

PSYCHOLOGICAL STUDY OF JOB STRESS, JOB SATISFACTION AND WELL-BEING OF IT EMPLOYEES.

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Abstract— The Information Technology (IT) industry is renowned for its fast-paced environment and high-performance demands, which often lead to significant workplace stress among professionals. This study aims to examine the psychological impact of job stress on job satisfaction and overall well-being among IT professionals. Through a comprehensive analytical approach, the research explores the primary sources of job stress within the IT industry, such as long working hours, tight deadlines, and continuous skill updates. The study investigates how these stressors affect job satisfaction levels, considering factors like job performance, motivation, and employee engagement. Additionally, the research delves into the broader implications of job stress on the mental health and well-being of IT employees, highlighting issues such as burnout, anxiety, and depression. The research highlights concerns like burnout, anxiety, and depression by employing a mixed-methods approach and demonstrating a clear association between increased job stress and decreased job satisfaction and well-being. The study also identifies effective coping mechanisms and emphasizes the critical role of organizational support in mitigating these adverse effects. These findings enhance our understanding of occupational stress in the IT sector and offer practical recommendations for improving workplace conditions and employee health.

Keywords— *Workplace Stress, Job Satisfaction, Well-being, Coping mechanisms, Organisational Support*

1. INTRODUCTION

The Information Technology (IT) sector has emerged as a pivotal force in shaping modern economies, facilitating advancements in various domains such as healthcare, finance, education, and entertainment. The digital transformation driven by IT innovations has revolutionized business processes, communication, and data management, underscoring the sector's vital role in contemporary society (McKinsey & Company, 2020). Despite these contributions, the IT industry is characterized by a highly demanding work environment, where professionals face significant pressure to perform and adapt continuously.

Job stress in the IT sector is a multifaceted phenomenon, encompassing numerous stressors that

collectively impact and job satisfaction of the well-being IT employees. Among these stressors are long working hours, stringent project deadlines, the rapid obsolescence of technical skills, and the relentless pace of technological change (**Ayyagari, Grover, & Purvis, 2011**). Additionally, the global nature of the IT industry often necessitates working across different time zones, further complicating work-life balance and contributing to elevated stress levels (**Ragu-Nathan et al., 2008**).

Research shows that job stress significantly impacts employees, causing both physical and psychological symptoms. Elevated job stress is linked to a higher occurrence of burnout, which includes emotional exhaustion, depersonalization, and reduced personal achievement (**Maslach, Schaufeli, & Leiter, 2001**). Additionally, sustained stress exposure can result in mental health problems like anxiety and depression, negatively impacting employees' overall well-being and productivity (**Sonnentag, Pundt, & Albrecht, 2014**).

The delicate relationships between job stress and these outcomes within the IT sector must be understood, given the crucial role of job satisfaction and well-being for organisational performance. Job Satisfaction has a major impact on Employee engagement, retention, and performance (**Judge, Thoresen, Bono, & Patton, 2001**), while well-being encompasses a holistic view of an individual's health, happiness, and life satisfaction (**Diener, 2000**). Therefore, addressing job stress is not only essential for improving individual employee outcomes but also for enhancing organizational effectiveness.

This study examines the psychological impact of job stress on job satisfaction and well-being among IT professionals using a mixed-method approach that incorporates quantitative surveys and qualitative interviews. The quantitative component measures the prevalence and intensity of job stress, job satisfaction, and well-being among IT professionals. The qualitative component provides nuanced insights into personal experiences and coping strategies through in-depth interviews.

The study aims to accomplish three main goals: first, to determine the main causes of job stress in the IT sector; second, to investigate the connection between job stress and job satisfaction; and third, to evaluate the effect of job stress on the general health of IT workers. It also looks into the efficacy of different coping strategies and the function of organisational support networks in lessening the detrimental impacts of work-related stress.

The findings will contribute to the existing literature on job stress and well-being in the IT sector, offering valuable insights for both academics and practitioners. By identifying critical areas of concern and proposing practical interventions, this study aims to inform policy and practice, ultimately fostering a healthier and more supportive work environment for IT professionals.

