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EVALUATING THE IMPACT OF STRESS ON INDIVIDUAL PRODUCTIVITY OF EMPLOYEES WORKING IN SHIFTS: A CASE STUDY WITH REFERENCE TO ONE OF THE LEADING INFORMATION TECHNOLOGY ORGANIZATIONS IN NTR DISTRICT, ANDHRA PRADESH

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ABSTRACT

In the fast-paced and dynamic environment of Information Technology organizations, where operations run around the clock, employee stress and its implications on productivity have become increasingly pertinent concerns. This research paper presents a case study conducted within one of the leading Information Technology organizations in NTR District, Andhra Pradesh, aiming to explore the intricate relationship between employee stress and individual productivity among those working in shifts. The study employs a stratified random sampling where data from 50 employees across various departments are collected using survey questionnaires. The study investigates the sources of stress experienced by employees working in shifts, the strategies used to cope with stress, and the impact of stress on individual productivity.The correlation analysis is employed during data analysis. The recommendations are provided to guide organizations in implementing strategies to reduce employee stress and enhance individual productivity.

Keywords: Employee Stress, Shifts, Information Technology, Individual Productivity.

INTRODUCTION

The Information Technology (IT) industry stands as a dynamic and ever-evolving sector, known for its role in shaping the global economy. In the context of IT, continuous operations are not a luxury but a necessity. IT organizations often serve a global customer base, meaning that service interruptions can result in financial losses and customer dissatisfaction. To provide uninterrupted services, shifts are used to cover all time zones.

Employee stress remains a significant concern in various industries, including the IT sector, where shift work is prevalent. The intricate relationship between stress and productivity is pivotal to individual well-being and organizational success, especially in shift-based work settings. High stress levels, commonly associated with irregular schedules and nighttime work, can lead to reduced job satisfaction, increased absenteeism, and the risk of burnout, all of which can significantly diminish productivity. In the IT industry, precision and innovation are paramount, making stress management critical for maintaining cognitive abilities and sound decision-making. Reduced cognitive performance, often linked to disrupted sleep patterns and the demands of shift work, can

result in project delays and suboptimal solutions. Moreover, stress can stifle creativity and innovation, inhibiting an IT professional's ability to think outside the box, devise novel solutions, and adapt to rapidly changing technologies—core requirements in this sector. Shift-induced stress also poses the risk of errors, lapses in attention, and a decrease in the quality of work, which in IT, can result in data breaches, software glitches, and security vulnerabilities. Prolonged exposure to high stress levels, which shift workers may experience over extended periods, can lead to long-term health issues, resulting in increased healthcare costs for both the individual and the organization. Additionally, maintaining a healthy work-life balance can be especially challenging for shift workers, potentially contributing to chronic stress and overall dissatisfaction in both their professional and personal lives.

The research aims to investigate the dynamic relationship between employee stress and individual productivity in the Information Technology sector. It accomplishes this through a case study within the NTR District, focusing on one of the leading IT organizations operating within the region. The research has four core objectives:

- To pinpoint the specific stressors that impact employees working in shifts with reference to one of the leading information technology organizations in NTR district, Andhra Pradesh.
- To explore the strategies and coping mechanisms employed by IT employees working in shifts to mitigate stress with reference to one of the leading information technology organizations in NTR district, Andhra Pradesh.
- To analyze how stress levels affect individual productivity of the IT employees working in shifts.
- To recommend the organizations about the strategies to reduce employee stress and enhance individual productivity.

LITERATURE REVIEW

Cho et al. (2020) studied shift work and health-related productivity loss (HRPL), including illness absence and impaired job performance, in Korea with 4,197 employees. Shift work reduced productivity, especially the fixed night shift, which lost 7.7%. Female employees had higher HRPL. The research concludes that shift work increases HRPL, specifically the fixed night shift. These results emphasise the need to explore gender-specific elements to address these difficulties and improve employee well-being.

