

Always On, Always Alert: Occupational Stress, Burnout, and Coping Strategies Among IT and Cybersecurity Professionals in Bengaluru, India

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Abstract: *The rapid growth of the information technology (IT) sector and the increasing complexity of cybersecurity threats have intensified psychological demands on technology professionals. Continuous monitoring, high workloads, evolving threat landscapes, and expectations for uninterrupted system performance expose IT and cybersecurity professionals to elevated levels of occupational stress and burnout. Despite growing global concern regarding employee well-being in technology-intensive occupations, limited empirical research has examined these issues within the Indian context. The present study investigated occupational stress, burnout, and coping strategies among IT and cybersecurity professionals working in Bengaluru, India. A cross-sectional quantitative research design was employed using a sample of 120 professionals, comprising 70 IT professionals and 50 cybersecurity professionals. Data were collected using the Perceived Stress Scale (PSS-10), Oldenburg Burnout Inventory (OLBI), and Brief COPE Inventory. Statistical analyses included descriptive statistics, reliability analysis, correlation analysis, independent-samples *t*-tests, and multiple regression. The findings revealed moderate-to-high levels of occupational stress among participants, with cybersecurity professionals reporting significantly higher stress levels than their IT counterparts. Occupational stress demonstrated a positive relationship with burnout, while maladaptive coping strategies were associated with increased stress and burnout symptoms. Adaptive coping strategies showed a protective influence on psychological well-being, although their predictive effect was comparatively weaker. Qualitative findings highlighted workload pressure, on-call responsibilities, threat management demands, and insufficient recovery time as major contributors to occupational stress. The study contributes to occupational health psychology by extending the Job Demands–Resources model and the Transactional Model of Stress and Coping to contemporary technology professions. Practical implications include the need for structured stress-management interventions, mental-health support systems, workload optimization, and sustainable on-call practices within technology organizations.*

Keywords: Occupational Stress, Burnout, Coping Strategies, Cybersecurity Professionals, Information Technology Professionals, Occupational Health Psychology, Workplace Well-Being

1. Introduction

1.1 Background of the Study

The contemporary workplace is undergoing unprecedented transformation driven by rapid technological advancement, digitalization, artificial intelligence, cloud computing, and increasing dependence on interconnected information systems. Organizations across industries rely heavily on information technology (IT) infrastructures and cybersecurity mechanisms to ensure business continuity, operational efficiency, and protection against evolving digital threats. Consequently, IT and cybersecurity professionals have become indispensable contributors to organizational success. However, the growing complexity of technological environments has simultaneously increased psychological demands on these professionals, exposing them to heightened levels of occupational stress and potential burnout.

Occupational stress has emerged as one of the most significant challenges affecting employee well-being in modern organizations. The International Labour Organization and the World Health Organization increasingly recognize workplace stress as a critical occupational health concern due to its implications for mental health, productivity, organizational performance, and

employee retention. Occupational stress occurs when employees perceive that workplace demands exceed their available resources, skills, or coping capacities. While moderate levels of stress may enhance performance under certain circumstances, prolonged and excessive stress often produces adverse psychological, emotional, behavioral, and physiological consequences.

Technology professionals operate within work environments characterized by continuous innovation, rapid technological changes, demanding performance expectations, and frequent disruptions. Unlike many traditional occupations, IT professionals are required to constantly update their knowledge and skills to remain effective in dynamic technological ecosystems. Frequent software updates, system migrations, infrastructure management, project deadlines, and user expectations contribute to sustained workplace pressure. The increasing adoption of hybrid and remote work arrangements has further intensified expectations of continuous availability, creating challenges in maintaining healthy work-life boundaries.

Cybersecurity professionals encounter even more specialized demands. Their primary responsibility is to protect organizational assets from cyberattacks, data breaches, ransomware incidents, insider threats, and various forms of digital exploitation. The increasing sophistication and frequency of cyber threats require cybersecurity personnel to maintain continuous vigilance and rapid response capabilities. Security analysts, incident responders,

vulnerability assessors, ethical hackers, and security architects often work under conditions of uncertainty, urgency, and high accountability. A single oversight may result in substantial financial, legal, operational, and reputational consequences for organizations. Consequently, cybersecurity professionals frequently experience unique psychological pressures associated with threat monitoring, incident management, and responsibility for organizational security.