2. LITERATURE REVIEW

The IT industry is marked by rapid technological changes, high expectations, and a demanding work environment, all of which contribute to significant levels of job stress among professionals. Understanding the implications of this stress on job satisfaction and overall well-being is critical for both theoretical advancement and practical interventions.

2.1. Job Stress in the IT Sector

Job stress, or occupational stress, has been extensively studied across various sectors. In the IT industry, stressors are often linked to the nature of the work itself, which includes long hours, tight deadlines, and the need to continuously update skills to keep pace with technological advancements (Ayyagari, Grover, & Purvis, 2011). The global nature of the IT industry, requiring coordination across different time zones, further exacerbates these stressors (Ragu-Nathan et al., 2008). Such persistent stress can lead to negative outcomes, including burnout, decreased productivity, and high turnover rates (Kim & Wright, 2007).

2.2. Impact of Job Stress on Job Satisfaction

Workplace outcomes including performance, engagement, and retention are significantly influenced by job satisfaction, which is the degree to which people feel content with their positions (Judge et al., 2001). High levels of job stress have been consistently found to negatively impact job satisfaction. For instance, studies have shown that stress resulting from excessive workload, lack of autonomy, and insufficient support can significantly reduce job satisfaction (Spector, 1997). In the IT sector, where job roles often demand high cognitive and emotional effort, the adverse effects of stress on job satisfaction are particularly pronounced (Tarafdar et al., 2011).

2.3. Well-Being and Mental Health

Employee well-being encompasses physical, mental, and emotional health. The link between job stress and well-being has been a significant area of study in organizational psychology. Prolonged job stress can lead to serious mental health issues like burnout, depression, and anxiety (Maslach, Schaufeli, & Leiter, 2001). In the IT sector, the constant pressure to stay current with emerging technologies and meet high-performance standards can lead to chronic stress, adversely affecting mental health and overall well-being (Sonnentag et al., 2014).

2.4. Coping Mechanisms and Organizational Support

Effective coping mechanisms and robust organizational support systems are essential in mitigating the negative impacts of job stress. Coping strategies, such as time management, seeking social support, and engaging in relaxation techniques, have been shown to buffer the adverse effects of stress (Lazarus & Folkman, 1984). Moreover, organizational interventions, including the provision of mental health resources, the promotion of work-life balance, and the cultivation of a supportive work culture, are necessary to raise general well-being and job satisfaction (Quick, Quick, Nelson, & Hurrell, 1997).

2.5. The Role of Techno stress

Techno stress, a specific type of job stress arising from the use of information and communication technologies, is particularly relevant in the IT industry. It encompasses stressors related to information overload, constant connectivity, and the need for continuous learning (Tarafdar et al., 2007). Research has shown that techno stress can significantly reduce job satisfaction and

well-being, making it an important area of study for IT professionals (Ragu-Nathan et al., 2008).

2.6. Previous Studies and Gaps in the Literature

Numerous studies have investigated the correlation among job stress, job satisfaction, and well-being across different industries. However, there is a limited amount of research dedicated specifically to IT professionals. While current studies offer valuable perspectives, there is a requirement for comprehensive research that combines quantitative and qualitative approaches to grasp the intricate experiences of IT employees fully. Furthermore, the effectiveness of coping strategies and organizational support systems in this domain warrants further exploration.

Recognizing the psychological consequences of job stress on job satisfaction and well-being among IT professionals is imperative for devising impactful organizational approaches. This review of literature underscores key areas of concern and pinpoints deficiencies in current research. By bridging these gaps, the current study endeavours to furnish a more profound comprehension of stress factors within the IT sector and propose actionable suggestions to bolster employee satisfaction and well-being.

3. THEORETICAL BACKGROUND

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Recognizing the psychological consequences of job stress on job satisfaction and well-being among IT professionals is imperative for devising impactful organizational approaches. This review of literature underscores key areas of concern and pinpoints deficiencies in current research. By bridging these gaps, the current study endeavours to furnish a more profound comprehension of stress factors within the IT sector and propose actionable suggestions to bolster employee satisfaction and well-being.