Dodía et al. (2020) examined the correlation between workplace stress, psychological discomfort, and job satisfaction in day and night shift workers. They randomly selected 60 workers from both shifts. The Occupational Stress Index (OSI), General Health Questionnaire (GHQ-28), and occupational contentment Scale (JSS) rated occupational stress, psychological discomfort, and contentment. The research discovered substantial disparities between day and night shift employees. Night shift workers had more psychological discomfort, job stress, and job satisfaction than day shift workers. Lower work satisfaction was associated with higher occupational stress and psychological suffering. Night shift workers experience additional workplace stress, psychological well-being, and job satisfaction issues.

Ganesan et al. (2019) examined how shift work affected 52 intensive care professionals' alertness and performance. They found that sleep was most limited between successive night shifts, day shifts, and evening-to-day transitions. Night shifts reduce alertness and performance, particularly when not circadian rhythm-adapted. Early day shifts after night shifts may hinder sleep. Healthcare professionals reported diminished alertness on their night shift, but objective performance was similarly impacted on following nights.

Subikshaa et al. (2018) stated that the research examines IT workers' stress in India. IT employees are especially stressed by severe workloads, lack of job recognition, gender discrimination, and inadequate incentives. According to study, many IT personnel work above their allotted hours, lowering productivity and job satisfaction. Work stress impairs performance and causes miscommunication. The research emphasises the need to reduce stress in India's IT industry, which is essential to the economy yet has greater stress levels than other areas.

Sabbarwal et al. (2017) said the research found that most participants are male 25–35-year-old IT workers with occupational stress. Heavy workloads, long hours, and family issues cause stress and discontent with work. Workload causes physical and emotional stress in people. Family troubles, work security worries, inadequate remuneration, and health challenges all contribute to professional stress, according to the study. IT companies have introduced wellness programmes to reduce occupational stress, but many workers still struggle, highlighting the need for further interventions in this industry.

Naser Hoboubi et al. (2017) examined occupational stress, satisfaction, and productivity in an Iranian petrochemical sector. Employees reported moderate to high work stress, moderate job satisfaction, and moderate productivity. Work happiness correlated positively with productivity, whereas work stress did not. Regression modelling showed that shift schedules, role inadequacy and ambiguity, and work happiness (supervision) strongly affected productivity. According to the research, shift work arrangements and supervisor assistance should be improved to decrease working stress and boost job satisfaction and productivity.

Dall'Ora et al. (2016) undertook a comprehensive examination of the influence of shift work on employee performance and well-being by conducting a scoping assessment of 35 research studies, with a focus on 25 studies in the healthcare sector. The results of the study consistently demonstrated links between certain variables: shifts lasting more than 12 hours were shown to be correlated with degraded outcomes, while working more than 40 hours per week was associated with an increased occurrence of adverse events. The implementation of rotating shifts was found to have a detrimental effect on job performance, whereas the adoption of fixed night shifts facilitated resynchronization but resulted in decreased levels of job satisfaction. The implementation of regular breaks at appropriate intervals has been found to enhance levels of alertness, whilst shorter intervals between shifts have been associated with heightened weariness. These connections were observed across all industries, highlighting the widespread impact of shift employment.

Srivastava, UR. (2010) said the research examined stress, negative mental health effects, and mood changes in shift employees and day workers at Feeder Balancing Dairy. Shift workers have more job and personal stress. Tense arousal and anger were positively correlated with unfavourable mental health aspects in both groups. For shift workers, life stress and role conflicts predicted poor mental health. Day employees were stressed by role ambiguity and conflict. Both groups' mental health results were influenced by mood, particularly anger. Workers experienced physiological, psychological, and emotional stress from shift employment, which disrupted the circadian clock.

METHODOLOGY

This study employs a case study research design, focusing on one of the leading Information Technology organizations in NTR District, Andhra Pradesh. The rationale behind this design is to provide an in-depth and context-specific understanding of the relationship between employee stress and individual productivity in the IT organization. In this case, studying an actual IT organization allows for a comprehensive investigation of stress and productivity issues as they occur in a genuine work environment.