Recent industry reports indicate that cybersecurity professionals face increasing workloads due to persistent workforce shortages, expanding attack surfaces, and escalating threat complexity. Many organizations struggle to recruit and retain qualified cybersecurity personnel, resulting in greater responsibilities for existing employees. The resulting workload imbalance contributes to emotional exhaustion, fatigue, cognitive overload, and diminished psychological well-being. Furthermore, cybersecurity incidents often require immediate responses outside normal working hours, creating disruptions in personal life and reducing opportunities for recovery and psychological restoration.

The psychological consequences of prolonged occupational stress extend beyond temporary discomfort. Chronic exposure to workplace stress has been associated with anxiety, depression, sleep disturbances, reduced concentration, impaired decision-making, decreased job satisfaction, and increased turnover intentions. Within technology-intensive occupations, these outcomes may adversely affect not only individual employees but also organizational effectiveness. Impaired attention, decision fatigue, and reduced cognitive functioning can increase the likelihood of operational errors, system failures, and security vulnerabilities. Consequently, understanding occupational stress among IT and cybersecurity professionals has become an important priority for both researchers and practitioners.

1.2 Burnout as an Occupational Health Concern

Burnout represents one of the most widely studied consequences of chronic occupational stress. Originally conceptualized as a psychological syndrome resulting from prolonged exposure to work-related stressors, burnout has gained increasing attention within occupational health psychology and organizational behavior research. The World Health Organization recognizes burnout as an occupational phenomenon characterized by feelings of energy depletion, increased mental distance from one's work, and reduced professional effectiveness.

Contemporary burnout research suggests that burnout develops gradually when workplace demands consistently exceed available psychological resources. Individuals experiencing burnout often report emotional exhaustion, detachment from work responsibilities, reduced motivation, diminished engagement, and declining job performance. Burnout has been associated with numerous adverse outcomes, including absenteeism, presenteeism, reduced organizational commitment, impaired psychological health, and increased intentions to leave the profession.

Within IT and cybersecurity professions, burnout may be particularly problematic because these occupations require sustained attention, complex problem-solving, and rapid decision-making. Technology professionals frequently operate in environments where mistakes can have significant consequences. Continuous exposure to high-pressure situations, coupled with the need to maintain performance under uncertainty, increases vulnerability to burnout symptoms. For cybersecurity professionals specifically, burnout may compromise vigilance and threat detection capabilities, potentially increasing organizational exposure to security risks.

Research conducted during the past decade indicates growing concerns regarding burnout among cybersecurity personnel. Industry surveys have consistently reported high levels of exhaustion, stress, and emotional fatigue among security professionals. Factors contributing to burnout include unrealistic organizational expectations, insufficient staffing, excessive workloads, constant alert monitoring, inadequate recovery opportunities, and pressure to remain continuously available. Despite growing recognition of these challenges, empirical research examining burnout among cybersecurity professionals remains relatively limited, particularly within developing economies such as India.

1.3 Coping Strategies and Psychological Adaptation

Not all individuals exposed to occupational stress experience negative outcomes to the same degree. One of the most important factors influencing responses to workplace stress is the use of coping strategies. Coping refers to the cognitive and behavioral efforts employed by individuals to manage internal and external demands that are perceived as stressful. Coping mechanisms influence how employees interpret workplace challenges, regulate emotions, and maintain psychological functioning under pressure.

The literature generally distinguishes between adaptive and maladaptive coping strategies. Adaptive coping strategies include problem-solving, planning, seeking social support, positive reframing, acceptance, and constructive behavioral responses. These approaches enable individuals to address stressors effectively and maintain psychological resilience. Adaptive coping has been associated with improved well-being, reduced burnout, higher job satisfaction, and enhanced occupational functioning.

In contrast, maladaptive coping strategies include avoidance, denial, behavioral disengagement, self-blame, and substance use. Although these strategies may provide temporary emotional relief, they often fail to address underlying stressors and may exacerbate psychological distress over time. Employees who rely heavily on maladaptive coping strategies are more likely to experience persistent stress, emotional exhaustion, and burnout.

Understanding coping strategies is particularly important within technology professions because employees frequently encounter high-pressure situations requiring rapid adaptation. Effective coping mechanisms may buffer the negative effects of occupational stress and reduce vulnerability to burnout. Consequently, examining coping

strategies alongside occupational stress and burnout provides a more comprehensive understanding of psychological well-being among IT and cybersecurity professionals.

