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RESEARCH ARTICLE

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OCCUPATIONAL STRESS IN IT PRODUCTION SUPPORT TEAMS: A DEMOGRAPHIC ANALYSIS OF IT PROFESSIONALS

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ABSTRACT

Production support teams often work under relentless pressure, facing urgent system failures and strict deadlines. Their unpredictable work hours and on-call demands disrupt personal routines and sleep. They carry the burden of maintaining business continuity, where one mistake can cause major outages. Over time, this constant high-stakes environment takes a toll on their mental and emotional well-being. This research investigates the correlation between demographic attributes and workplace stress among 655 IT professionals working in production support roles. These teams in IT organizations encounter specific stressors, including constant operational demands, critical system failures, and intense pressure for rapid incident resolution. Utilizing chi-square analysis, the study explored connections between varying levels of occupational stress (categorized as low, moderate, or high) and eight demographic variables. The findings indicate significant relationships between occupational stress and seven demographic elements: hierarchical position within the organization ($\chi^2 = 26.892, p < 0.001$), academic qualifications ($\chi^2 = 37.050, p < 0.001$), total professional experience ($\chi^2 = 87.116, p < 0.001$), income bracket ($\chi^2 = 49.700, p < 0.001$), age group ($\chi^2 = 62.924, p < 0.001$), marital status ($\chi^2 = 36.735, p < 0.001$), and current tenure in the role ($\chi^2 = 13.860, p = 0.008$). Conversely, gender did not exhibit a significant correlation with occupational stress ($\chi^2 = 0.515, p = 0.773$). These results offer vital perspectives for IT organizations striving to enhance the performance and well-being of their production support personnel.

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INTRODUCTION

Production support teams are fundamental to IT operations (Smith & Jones, 2020), ensuring continuous system availability and efficient incident resolution. These teams function within demanding environments marked by unpredictable workloads, critical system malfunctions, and strict service level agreements (SLAs). The round-the-clock nature of production support (Davis & Miller, 2022), coupled with the imperative to maintain system uptime, generates distinct occupational pressures that differ considerably from those in conventional IT development roles. Gaining an understanding of how demographic factors influence stress perception among production support specialists (Schaufeli & Taris, 2014) is crucial for IT organizations aiming to boost employee retention, mitigate burnout, and sustain operational excellence. This investigation addresses a research void specifically concerning production support environments, delivering evidence-based insights for targeted stress management interventions in IT operations. The importance of this study extends beyond individual well-being to encompass organizational performance, as stressed production support teams

(Quick et al., 1997) can directly impact system reliability, client satisfaction, and business continuity.

LITERATURE REVIEW

Roles in IT production support environments present unique challenges when contrasted with other technology positions. The responsive character of production support work, where teams react to system alerts and user-reported problems, fosters an atmosphere of constant vigilance and pressure. Prior research into IT-related stress has predominantly concentrated on software development teams, leaving a substantial void in comprehending stressors specific to production support. Studies have identified key stress contributors (Brown, 2018; Ganster & Rosen, 2013) in IT operations, including shift work, on-call duties, time constraints for incident resolution, and the critical nature of system failures. However, a thorough analysis of how demographic variables modulate these stressors within production support contexts remains limited.

Need for the Study: Production support teams are vital for IT operations, guaranteeing 24/7 system availability and business continuity. Yet, they confront distinct stressors such as unpredictable workloads, time-sensitive incident resolution, and relentless operational pressure (McEwen, 1998), which significantly diverge from those in typical IT roles. Despite high attrition rates and burnout being major concerns in production support environments, existing occupational stress research largely focuses on software development teams (Moore, 2000). This creates a considerable knowledge gap regarding how demographic factors influence stress perception among production support specialists (Schaufeli & Taris, 2014). IT organizations urgently require evidence-based, demographic-specific insights to devise precise interventions, rather than generic stress management programs that frequently prove ineffective in operational settings. Comprehending these demographic patterns is essential for improving employee retention, preserving service quality (Maslach, Schaufeli, & Leiter, 2001), reducing system downtime, and ensuring business continuity, as stressed production support teams directly affect organizational operations, customer satisfaction, and revenue generation. This study addresses this critical necessity by offering the first comprehensive demographic analysis of occupational stress within IT production support environments. This will empower organizations to make data-driven decisions concerning workforce planning, compensation frameworks, and tailored well-being initiatives for their most operationally crucial teams.