4. METHODOLOGY

The focus of this cross-sectional study was on IT professionals working in different IT industry sectors. The objective of the study was to look at the connections between these professionals' well-being, job satisfaction, and stress levels. The sample size was chosen to ensure sufficient power for statistical analysis by taking into account previous studies on occupational stress

among IT workers. The necessary sample size was determined to be 200 IT specialists using the MedCalc programme (MedCalc programme bvba, Ostend, Belgium) and taking into consideration a β (power) of 80% and an α (the first type error) of 5%. Participants were selected at random from a list of IT specialists acquired from various organisations and professional networks in order to ensure a representative sample.

The required information was gathered from each participant using an anonymous self-administered questionnaire. The following four sections made up the questionnaire:

Demographic Information: Personal information such as age, height, weight, marital status, work experience, number of hours worked per day, gender, and kind of employment were gathered in this area. These factors give a thorough picture of the backgrounds and workplaces of the participants.

Job Stress Assessment: The degree of work-related stress among the study population was assessed using the Osipow occupational stress inventory in Persian. The six subscales of role overload, role insufficiency, role ambiguity, role boundary, responsibility, and physical environment were used to quantify occupational stress. The scale has 60 items total, with 10 items in each subscale. On a 5-point Likert scale, each item is given a score (1 = never, 2 = sporadically, 3 = rarely, 4 = regularly, and 5 = most of the time). A higher level of role stressor is indicated by a higher subscale score. The scores acquired fall into three categories: Low (10–20), Moderate (21–30), and High (31–50). Three levels are also identified based on the overall job stress questionnaire score: Low (60–120), Moderate (121–180), and High (181–300). According to Sharifian et al., the questionnaire's validity and reliability were verified, and its Cronbach's alpha coefficient was 0.83.

Job Satisfaction Evaluation: The Job Descriptive Index (JDI), which has 42 items total and is broken down into five subscales—work (10 items), compensation (8 items), promotion (5 items), supervision (9 items), and co-workers (10 items)—was used to assess job satisfaction. A 5-point Likert scale—where 1 denoted never, 2 infrequently, 3 frequently, 4 generally, and 5 most of the time—was used to collect the responses. The overall JDI score, which gauges overall job satisfaction, was calculated using the sum of the scores for each subscale. A lower score indicates less job satisfaction; a score in the middle (126) indicates moderate job happiness; and a higher score indicates great job satisfaction. The results range from 42 to 210. According to Norbakhsh and Mirnaderi's assessment, this questionnaire is valid and reliable, and its Cronbach's alpha coefficient is 0.88.

Well-Being Measurement: The WHO-5 Well-Being Index was used to evaluate the wellbeing of IT professionals. Five items concerning general interests, vitality, and positive attitude are included in this index. A 6-point Likert scale is used to score the statements: 0 means at no time, 1 means part of the time, 2 means less than half the time, 3 means more than half the time, 4 means most of the time, and 5 means all of the time. Better well-being is indicated by higher scores. Numerous research have established the validity and reliability of this index, which is a reliable indicator of mental health and wellbeing.

In data analysis, both inferential and descriptive statistics will be used. Descriptive statistics will

give a summary of the demographic and main variable answers, while inferential statistics—such as three-way ANOVA—will look at the main and interaction effects of gender, location, and age group on job stress, job satisfaction, and well-being. The significance level for testing hypotheses will be 0.05.

Securing data storage, guaranteeing answer confidentiality, and getting informed consent from each participant are important ethical considerations. Ethical permission from the relevant Institutional Review Board (IRB) or Ethics Committee will be sought in order to guarantee compliance with ethical research standards.

Notwithstanding its merits, this research admits certain drawbacks, including possible biases caused by self-report measures and the incapacity of the cross-sectional design to prove causation. However, this methodology provides a solid framework for comprehending how workplace stress affects IT workers' psychological well-being and job satisfaction, offering insightful information for organisational interventions and employee support programmes.