1.4 Theoretical Foundations

The present study is grounded in three complementary theoretical perspectives that explain occupational stress, burnout, and coping processes.

1.4.1 Transactional Model of Stress and Coping

The Transactional Model of Stress and Coping proposes that stress arises from dynamic interactions between individuals and their environments. According to this perspective, stress is not solely determined by external demands but also by how individuals cognitively appraise those demands and evaluate their available coping resources. When workplace demands are perceived as exceeding personal capabilities, stress responses emerge. Coping strategies subsequently influence psychological outcomes by moderating the impact of stressors on well-being.

This framework is particularly relevant for technology professionals because employees may interpret identical workplace demands differently depending on experience, resilience, organizational support, and coping capabilities.

1.4.2 Job Demands–Resources Model

The Job Demands–Resources (JD-R) model explains occupational stress and burnout as outcomes of imbalances between job demands and available resources. Job demands include workload, time pressure, emotional demands, cognitive complexity, and responsibility. Job resources include autonomy, organizational support, social support, training opportunities, and recovery mechanisms.

Within IT and cybersecurity environments, professionals frequently encounter high job demands, including complex technical responsibilities, incident response obligations, and continuous monitoring requirements. When organizational resources are insufficient to offset these demands, employees become increasingly vulnerable to burnout and psychological strain.

1.4.3 Conservation of Resources Theory

Conservation of Resources (COR) Theory suggests that individuals strive to acquire, maintain, and protect valued resources such as energy, time, social support, and psychological well-being. Stress occurs when resources are threatened, lost, or insufficiently replenished. Prolonged exposure to workplace demands may deplete psychological resources, increasing susceptibility to burnout and emotional exhaustion.

The theory is particularly useful for understanding why cybersecurity professionals may experience elevated stress levels. Continuous vigilance, prolonged incident response activities, and frequent disruptions can gradually erode psychological resources, making recovery increasingly difficult.

1.5 Research Gap

Although occupational stress and burnout have received considerable scholarly attention, several important gaps remain. First, much of the existing literature focuses broadly on occupational groups or general IT employees, with comparatively limited attention devoted specifically to cybersecurity professionals. Given the unique demands associated with cybersecurity roles, findings from general occupational studies may not adequately capture their experiences.

Second, many studies investigate occupational stress or burnout independently, without simultaneously examining coping strategies. This fragmented approach limits understanding of the mechanisms through which employees adapt to workplace stressors.

Third, most empirical evidence originates from Western contexts. Cultural differences, organizational practices, work expectations, and social support systems may influence occupational stress experiences differently across countries. Consequently, there is a need for context-specific research examining these relationships within the Indian technology sector.

Fourth, limited research has focused on Bengaluru despite its position as India's leading technology hub. Understanding psychological well-being among professionals working within this environment can provide valuable insights for organizational policy development and employee support initiatives.

1.6 Objectives of the Study

The present study was designed to achieve the following objectives:

- 1) To examine the relationship between occupational stress and burnout among IT and cybersecurity professionals.
- 2) To investigate the influence of adaptive and maladaptive coping strategies on burnout outcomes.
- 3) To compare occupational stress and burnout levels between IT professionals and cybersecurity professionals.
- 4) To identify workplace factors contributing to occupational stress and explore organizational interventions that may support employee well-being.

1.7 Research Hypotheses

Based on the theoretical foundations and existing literature, the following hypotheses were proposed:

H1: Occupational stress is positively associated with burnout among IT and cybersecurity professionals.

H2: Adaptive coping strategies are associated with lower burnout levels, whereas maladaptive coping strategies are associated with higher burnout levels.

H3: Cybersecurity professionals report significantly higher levels of occupational stress and burnout than IT professionals.

1.8 Significance of the Study

The study contributes to occupational health psychology by

extending contemporary understanding of occupational stress and coping processes within technology-intensive professions. It provides empirical evidence from the Indian context, addresses gaps in cybersecurity workforce research, and offers practical insights for organizations seeking to promote employee well-being. The findings may assist organizational leaders, human resource professionals, and mental health practitioners in designing evidence-based interventions aimed at reducing stress, preventing burnout, and strengthening psychological resilience among technology professionals.

