

# Work-related Depression, Anxiety, and Stress among Information Technology Employees

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## ABSTRACT

**Background:** Stress, depression, and anxiety range between 10% and 12% of mental disorders. Despite this, mental health in India is heavily stigmatized and not frequently discussed. Work-related stress plays a big part in either causing or exacerbating mental health illnesses which in turn affects the complete well-being.

**Aims and objectives:** The study aims to assess depression, anxiety, and stress levels among information technology (IT) employees.

**Materials and methods:** An institution-based cross-sectional design was conducted among IT employees. A standardized psychological screening tool—Depression Anxiety Stress Scale 21 (DASS-21) was used. The data were analyzed for central tendencies as well as for any associations and correlations.

**Results:** The study showed that around 54% of the workers had a positive score for anxiety and 18% of the workers had a positive score for stress and depression on the DASS-21 scale. The association between gender was statistically not significant whereas the association between age group with stress and overall DAS (depression, anxiety, stress) was statistically significant.

**Conclusion:** The study found a prevalence rate of around 18–54% of depression, anxiety, and stress among the IT employees.

**Keywords:** Anxiety depression, Depression anxiety stress scale 21, India, Mental health, Rehabilitation, Stress, Workplace.

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## INTRODUCTION

Well-being comes from one place and one place only—a positive culture. Health is defined as a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity. More than half a million people suffer from any one form of mental disorder. Depression, anxiety, and stress form a large purport of mental illness. In 2011, The World Health Organization defined—“Mental health is defined as a state of well-being in which every individual realizes his or her own potential, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her or his community”. India is estimated to have 10–20 persons out of 1,000 suffering from severe mental illness and three to five times more to have an emotional disorder.<sup>1</sup> India has a prevalence rate of depression from 5.8 to 9.5.<sup>1</sup> The prevalence rate for anxiety disorders is around 16.5.<sup>2</sup> In India, the prevalence of moderate level of stress was reported at 9.5% in a study that also found most stressors were work-related.<sup>3</sup>

Individuals have interfered with emotional, cognitive, and social abilities which lead to reduced productivity and underemployment when found to be suffered from mental illness.<sup>1,2</sup> Depression is predicted to be the world’s largest problem, which can be the manifest reason to affect the outcome of chronic diseases such as diabetes, cardiovascular diseases, cancer, and obesity.<sup>4,5</sup> Depression expresses the loss of interest or pleasure, sadness, feelings of guilt or low self-worth, disturbed sleep or appetite, extreme tiredness, and poor concentration.<sup>3</sup> It affects the performance of the job, quality of sleep, routine activities, and productivity of the affected individual.<sup>4</sup> Worldwide 450 million suffer from mental illness. Of them, about 150 million are affected by depression.<sup>6</sup>

Worldwide around 272.2 million people suffer from anxiety. Anxiety is a response of the body to a perceived threat that is triggered by an individual’s beliefs, feelings, and thoughts

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and is characterized by worrying thoughts, tension, increased blood pressure, respiratory rate, pulse rate, sweating, difficulty of swallowing, dizziness, and chest pain. Anxiety creates a sort of physical, psychological tiredness that reflects disturbed and decreased social activity. When a person perceives that demands exceed resources mobilized by the individual a feel is initiated within and it is called stress. The major risk factor for various health conditions.<sup>7–10</sup>

Information technology (IT) industry in India has got a tremendous boost due to the globalization of the Indian economy and favorable government policies. Information technology and IT-related professionals are under constant pressure to deliver services efficiently and have to be cost-effective. Continuous physical and mental stress makes employees working in the IT industry prone to develop a lot of health problems. Diseases are induced, sustained, or exacerbated by stress. The play between excessive demand over employees and capability to fulfill the demand becomes the reason for choosing particularly IT and information technology enabled services (ITES) employees. Any

kind of job with targets, leads an employee stressed it becomes severe when he or she is allotted with unachievable targets and is unable to manage a given situation. The influence of working conditions on health has been studied extensively over the last two decades. Stress, anxiety, and depression have been recognized as important outcome measures in various work environments.<sup>11-14</sup> Mukosolu et al.<sup>10</sup> suggested that poor working conditions may be an important precursor of stress and may, therefore, contribute to the development of depression or anxiety.

It is important to examine the role of stress, anxiety, and depression variables as mediators. Thus, the main aim of this article is to bring to the limelight the level of stress, anxiety, and depression among IT and ITES employees in Chennai.