To ensure a representative sample, a stratified random sampling method was utilized, considering various departments in which the employees work on shift basis. The selected departments included Help Desk/Technical Support, Network Operations Center (NOC), Security Operations Center (SOC), Data Center Operations, System Administrators, Software Development and Quality Assurance, DevOps Teams, Database Administrators, Cloud Operations, IT Monitoring and Incident Response, and Service Desk. Additionally, various work shifts, such as morning shifts, afternoon shifts, night shifts and rotational shifts were considered.This approach minimized potential bias, making it possible to draw broader conclusions about the workforce in the IT organization.

Data for the study were collected through survey questionnaires, structured to address specific research objectives: identifying stressors, exploring coping strategies, and evaluating stress's impact on individual productivity. The questionnaires included both quantitative and qualitative components to gather comprehensive insights. A sample of 50 employees working across these departments and shifts, including supervisors and non-supervisors, received the survey questionnaires. Data collection adhered to ethical considerations, including informed consent and data privacy.

In terms of data analysis, correlation analysis was chosen. Correlation analysis was employed to quantify the association between stress levels and individual productivity.

HYPOTHESIS

Null Hypothesis (H0): There is no significant relationship between stress levels and individual productivity among IT employees working in shifts.

Alternative Hypothesis (H1): There is a significant relationship between stress levels and individual productivity among IT employees working in shifts.

LIMITATIONS

- The study may not account for external factors such as personal life stressors, family issues, or health concerns that could impact an employee's stress levels and productivity. These external factors may confound the relationship between stressors and productivity.
- The study may not consider all potential variables that could impact stress and productivity.
- Measuring productivity can be subjective, as different job roles and departments may have unique metrics for productivity. Defining and measuring productivity accurately across various roles may be challenging.

ANALYSIS AND DISCUSSION

Specific Stressors that impact employees working in shifts with reference to one of the leading information technology organizations in NTR district, Andhra Pradesh are:

1. Irregular Hours: Approximately 54% of the participants indicated that irregular working hours were a significant stressor. Irregular hours can disrupt an employee's daily routine, making it challenging to maintain work-life balance and leading to increased stress levels.

2. Workload: A substantial 82% of respondents identified workload as a major source of stress. The high prevalence of this stressor suggests that the workload expectations within the organization may be excessive and could contribute significantly to employees' stress levels.

3. Lack of Control: Approximately 52% of participants pointed out that a lack of control over their work was a significant stressor. This lack of autonomy can lead to feelings of disempowerment, which can increase stress and negatively impact overall well-being.

4. Social Isolation: Social isolation emerged as a stressor for 44% of participants. The nature of shift work can often lead to reduced interaction with colleagues and a sense of isolation, which may affect mental well-being.

5. Job Insecurity: Around 20% of respondents expressed concerns about job insecurity as a stressor. This relatively lower percentage suggests that job stability is a less prevalent concern among the employees in this study.

6. Changes in Organization: Approximately 60% of participants identified changes in the organization as a significant stressor. Frequent organizational changes can create uncertainty and stress among employees who may struggle to adapt to new structures and procedures.

7. Micromanagement: Micromanagement was reported as a stressor by 28% of the participants. The presence of micromanagement practices in the workplace can lead to frustration and reduced job satisfaction, contributing to stress.

8. Lack of Autonomy: A lack of autonomy was highlighted by 44% of the participants. This stressor is closely related to the issue of control and can lead to feelings of powerlessness.

9. Low Promotion Opportunities: Approximately 36% of respondents indicated that low promotion opportunities were a significant stressor. Perceptions of limited career advancement can result in frustration and stress among employees.

10. Discrimination and Harassment: Only 16% of participants identified discrimination and harassment as stressors. This lower percentage suggests that issues of discrimination and harassment are relatively less common in the organization.

11. Work-Life Imbalance: A substantial 66% of participants pointed to work-life imbalance as a significant stressor. This finding underscores the importance of addressing work-life balance issues for shift employees.

12. Boring Work: Approximately 34% of respondents found boring work to be a stressor. Monotonous tasks can lead to reduced job satisfaction and increased stress levels.

13. Lack of Organizational Support: An overwhelming 78% of the participants reported experiencing this stressor, indicating a widespread concern within the workforce.

Note: The percentages presented for stressors may not add up to 100% due to the participants' potential for experiencing more than one stressor simultaneously.