Objectives of the Study

1. To investigate the relationship between demographic characteristics and occupational stress levels among IT production support specialists. This objective aims to pinpoint which demographic variables (organizational position, educational qualifications, work experience, age, income, gender, marital status) significantly impact stress perception in production support environments, thereby providing a comprehensive understanding of demographic stress patterns.
2. To ascertain the distribution and prevalence of occupational stress levels (low, moderate, high) within IT production support teams. This objective seeks to establish baseline stress level distributions among production support specialists, enabling organizations to grasp the extent of stress-related challenges and benchmark their teams against industry norms.
3. To furnish evidence-based recommendations for developing customized stress management interventions specific to various demographic groups within IT production support. This objective endeavors to translate research findings into actionable strategies that IT organizations can implement to alleviate occupational stress, enhance employee well-being, and boost production support team performance based on demographic profiles.

METHODOLOGY

Sample and Data Collection: The study utilized a cross-sectional design, targeting 655 IT production support employees from diverse organizational levels within production support teams. Participants encompassed various roles, including incident managers, system administrators, application support specialists, and team leads, all responsible for maintaining vital IT systems and services.

Production Support Context

The study population comprised employees involved in:

- 24/7 production monitoring and support
- Incident response and resolution
- System maintenance and troubleshooting
- Service level agreement (SLA) management
- Handling critical system failures

Occupational Stress Measurement: Occupational stress was assessed using a validated scale adapted for IT production support (Ivancevich & Matteson, 1980) settings. Participants were categorized into three groups:

- Low Occupational Stress: Total score 35-60
- Moderate Occupational Stress: Total score 70-104
- High Occupational Stress: Total score 105 and above

Statistical Analysis: Chi-square tests of independence were performed to examine associations between demographic variables and occupational stress levels. A significance level of $\alpha=0.05$ was established for all analyses.

RESULTS

Sample Characteristics: The sample consisted of 655 IT production support employees, distributed as follows:

- **Position:** Team Leads/Senior Support (16.3%), Mid-level Support Engineers (55.6%), Junior Support Staff (28.1%)
- **Gender:** Male (63.9%), Female (36.1%)
- **Education:** Undergraduate (25.8%), Postgraduate (49.3%), Professional Certifications (17.9%), Others (7.0%)
- **Experience:** Varied across different experience ranges in IT production support

Occupational Stress Distribution in Production Support: Objective 2 is addressed by following analysis

- Low stress: 149 employees (22.7%)
- Moderate stress: 309 employees (47.2%)
- High stress: 197 employees (30.1%)

Demographic Associations with Production Support Stress

Following hypotheses were framed for objective 1:

- H₀:** Organizational Position and production support stress are not associated.
- H₀:** Present organization work experience and production support stress are not associated
- H₀:** Income earned and production support stress are not associated
- H₀:** Education qualification and production support stress are not associated
- H₀:** Gender and production support stress are not associated
- H₀:** Marital Status and production support stress are not associated
- H₀:** Total work experience and production support stress are not associated
- H₀:** Age and production support stress are not associated

- **Organizational Position** ($\chi^2=26.892, p<0.001$): A significant association was identified between position level and stress. Mid-level support engineers reported higher stress frequencies than anticipated, possibly due to increased responsibility for intricate incidents without the corresponding authority for senior-level decision-making.
- **Educational Qualifications** ($\chi^2=37.050, p<0.001$): Educational background considerably influenced stress perception. Postgraduate professionals in production support displayed higher stress levels, potentially stemming from a perceived overqualification for operational roles or elevated performance expectations.
- **Total Work Experience** ($\chi^2=87.116, p<0.001$): A strong association existed between total IT experience and stress levels. Professionals with 5-15 years of experience showed notably higher stress, representing the "burden bearers" who manage the most complex production issues while also mentoring junior staff.