**Study Area and Population**

This was an institution-based cross-sectional study. The study was performed from August to October 2019. Information technology/ ITES employees, who have been working for at least 6 months, were included in the study. Those who were severely ill in the staff or those who were having hearing and speaking difficulty were excluded. A total of 50 employees were included in the study using simple random sampling.

**Ethical Consideration**

Ethical clearance was obtained. Written informed consent was obtained from each study participant. Confidentiality was maintained.

**Data Collection**

After a brief introduction of stress, anxiety, and depression by the psychiatrists and team. Data were collected from the employees by qualified psychologist using pretested interviewer-administered Depression Anxiety Stress Scale 21 (DASS-21) questionnaire. Depression, anxiety, and stress were measured using Lovibond’s short version of the DASS-21. Depression Anxiety Stress Scale 21 is a psychological screening instrument that is capable of differentiating symptoms of depression, anxiety, and stress. It is a validated and reliable instrument with 21 items in three domains. Each domain comprises seven items assessing symptoms of depression, anxiety, and stress. Participants were asked to indicate the presence of symptoms in each domain over the past week scoring from 0 (did not apply at all) to 3 (applied most of the time). Scores from each dimension were summed. Then, the final score was multiplied by 2 and then categorized according to the DASS manual as normal, mild, moderate, severe, and extremely severe. Accordingly, for participants with depression, a depression score of 0–9 was considered normal, 10–13 as mild, 14–20 as moderate, 21–27 as severe, and 28 and above as extremely severe. For participants with anxiety, an anxiety score of 0–7 was considered normal, 8–9 as mild, 10–14 as moderate, 15–19 as severe, and 20 and above as extremely severe. For participants with stress, a stress score of 0–14 was considered normal, 15–18 as mild, 19–25 as moderate, 26–33 as severe, and 34 and above as extremely severe.

**Data Processing and Analysis**

The data collected were checked for completeness and entered in Microsoft Excel. Then, the data were exported to Statistical Package for Social Science version 20.0 software for further analysis. Descriptive statistics of mean, median, range, and standard deviation were analyzed for the continuous variables of age and gender at the firm. Frequencies for the other variables were studied

and presented as categories associations between variables and the scores on DASS-21 were also studied.

**RESULTS**

Variables categorized for analysis. Depression Anxiety Stress Scale 21 score cut-offs were used for the study. Data of 50 workers were analyzed.

The results are as follows:

**Sociodemographic Analysis**

Table 1 states that among 50 employees 42 employees (84%) were male and 8 employees (16%) were female (Fig. 1).

Table 2 shows among 50 employees around 11 employees (22%) were up to age 25 years, 19 employees (38%) were between 26 years and 35 years, 10 employees (20%) were between age group 36 years and 45 years, 10 employees (20%) were found to be above 45 years (Fig. 2).

**Level of Depression, Anxiety, and Stress among IT Employees**

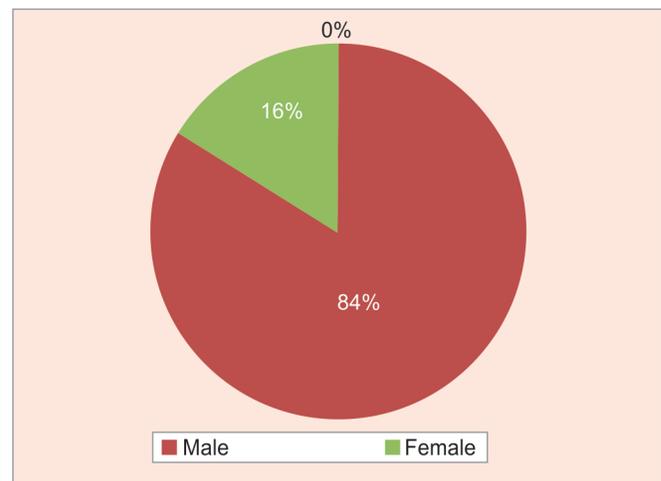
Table 3 explains the level of depression among IT professionals states that 29 (58%) of the employees found to have no depression, 13 (26%) of employees suffer from mild depression level, 5 (10%) of employees suffer moderate level of depression, 2 (4%) suffers severe, and 1 (2.0%) suffers from extremely severe depression (Fig. 3).