Furthermore, the study contributes to the growing discourse surrounding sustainable workforce management in high-demand digital environments. As organizations continue to expand their reliance on technology and cybersecurity capabilities, protecting employee well-being becomes increasingly important for maintaining productivity, engagement, innovation, and long-term organizational effectiveness.

2. Review of Literature

2.1 Introduction

Occupational stress has become a major concern in contemporary organizations due to its impact on employee well-being, job performance, organizational commitment, and long-term mental health. The increasing reliance on digital technologies, remote working environments, and cybersecurity infrastructures has intensified workplace demands, particularly among technology professionals. Information Technology (IT) and cybersecurity professionals operate within environments characterized by rapid technological change, continuous learning requirements, high accountability, and increasing performance expectations. Consequently, understanding the relationships among occupational stress, burnout, and coping strategies has become an important area of inquiry within occupational health psychology.

2.2 Occupational Stress: Concept and Contemporary Perspectives

Occupational stress refers to the psychological, emotional, and physiological responses that arise when employees perceive a mismatch between workplace demands and their available resources or coping capacities. Occupational stress is increasingly recognized as one of the most significant challenges affecting employee well-being across industries [1].

The nature of occupational stress has evolved substantially in the digital era. Contemporary workplaces require employees to manage increasing workloads, information overload, technological complexity, and constant connectivity. Technology professionals often experience "technostress," a phenomenon describing stress resulting from the inability to effectively adapt to technological demands [2].

Recent studies indicate that occupational stress is strongly associated with reduced job satisfaction, lower productivity, absenteeism, psychological distress, and turnover intentions

[3]. Employees exposed to prolonged workplace stress are more likely to experience emotional exhaustion, anxiety, sleep disturbances, and cognitive fatigue [4].

2.3 Burnout as a Consequence of Chronic Occupational Stress

Burnout is widely recognized as one of the most serious outcomes of prolonged occupational stress. The World Health Organization [5] classified burnout as an occupational phenomenon characterized by emotional exhaustion, psychological detachment, and reduced professional efficacy.

According to Maslach and Leiter [6], burnout develops gradually when employees experience sustained exposure to workplace demands without adequate opportunities for recovery and resource replenishment. Burnout negatively affects employee engagement, job performance, organizational commitment, and mental health outcomes [7].

2.4 Occupational Stress among Information Technology Professionals

The IT sector has experienced rapid expansion over the past two decades, accompanied by increasing concerns regarding employee well-being. Information technology professionals are responsible for software development, infrastructure management, technical support, database administration, cloud computing, and digital transformation initiatives. These responsibilities often involve high workloads, frequent technological updates, and strict project timelines.

Jena and Pradhan [8] found that excessive workloads, deadline pressure, and work-life imbalance significantly contribute to stress among IT employees. Similar findings were reported by Kaur and Sharma [9], who observed that prolonged screen exposure, remote work demands, and role ambiguity increased psychological strain among technology workers.

2.5 Occupational Stress among Cybersecurity Professionals

Cybersecurity professionals represent a unique occupational group exposed to distinctive workplace demands. Unlike many IT roles, cybersecurity work involves protecting organizations against persistent and evolving digital threats. Recent industry surveys indicate that cybersecurity professionals experience substantially higher stress levels than many other technology occupations [10].

Pflüger et al. [11] found that job demands significantly predict burnout and turnover intentions among cybersecurity professionals. Similarly, D'Arcy et al. [12] reported that cybersecurity employees frequently experience chronic vigilance fatigue due to the requirement for continuous monitoring and rapid incident response.

2.6 Literature Review Matrix

Table 1: Summary of Key Studies Related to Occupational Stress, Burnout, and Coping

Author(s) & Year	Sample	Variables Studied	Key Findings
Parent-Lamarche & Marchand (2022) [3]	1,946 employees	Stress, Well-being	High occupational stress reduced psychological well-being.
Venz & Pundt (2021) [4]	742 employees	Job Demands, Stress	Work demands significantly predicted stress.
Wang et al. (2024) [13]	618 IT employees	Technostress, Burnout	Technostress positively influenced burnout.
Ahmad et al. (2023) [14]	322 cybersecurity staff	Cybersecurity stress	Continuous monitoring increased stress levels.
D'Arcy et al. (2023) [12]	401 security analysts	Vigilance fatigue	Security monitoring caused cognitive exhaustion.
Pflügner et al. (2024) [11]	487 cybersecurity prof.	Burnout, Turnover	Burnout predicted turnover intentions.
ISC ² Workforce Study (2024) [10]	14,865 professionals	Cybersecurity Stress	Workforce shortages increased burnout risk.