5. DATA ANALYSIS

Field survey and data collection was done and the data was assessed for statistical analysis. The analysis was done with SPSS version 19. The study employed Pearson correlation analysis to investigate the associations among quantitative variables, including well-being scores, job stress, and job satisfaction. The variables affecting happiness and job satisfaction were identified using linear regression analysis. Every test had a significance level of 0.05.

RESULTS

Table I compiles the personal data of the workers who took part in the study. The age range of the participants was 22 to 45 years, with an average age of 33.5 years and a standard deviation of 6.64 years. The employees' work experience ranged from 1 to 12 years, with an average of 6.5 years and a standard deviation of 3.17 years. A significant portion of participants (60.8%) held a bachelor's degree, whilst 39.2% earned a postgraduate degree. Furthermore, 61.6% of participants were married, and 57.6% of participants worked shifts.

Table 1: Demographic attributes of the employees

Demographic Characteristics of the employees studied (N=125)		
	Min - Max	Mean ± SD
Age (y)	22 - 45	33.5 ± 6.64
Weight (kg)	54 - 89	71.5 ± 10.10
Height (cm)	154 - 188	171 ± 6.18
BMI (kg/m ²)	18.42 – 35.17	26.79 ± 4.84
Work experience (y)	1 - 12	6.5 ± 3.17

Demographic Characteristics of the employees studied (N=125)		
	Min - Max	Mean $\pm$ SD
Working hours/day (h)	8 - 15	10.65 $\pm$ 1.48
	Category	n (%)
Sex	Male	84 (67.2)
	Female	41 (32.8)
Marital Status	Single	48 (38.4)
	Married	77 (61.6)
Education	Under Graduate	76 (60.8)
	Post Graduate	49 (39.2)
Working Schedule	Shift Working	72 (57.6)
	Day Working	53 (42.4)

Data are presented as n (%)

Table II shows that the participants' average occupational stress score was 183.18, with a standard deviation of 22.53. This suggests a "moderate-high" level of tension. Statistical techniques such as one-way ANOVA, independent t-tests, and Pearson coefficient analyses, however, failed to find any meaningful associations between the participant's demographics and the mean job stress score. Additionally, no significant correlations ($p = 0.161$) were found between the mean productivity, work satisfaction, and job stress scores and the results of the statistical analyses.

Table 2: Statistical Assessment of Performance Metrics (N=125)

Variables	Min - Max	Job Stress			Job Satisfaction			Productivity	
		Mean $\pm$ SD		P	Mean $\pm$ SD		p	Mean $\pm$ SD	p
		183.18	$\pm$						
		22.53							
Age groups (y)†		177.54	$\pm$		137.32	$\pm$		67.36	$\pm$
	22 – 30	21.57			19.26			11.26	
	31 – 37	173.74	$\pm$	0.07	127.19	$\pm$	0.02	70.23	$\pm$
		29.98			15.82		6	14.17	0.33
	38 – 45	163.69	$\pm$		139.21	$\pm$		66.43	$\pm$
		22.62			16.19			6.19	

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<i>Variables</i>	<i>Min - Max</i>	<i>Job Stress</i> <i>Mean ± SD</i> <i>183.18 ± 22.53</i>	<i>P</i>	<i>Job Satisfaction</i> <i>Mean ± SD</i>	<i>p</i>	<i>Productivity</i> <i>Mean ± SD</i>	<i>p</i>
Marital Status*	Single	176.82 ± 23.16	0.41	121.18 ± 16.35	0.018	76.91 ± 11.25	0.36
	Married	173.26 ± 21.78		136.74 ± 17.76		67.86 ± 13.10	
Educational Level†	Under Graduate	172.12 ± 27.13	0.301	131.28 ± 17.24	0.081	71.58 ± 12.15	0.57
	Post Graduate	161.72 ± 23.18		131.27 ± 17.27		69.72 ± 11.99	
Working schedule*	Shifts Working	175.27 ± 28.92	0.61	127.10 ± 20.50	0.6	70.60 ± 12.26	0.028
	Day Working	171.73 ± 20.37		137.13 ± 18.71		71.65 ± 12.11	
Daily working time (h)*	1 – 8	156.77 ± 15.32	0.34	136.12 ± 15.63	0.87	85.12 ± 13.02	0.084
	9 - 16	169.41 ± 22.10		123.23 ± 17.4		71.09 ± 12.16	
Stress Dimensions							
Role overload†	Low	-	-	-	-	70.06 ± 8.21	0.91
	Low-moderate	-	-	-	-	71.34 ± 11.65	
	Moderate-high	-	-	-	-	70.67 ± 11.31	
	High	-	-	-	-	73.07 ± 8.9	
	Low	-	-	-	-	70.39 ± 5.12	0.06