Table 4 explains the level of anxiety among IT professionals states that 23 (46%) of employees are at a normal level, 7 (14%) suffer from mild anxiety, 12 (24%) of employees suffer moderate anxiety, 4 (8%) suffers severe, and 4 (8%) suffers from extremely severe anxiety (Fig. 4).

Table 5 explains the level of stress among IT professionals states that 41 (82%) of employees are at a normal level, 2 (4%) suffer from

**Table 1: Gender analysis**

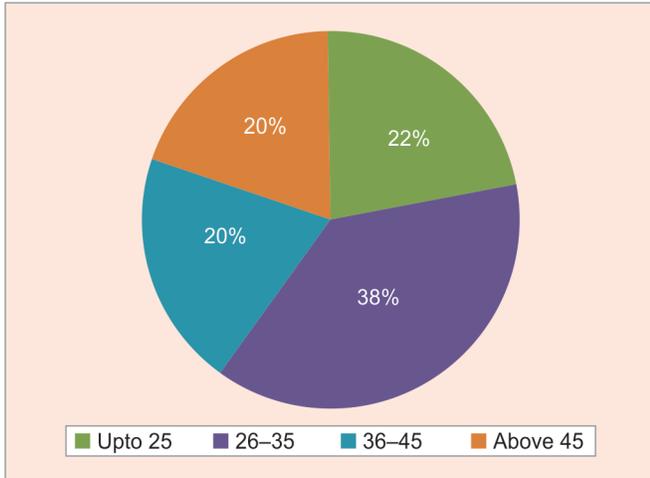
Gender	Frequency (N)	Percentage
Male	42	84
Female	8	16.0
Total	50	100.0



**Fig. 1: Gender analysis**

**Table 2:** Age group in years

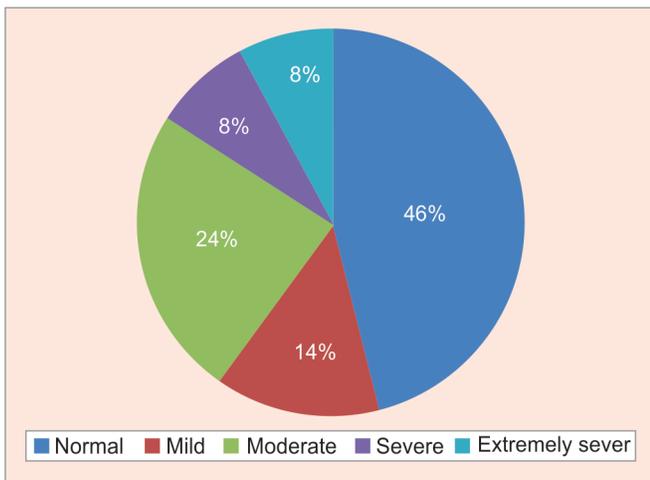
Age groups	Frequency (N)	Percentage
Up to 25	11	22.0
26–35	19	38.0
36–45	10	20.0
Above 45	10	20.0
Total	50	100.0



**Fig. 2:** Age group in years

**Table 4:** Level of anxiety

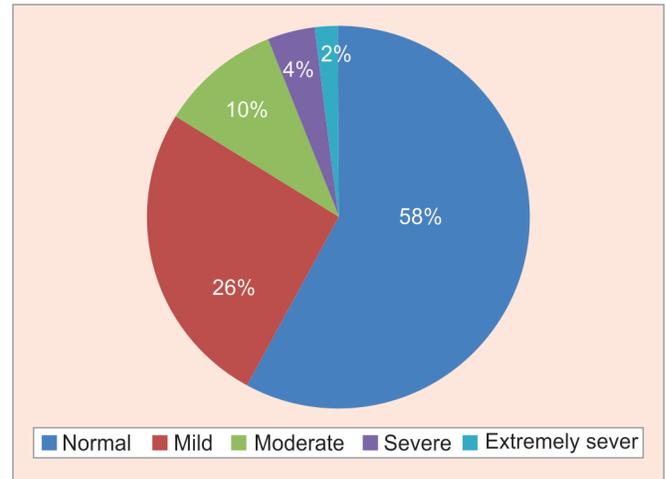
	Frequency (N)	Percentage
Normal	23	46.0
Mild	7	14.0
Moderate	12	24.0
Severe	4	8.0
Extremely severe	4	8.0
Total	50	100.0



**Fig. 4:** Level of anxiety

**Table 3:** Level of depression

	Frequency (N)	Percentage
Normal	29	58.0
Mild	13	26.0
Moderate	5	10.0
Severe	2	4.0
Extremely severe	1	2.0
Total	50	100.0



**Fig. 3:** Level of depression

mild stress, 5 (10%) of employees suffer moderate stress, 2 (4%) suffers from extremely severe stress level (Fig. 5).