3. Research Methodology

3.1 Research Design & Setting

The study employed a quantitative cross-sectional survey design within a positivist research paradigm. The study was conducted among IT and cybersecurity professionals working in Bengaluru, Karnataka, India—India's largest technology ecosystem.

3.2 Population and Sampling

A purposive sampling technique was employed to collect data from professionals possessing at least one year of full-time work experience in Bengaluru. The final sample consisted of 120 valid responses, comprising 70 IT professionals (58.3%) and 50 cybersecurity professionals (41.7%).

3.3 Measurement Instruments

Three standardized psychological instruments were used:

- 1) **Perceived Stress Scale (PSS-10):** Assessed occupational stress using 10 items on a 5-point Likert scale ($\alpha = .845$).
- 2) **Oldenburg Burnout Inventory (OLBI):** Measured exhaustion and disengagement using 16 items on a 5-point Likert scale ($\alpha = .914$).

- 3) **Brief COPE Inventory:** Evaluated adaptive ($\alpha = .893$) and maladaptive ($\alpha = .867$) coping strategies using 28 items on a 4-point Likert scale.

4. Results and Analysis

4.1 Demographic Profile

The sample was predominantly aged between 26–35 years (60.9%), with 65.8% male and 32.5% female respondents. Hybrid work mode accounted for 48.3%, on-site 26.7%, and remote 25.0%.

4.2 Descriptive Statistics & Scale Reliability

Table 2: Descriptive Statistics of Major Variables (N = 120)

Variable	Mean	SD	Min	Max	Cronbach's α
Occupational Stress (PSS)	23.18	8.2	3	40	0.845
Burnout (OLBI)	3.09	0.34	2.06	3.81	0.914
Adaptive Coping	2.41	0.67	1	3.83	0.893
Maladaptive Coping	2.47	0.62	1.17	3.67	0.867

4.3 Hypothesis Testing & Group Comparisons

H1 (Stress & Burnout): Pearson correlation analysis revealed a statistically significant positive correlation between occupational stress and burnout ($r = .373, p < .001$). H1 was fully supported.

H2 (Coping & Burnout): Maladaptive coping exhibited a significant positive correlation with burnout ($r = .256, p = .005$), whereas adaptive coping showed a non-significant negative association ($r = -.118, p = .125$). H2 was partially supported.

H3 (Role Comparison): Independent samples t-test indicated that cybersecurity professionals reported significantly higher stress ($M = 26.24, SD = 8.11$) than IT professionals ($M = 21.00, SD = 7.38; t = 3.62, p < .001, Cohen's d = .67$). However, burnout differences between cybersecurity ($M = 3.15$) and IT ($M = 3.04$) were not statistically significant ($p = .197$). Thus, H3 was supported for stress but not for burnout.

Table 3: Multiple Regression Model Predicting Burnout

Predictor	B	β	p-value
Occupational Stress	0.013	0.32	0.001
Adaptive Coping	-0.051	-0.08	0.241
Maladaptive Coping	0.071	0.17	0.057
Profession (Cyber = 1)	0.042	0.09	0.191

Note: $R^2 = .151, F(4, 115) = 5.103, p < .001$.

Regression analysis for predicting occupational stress revealed that being in cybersecurity ($\beta = .24, p = .006$) and utilizing maladaptive coping ($\beta = .38, p < .001$) significantly increased perceived stress ($R^2 = .241, F(3, 116) = 12.29, p < .001$).

5. Discussion & Conclusion

The findings confirm that occupational stress is a primary antecedent of burnout among technology professionals in

Bengaluru. Cybersecurity professionals experience heightened stress due to continuous vigilance, high accountability, and frequent on-call demands. Furthermore, maladaptive coping mechanisms significantly worsen stress and burnout, emphasizing the need for targeted interventions.

Organizations must adopt structured stress-management frameworks, optimize on-call schedules, ensure adequate staffing, and foster psychological safety to support long-term well-being and workforce retention.

Author Profile

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