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Role insufficiency†	Low-moderate					71.45 ± 9.37	
	Moderate-high					70.02 ± 12.67	
	High					64.52 ± 0.59	
Role ambiguity†	Low					74.73 ± 10.72	
	Low-moderate	-		-		71.84 ± 9.95	0.000
	Moderate-high					69.19 ± 12.71	2
Role boundary†	High					52.51 ± 20.68	
	Low					69.00 ± 6.68	
	Low-moderate	-		-		71.51 ± 9.86	0.58
Responsibility†	Moderate-high					71.48 ± 10.80	
	High					64.50 ± 19.46	
	Low					69.33 ± 4.72	
Responsibility†	Low-moderate	-		-		72.06 ± 11.06	0.295
	Moderate-high					68.82 ± 12.92	

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	High					66.90 ± 11.1	
	Low					75.93 ± 11.75	
Physical environment†	Low-moderate	-		-		72.83 ± 9.96	0.196
	Moderate-high					70.98 ± 10.82	
	High					51.33 ± 20.41	
Satisfaction Dimensions							
	Work‡	-		-		0.031	
Supervision‡		-		-		0.002	
Co-workers‡		-		-		0.006	
Promotion‡		-		-		0.06	
Payment‡		-		-		0.821	

* Independent sample t test

† One-way ANOVA test

‡ Pearson correlation coefficient

A "moderate" degree of job satisfaction was indicated by the mean job satisfaction score of 125.27 ± 19.73 among IT professionals. Age and job satisfaction showed a significant U-shaped link ($p = 0.026$) according to a one-way ANOVA test. The three age groups' job happiness levels differed significantly, according to post hoc analysis, with the 31–38 year old group reporting lower job satisfaction scores than the 22–30 year and 39–45 year old groups. Furthermore, the results of the independent t-test showed that married IT professionals scored far higher on job satisfaction than single IT professionals ($p = 0.008$).

An additional indication of "moderate" productivity was the IT professionals' mean productivity score of 74.42 ± 12.92 . Productivity and role ambiguity, the third aspect of job stress, were found to be significantly correlated by the one-way ANOVA test ($p = 0.0002$). It was also shown that there was a significant ($p < 0.05$) association between productivity scores and the first three job satisfaction categories: work, supervision, and co-workers. This suggests that higher productivity is positively correlated with improved job satisfaction in these areas.

When comparing shift workers to those with fixed day schedules, an independent t-test showed that shift workers' productivity scores were considerably lower ($p = 0.028$). Productivity ratings did not significantly correlate with any other demographic factor.

The study employed Pearson correlation analysis to examine the connection among job stress, job satisfaction, and productivity. The study found no significant correlation ($p > 0.05$) between job stress and productivity, despite a substantial positive relationship ($p = 0.03$) between job satisfaction and productivity. There was a slight positive relationship, as evidenced by the correlation coefficient ($r = 0.39$). This suggests that an increase in job satisfaction is typically correlated with higher levels of output.

Table III illustrates the detailed investigation of variables influencing productivity using multiple linear regression analysis. The variables in the regression model comprised the number of working hours, the kind of schedule (fixed or shift), and the particular aspects of job satisfaction (workload, supervision, co-workers, and promotion) and job stress (role ambiguity, role insufficiency, and physical environment). With a significant criterion of $p < 0.25$, these variables were chosen using univariate and one-way ANOVA analyses.