**Association between Gender and Age Group**

An independent paired *t*-test conducted proved that there exists no association between gender and depression, anxiety, stress, and overall DAS (depression, anxiety, and stress) (Table 6). Since  $p > 0.05$  the results are not statistically significant (Fig. 6).

One-way ANOVA was used to determine if any existence of a significant difference between the means of three or more independent (unrelated) groups (Table 7). The result of one-way ANOVA reveals that there is a significant difference in the average stress and overall DAS (depression, anxiety, and stress) parameter score value of different age categories (in this study, four different age groups such as up to 25 years, 26–35 years, 36–45 years, above 45 years are considered). But not significant for depression, anxiety (in this study, four different age groups such as up to 25 years, 26–35 years, 36–45 years, above 45 years are considered).

**DISCUSSION**

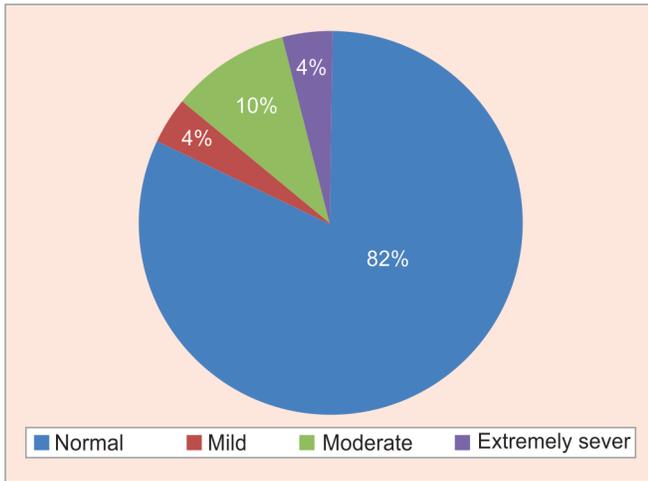
The overall prevalence of depression in this study was found to be 18.6%. However, the prevalence of depression in this study was less in a study conducted on IT employees in Chennai. The possible reason for this discrepancy might be the difference in the study population. The position of the employees who participated in the study and the stress-free work environment and practising of coping strategies add to the resulting discrepancy. The prevalence of depression in males (17.2%) was less than that in females (37.5%).

**Table 5:** Level of stress

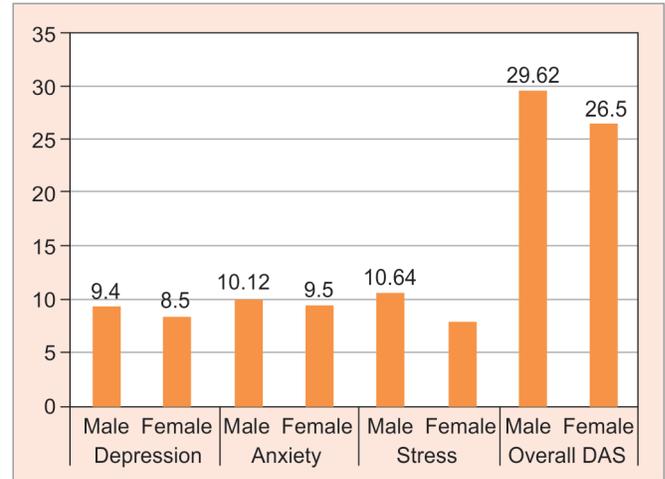
	Frequency (N)	Percentage
Normal	41	82.0
Mild	2	4.0
Moderate	5	10.0
Extremely severe	2	4.0
Total	50	100.0

The association between the age group was found to be not significant.