Strategies and coping mechanisms employed by IT employees working in shifts to mitigate stress with reference to one of the leading information technology organizations in NTR district, Andhra Pradesh are:

1. Physical Exercise: Approximately 64% of the respondents reported engaging in physical exercise as a coping mechanism. Physical exercise is a commonly employed strategy to reduce stress and improve overall well-being. Regular exercise can help employees manage stress by releasing endorphins, which are natural stress reducers.

2. Meditation and Relaxation Techniques: Approximately 44% of participants indicated that they use meditation and relaxation techniques to cope with stress. These practices can be effective in managing stress by promoting relaxation, reducing anxiety, and improving mental clarity.

3. Seeking Support from Colleagues: Around 38% of respondents mentioned seeking support from colleagues as a coping mechanism. Peer support can be invaluable in helping employees navigate the challenges of shift work, share experiences, and provide emotional support.

4. Seeking Professional Help: Approximately 12% of participants reported seeking professional help, such as counseling or therapy, to cope with stress. This suggests that a portion of the workforce recognizes the importance of mental health support and is proactive in seeking it.

5. Hobbies and Interests: Around 58% of respondents highlighted engaging in hobbies and interests as a way to mitigate stress. Pursuing personal interests can be an effective strategy for stress relief and promoting work-life balance.

6. Seeking Support from Family and Friends: Approximately 76% of participants mentioned seeking support from family and friends as a coping mechanism. Social support from loved ones plays a crucial role in helping employees deal with stress and maintain emotional well-being.

7. Time Management: Approximately 32% of respondents identified time management as a coping mechanism. Effective time management strategies can help employees balance their work and personal lives, reducing stress.

8. Mindfulness and Breathing Exercises: Around 48% of participants reported using mindfulness and breathing exercises to cope with stress. These techniques can help individuals stay present in the moment, reduce anxiety, and improve their emotional resilience.

Note: The percentages presented for coping mechanisms may not add up to 100% due to the participants' ability to select multiple coping mechanisms simultaneously.

Relationship between Stress Levels and Individual Productivity

To determine the impact of stress on individual productivity among IT employees working in shifts, a Pearson Correlation Coefficient analysis was conducted.

The analysis revealed a strong negative correlation between stress levels and individual productivity (Pearson Correlation Coefficient: -0.6714954861694348). This implies that as stress levels increase, individual productivity decreases. The null hypothesis (H0) was rejected, and the alternative hypothesis (H1) was accepted, indicating a significant relationship between stress levels and individual productivity among shift employees in the organization.

RECOMMENDATIONS

- We recommend implementing Employee Assistance Programs (EAPs) that offer confidential counseling services, referrals, and support for mental health issues.
- We propose that organizations consider encouraging remote work options especially for people working in shifts.
- To support employee well-being, organizations should provide virtual mental health resources and introduce mental health days. These initiatives can help employees manage stress and mental health challenges effectively.
- Creating a culture of trust and autonomy can empower employees to make decisions about their work. In addition, intrapreneurship opportunities within the organization can foster innovation and reduce stress.
- Gamifying certain aspects of work can make routine tasks more engaging and rewarding, resulting in increased motivation and productivity.
- Encouraging work-life integration by setting clear boundaries and offering family support services can help employees achieve a healthier balance between work and personal life.
- Implementing personalized recognition and rewards systems can boost employee morale and motivation, ultimately reducing stress and enhancing productivity.
- We suggest the organizations to encourage participative management.
- Encourage a culture where employees are not punished for reasonable failures but instead learn from them and share their experiences to improve the organization.

CONCLUSION

This case study, conducted in an Information Technology organization, identified a range of stressors affecting employees working in shifts, including irregular hours, heavy workloads, lack of control, social isolation, job insecurity, changes in organization, micromanagement, lack of autonomy, low promotion opportunities, work-life imbalance, boring work and lack of organizational support. It has revealed a strong negative correlation between employee stress and individual productivity among shift workers. As stress levels rise, productivity decreases. The findings underscore the importance of implementing strategies to reduce employee stress, including mental health support, remote work options, and recognition programs, to enhance individual well-being and organizational performance.

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