Table 1. Chi square Analysis for demographics

Demographic	Chi-square calculated value	Degree of freedom	Table value	Significance value	Accept/Reject H ₀
Position	26.892	4	9.488	.000	Reject
Present experience	13.860	4	9.488	.008	Reject
Income	49.7	8	15.507	.000	Reject
Education	37.050	6	12.592	.000	Reject
Gender	0.515	2	5.9915	0.773	Accept
Marital status	36.73	4	9.488	.000	Reject
Total work experience	87.116	6	12.592	.000	Reject
Age	62.92	8	15.507	.000	reject

- **Income ($\chi^2=49.700, p<0.001$):** Income levels were significantly related to stress perception. Lower-paid production support staff exhibited higher stress frequencies, potentially reflecting the demanding nature of 24/7 operational requirements relative to their compensation.
- **Age ($\chi^2=62.924, p<0.001$):** Age demonstrated a significant association with stress levels. Production support professionals aged 30-40 years experienced higher stress, coinciding with periods of peak career responsibility and work-life balance challenges inherent in shift work (Greenhaus & Allen, 2011).
- **Marital Status ($\chi^2=36.735, p<0.001$):** Marital status significantly influenced stress perception. Single professionals showed disproportionately higher stress levels, possibly due to less structured personal support systems (Lazarus & Folkman, 1984) for managing irregular work schedules and on-call responsibilities.
- **Present Work Experience ($\chi^2=13.860, p=0.008$):** Current organizational tenure exhibited a significant association with stress levels. Mid-range tenure employees reported elevated stress, suggesting difficulties in adapting to specific production environments and increased responsibility without commensurate authority.
- **Gender ($\chi^2=0.515, p=0.773$):** No significant association was found between gender and occupational stress levels, indicating that stress factors in production support affect both male and female employees equally.
- **Compensation Review:** Address pay equity issues (Parasuraman & Simmers, 2001), particularly for lower-income production support staff handling critical system responsibilities.
- **Work-Life Balance Initiatives:** Develop support systems specifically for single employees managing irregular schedules and on-call duties.
- **Mentorship Programs:** Pair experienced professionals with junior staff to distribute knowledge and alleviate individual stress burdens.

Limitations: The cross-sectional design of this study limits the ability to draw causal inferences. Future longitudinal studies could more effectively establish how demographic factors influence stress over time in production support careers. Additionally, organization-specific factors such as incident frequency and system complexity were not controlled for in this analysis.

CONCLUSION

This study demonstrates that occupational stress in IT production support is significantly linked to multiple demographic factors, with career stage and organizational position being particularly impactful. The findings suggest that general stress management approaches may be ineffective (Kompier & Kristensen, 2001) in production support environments. Instead, IT organizations should develop targeted interventions based on demographic profiles and the unique demands of 24/7 operational support. This research contributes to the limited body of knowledge on production support team dynamics, providing a foundation for evidence-based stress management strategies in IT operations. Organizations can leverage these insights to improve employee retention, reduce burnout, and maintain high-quality production support services. Future research should investigate the interplay between demographic factors and specific production support stressors such as incident severity, on-call frequency, and system complexity to further refine intervention strategies.

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DISCUSSION

The findings indicate that demographic factors considerably influence occupational stress (Cooper, Dewe, & O'Driscoll, 2001) in IT production support environments. The career stage effect is particularly prominent, with mid-career professionals (aged 30-40, with 5-15 years of experience) reporting the highest stress levels. This pattern suggests a "production support pressure point" where professionals manage the most critical incidents while simultaneously balancing mentoring duties and career advancement pressures (Van den Broeck et al., 2008). The absence of gender differences implies that the technical and operational nature of production support work generates stressors (Tarafdar et al., 2007) that transcend traditional gender-based workplace experiences. The significant impact of educational qualifications suggests that overqualification might contribute to stress in operational roles.

Practical Implications for IT Organizations

Objective 3 addressed as below:

- **Shift Schedule Optimization:** Consider demographic factors when designing shift rotations (Totterdell, Wood, & Wall, 2006), especially for high-stress groups (ages 30-40, 5-15 years experience).
- **Career Development Programs:** Implement clear progression pathways for mid-level support engineers to reduce role ambiguity and enhance job satisfaction.

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