The overall prevalence of anxiety was found to be 54%, more than half the subjects showed the symptoms of anxiety. The prevalence of anxiety in this study was almost equivalent to other studies conducted on IT employees in Chennai. The possible reason for this might be the respondent's individual state of anxiety. The prevalence of depression in males (20.7%) was less than that in



**Fig. 5:** Level of stress



**Fig. 6:** Mean association of gender with depression anxiety and stress and overall DAS

**Table 6:** Gender association with depression anxiety and stress and overall DAS

	Gender	N	Mean	Std. deviation	t value	p value
Depression	Male	42	9.40	6.11	0.376	0.70
	Female	8	8.50	6.908	0.346	0.73
Anxiety	Male	42	10.12	6.28	0.247	0.80
	Female	8	9.50	7.55	0.218	0.83
Stress	Male	42	10.64	9.44	0.766	0.44
	Female	8	8.00	5.18	1.129	0.27
Overall DAS	Male	42	29.62	18.71	0.431	0.66
	Female	8	26.50	18.98	0.427	0.69

**Table 7:** Age group analysis

		Sum of squares	df	Mean square	F	Sig.
Depression	Between groups	199.417	3	66.47	1.82	0.15
	Within groups	1,672.203	46	36.35		
	Total	1,871.620	49			
Anxiety	Between groups	250.987	3	83.66	2.17	0.10
	Within groups	1,769.993	46	38.47		
	Total	2,020.980	49			
Stress	Between groups	689.312	3	229.77	3.30	0.02* (Significant)
	Within groups	3,201.268	46	69.593		
	Total	3,890.580	49			
Overall DAS	Between groups	2,750.407	3	916.80	2.97	0.04* (Significant)
	Within groups	14,190.873	46	308.49		
	Total	16,941.280	49			

females (50.0%). The association between the age group was found to be not significant.

The overall prevalence of stress was found to be 18%. The subjects showed the symptoms of stress were comparatively low. The prevalence of stress in this study was different and found to be less than studies conducted on IT employees in Chennai. The possible reason for this might be the size of the sample, work environment, and healthy individual trained to cope with the situation. The prevalence of depression in males (6.1%) was less than that in females (12.0%). The association between the age group was found to be significant.

The results represent that female are more prone to be affected by the stress, anxiety, and depression when compared with the male. The study results were found to be similar with most of the studies conducted associating gender with stress, depression, and anxiety. The finding of similar female:male prevalence ratios in developed countries and globally suggests that the differential risk may primarily stem from biological sex differences and depend less on race, culture, diet, education, and numerous other potentially confounding social and economic factors.

This study also represented no association between the age group in relation, anxiety, and depression, whereas a significant association was found between age group analysis with stress and overall DAS (depression, anxiety, and stress). The number of participants and the age range selected for the study and the selection of the same level of employees were the influencers of the result. Contrast to the study, many studies indicate the age factor as one of the important predictors and contributors for stress, anxiety, and depression. "Older age was related to worse self-rated health, and age showed a reverse-U-shaped relation with psychological health. The resilience of older workers could be an opportunity for the global active aging trend, and interventions to support older workers in organizations would be beneficial".<sup>15</sup>

The study results represent a higher rate of anxiety when compared with stress and depression. The results show that the employees exhibit or reveal higher anxiety when screened using DASS-21 questionnaire. The reason was found to be the state anxiety more than the trait anxiety. Hence, the same working condition does not affect the state of depression and stress among individuals whereas reflected in the rate of anxiety.

Hence, this study acts as an eye-opener to screen the individual between the state and trait anxiety before participation in a detailed study.

## RECOMMENDATION

- To conduct on large samples.
- To associate with many socioeconomic factors, lifestyle, external and internal job-related factors.
- Comparative study between males and females.
- Need to involve more sectors as well as higher grades of workers in the studies.

## LIMITATION

- Small study sample.
- Study duration limited.
- Factors associated were limited.

## SUGGESTION

- Promotion of mental health and lifestyle modification part of work curriculum.
- Resilience training for employees.
- Periodical screening for better work output.
- Framework to ensure correct, swift diagnosis for mental disorders as well as rehabilitate facilities to ensure a smooth and quick recovery.

## CONCLUSION

This study was undertaken to study the depression, anxiety, and stress levels among IT employees. The workers showed a prevalence ranging from 18 to 54% mental health disorders over the three subscales of depression, stress, and anxiety. Anxiety was found to be on a higher level. Females are affected more in all three subscales. Only longitudinal studies can demonstrate if a causal effect does actually exist. Studies on how the health of workers is affected by their work are as closely related and needed as studies on how a worker's health is affected by their work. Developing and regulating mental health awareness, promotion protocols can regulate industries and occupational health, which if left unsolved, can lead to unwarranted situations regarding the health of the worker.

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