H₀₆, indicating a significant impact of Occupational Stress variables on Personal Strain.

Table 4: Impact of Individual Occupational Stressors on Personal Strain

Occupational Stressor	p-value	Null Hypothesis Status
Work Overload	0.094	Do Not Reject
Lack of resources	0.013	Reject
Lack of growth opportunities	0.001	Reject
Lack of recognition	0.279	Do Not Reject
Underutilization of skills	0.001	Reject
Role Ambiguity	0.001	Reject
Role Boundary	0.001	Reject
Working Conditions	0.001	Reject
Lack of work life balance	0.001	Reject
Relationship with supervisor and colleagues	0.009	Reject

Most individual occupational stressors, including Lack of resources, Lack of growth opportunities, Underutilization of skills, Role Ambiguity, Role Boundary, Working Conditions, Lack of work life balance, and Relationship with supervisor and colleagues, were found to have a significant impact on Personal Strain. However, Work Overload and Lack of Recognition did not show a significant impact on Personal Strain.

Findings

This study aimed to comprehensively analyze occupational stress and personal strain within the Indian IT sector, specifically through a comparative lens of two prominent firms in Hyderabad. The findings provide robust empirical evidence supporting the complex relationships between these constructs and their interactions with various workforce attributes.

A central objective was to examine the role of workforce attributes on occupational stress. The results consistently demonstrated that organizational position, present and total work experience, annual income, age, educational qualification, and marital status are all significantly associated with perceived occupational stress. This implies that an employee's profile plays a crucial role in shaping their experience of workplace demands and their subsequent individual strain. The consistent finding that gender does not significantly influence occupational stress in this sample is noteworthy, potentially suggesting a more equitable distribution of stressors or effective gender-neutral coping mechanisms within these IT organizations, contrasting with some prior research that indicates higher stress levels for women in demanding sectors.

Another key objective was to understand the relationships and impacts between occupational stress and personal strain. The study confirmed a strong positive correlation between occupational stress variables and personal strain ($r=0.733$), indicating that higher workplace demands and stressors directly translate into increased individual strain. This relationship is further solidified by the finding that occupational stress variables significantly impact personal strain, explaining a substantial 74.1% of its variation.¹ This highlights the critical need for organizations to address root

causes of occupational stress, as they directly contribute to employees' psychological, physical, and interpersonal well-being. Most individual occupational stressors, including Lack of resources, Lack of growth opportunities, Underutilization of skills, Role Ambiguity, Role Boundary, Working Conditions, and Lack of work life balance, were found to have a significant impact on Personal Strain, while Work Overload and Lack of Recognition did not show a significant impact.

Finally, a crucial comparative objective was to assess differences in occupational stress and personal strain between CGI and Value Labs. The Z-tests revealed no significant differences in overall perceived occupational stress or personal strain between the two organizations. This suggests that despite potential differences in organizational culture or specific practices, the overall experience of stress and strain among IT professionals in these Hyderabad-based firms is remarkably similar. This finding could point to industry-wide challenges and dynamics prevalent in the Indian IT sector, rather than company-specific issues.

Conclusion

This study offers several practical recommendations for IT organizations in Hyderabad and the broader Indian IT sector to enhance employee well-being and reduce occupational stress. Holistic stress management programs should address both workplace stressors and their personal effects through comprehensive wellness initiatives, mental health support, and counseling services. Targeted interventions must focus on key stressors such as workload, lack of resources, limited growth opportunities, and underutilization of skills, role ambiguity, poor working conditions, and work-life balance issues. Organizations should review workload distribution, ensure resource adequacy, provide clear career paths, and adopt flexible policies to promote work-life integration.

Developing employees' emotional intelligence is essential, with training in self-awareness, emotional regulation, empathy, and collaboration. Interventions should be tailored to workforce attributes, offering leadership coaching and resilience training for senior staff, and enhanced work-life balance support for married employees. Clear communication, defined roles, and job security are critical for reducing ambiguity and fostering trust. Industry collaboration through HR forums and associations can help share best practices, address systemic challenges, and promote sector-wide well-being.

The identified stressors—workload, lack of resources, role ambiguity, and work-life imbalance—align with established literature, including Cooper and Marshall's (1976) ^[4] emphasis on intrinsic job factors and organizational roles. Findings such as "unclear duties and responsibilities" and "very heavy workload" echo the NTT DATA study, while "job insecurity" reflects concerns highlighted by Jamal (2009). The strong positive correlation between occupational stress and personal strain aligns with the transactional model of stress, where workplace demands lead directly to individual strain. The high R² value (74.1%) underscores the significant impact of workplace conditions on well-being, consistent with Cooper and Cartwright's (1994) observations on the humanistic costs of unmanaged stress.

The finding that gender does not significantly influence occupational stress or strain diverges from prior studies by Arber *et al.* (1985), Mohsin Aziz (2004), and Namita Rajput

et al. (2011), which suggested women may face higher stress. This may indicate that the studied organizations have policies or cultures that effectively reduce traditional gender-based disparities, possibly through equitable opportunities and supportive work-life initiatives. The absence of significant differences between CGI and Value Labs points to industry-wide dynamics rather than isolated organizational issues. This suggests that stress and well-being challenges in the Indian IT sector are systemic, calling for coordinated, sector-level policy interventions and best-practice adoption. These findings emphasize the need for strategic, targeted, and collaborative HR initiatives to foster a healthier, more resilient, and sustainable IT workforce in India.

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