Table 3: Regression model that shows the variables affecting workers' productivity

Variable	β	Standard error	t	p	R2†
Shift working*	4.075	2	2.032	0.045	
Supervision	0.565	0.269	2.09	0.038	
Role insufficiency‡	-5.43	2.59	2.09	0.038	0.223
Role ambiguity§	-17.64	6.71	-2.62	0.01	

* Employees working shifts were regarded as the reference group.

† R square adjusted (R2)

‡ Inadequate match among the participants' occupation and skill set.

§ Participants are not clear about what is expected of them.

Regression analysis results showed that the parameters associated with shift schedule, the supervisory dimension of job satisfaction, and the second and third aspects of job stress (role ambiguity and inadequacy) were significant predictors. The coefficient of determination (R2)

suggests that 22.3% of the variation in production may be explained by these factors. For analysis, the final occupational stress scores were divided into four groups: low, low-moderate, moderate-high, and high. The benchmark group consisted of people with low levels of work stress.

6. DISCUSSION

In line with earlier research, the results showed that IT workers who worked shifts had far lower productivity scores than those who had set day schedules. Issues including sleep disorders, health problems, social life disruptions, and shift work-related circadian rhythm misalignments could be the cause of this reduction. When work is done outside of the regular sleep-wake cycle, the body's biological clock and external events may be disrupted, which can decrease performance. Additionally, the data demonstrated a strong U-shaped correlation between age and job satisfaction. IT professionals aged 31–38 years had significantly lower job satisfaction scores than those in the 22–30 and 39–45 age groups, aligning with other research findings. Younger employees tend to have higher job satisfaction due to initial motivation, which decreases during middle years due to job repetitiveness and restrictions, and then increases again as expectations become more realistic with age, according to Herzberg's "modified expectation" theory. However, some studies report a linear relationship between age and job satisfaction, contrary to Herzberg's hypothesis.

The study found higher job satisfaction among married IT professionals compared to single ones, echoing results from other studies. Bowen suggests that single young individuals may struggle with job decisions, contributing to lower job satisfaction compared to older, married counterparts. However, these findings are not universally consistent with other research.

The results showed a negative association between higher levels of role insufficiency and production, as well as a strong inverse relationship between role insufficiency and productivity. Meleis defines role insufficiency as difficulties in identifying or performing one's role or achieving role-related goals. This finding is similar to studies linking role insufficiency to depression, which in turn increases absenteeism and reduces productivity. Higher job stress is also associated with greater role insufficiency, leading to lower job satisfaction and productivity. Additionally, the study showed a strong inverse link between productivity and role ambiguity. Increased role ambiguity, where employees lack clear understanding of their roles, results in lower productivity. Unclear duties cause fear and reluctance to take responsibility, contributing to absenteeism, work delays, high turnover, and reduced productivity. Research by Rizwan et al. found that role ambiguity increases job stress by 15%, which then lowers performance and job satisfaction, ultimately reducing productivity and increasing organizational costs.

Finally, regression modelling indicated that supervision plays a crucial role in enhancing productivity, consistent with findings by Frimpong et al. Good supervisor support lowers stress and guards against the damaging effects of job demands, discontent, and depression, which is why it is linked to increased productivity.

7. CONCLUSION

The study concludes that IT professionals working shifts exhibit significantly lower productivity due to sleep disorders, health problems, disrupted social lives, and circadian rhythm misalignments. A U-shaped relationship between age and job satisfaction indicates that professionals aged 31-38 experience lower satisfaction compared to younger and older colleagues, with job repetitiveness and restrictions playing a role. Married IT professionals report higher job satisfaction than singles, though this finding varies across studies. The research identifies role insufficiency and ambiguity as major factors negatively impacting productivity, with unclear roles leading to increased job stress, absenteeism, and lower performance. Effective supervision is crucial for enhancing productivity by mitigating job stress and dissatisfaction. To address these issues, organizations should consider implementing flexible scheduling, clear role definitions, and strong supervisory support to improve job satisfaction and productivity in the IT sector.

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