



Depression, Anxiety and Stress among IT Professionals in India- A Cross-Sectional Descriptive Study

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Abstract

Introduction: With the rapid growth in the IT sectors and an alarming rise in the mental health disorders mainly depression and anxiety globally, the study aims to assess Depression, Anxiety and Stress among the IT professionals and the association of working hours and years of experience with scores of DASS 21.

Materials and methods: A total of 143 individuals working in an IT sector consented for the study. It was done using google forms on online platform. Digital consent was taken. Semi-structured proforma included demographic variables, working hours and years of experience. Depression, Anxiety and Stress were assessed using DASS 21. Data was subjected to descriptive analysis and association was found between variables using Chi-square test.

Results: Our study had 81 females and 62 males, with mean age of participants being 29.1±6.76. Sixty percent were unmarried, 38.5% were married and 0.7% divorced. Our study had 110 graduates and 33 post graduates. Substance use (alcohol, nicotine) was reported in 12.6%. Work, financial and health issues were reported to be the major stressors, along with interpersonal relationship, marital and education issues. The study showed 32.2% had depression, 32.9% had anxiety and 14% assessed to be stressed.

Statistically significant association was found between Depression and younger age, female gender, longer working hours and beginners. Unmarried individuals had more anxiety and married individuals had more stress which was statistically significant.

Conclusion: We found prevalence of 32.2% and 32.95% of depression and anxiety respectively, which was higher when compared to the prevalence in general population. Younger age group, female gender, longer working hours and early career as an IT professional were significantly associated with scores of depression.

Further studies are suggested to work on prevention strategies with emphasis on younger age group, females, beginners and on working hours.

Keywords: Information Technology professionals; Depression Anxiety Stress Scale 21; Stress; Depression; Anxiety.

Introduction

WHO defines Mental health as a condition of well-being that allows individuals to manage life's challenges, recognize their strengths, learn effectively, perform at their best, and make meaningful contributions to their community. In 2019, approximately 970 million people worldwide were affected by a mental disorder, with anxiety and depression being the most prevalent.¹

The Information Technology (IT) industry mainly highlight the contemporary picture of India in the global economy. India alone has about 51 lakh individuals employed in IT sectors as per National Association of Software and Service Companies data for the financial year 2021-2022.²

Depression, Anxiety, and Stress are prevalent among IT professionals in India. Research indicates that approximately 30% of these workers experience Depression, 60% report symptoms of Anxiety, and more than 80% experience high levels of Stress. Contributing factors include long working hours, heavy workloads, job uncertainty, and poor work-life balance. These mental health challenges highlights the urgent need for

improved support systems and increased awareness in the workplace.

Majority of the IT sectors are clustered in the high-tech cities, most of the employees have to move from their roots and relocate to different places leading to socio cultural differences and stress. Also, people invariably had to move from joint families to nuclear families because of the relocation and westernization of the Indian culture.²

Indian IT industry have experienced a tremendous boost mainly due to favourable policies from government and also due to globalization of Indian economy. This led to employees being under constant pressure.³ With an exponential growth in the IT field, the job opportunities in India increased but at the same time the employees are overworked and underpaid, predisposing them to numerous mental health issues precipitated by stress alone. Studies have reported about 80% of the IT employees are stressed due to work alone (performance pressure), 71% due to co morbid mental health issues mainly internalizing disorder, most of which is neglected and hardly few get medical attention for the same. Individuals also tend to go into substance abuse or dependence due to the mental stress.² A study by V Padma et al. reported anxiety, depression and insomnia among 54%, 40% had obesity and 22% were newly diagnosed hypertensives out of the 1000 individuals studied.⁴

Understanding stress and its influence on various aspects of mental and physical health and its complex interaction with mind have become a world-wide concern.⁵ Stress not only affects the individual's mind but also affects physical health involving various systems like cardiovascular (predisposition to hypertension, alteration in heart rate, cardio vascular risk- stroke, myocardial

infarction), nervous system (reduce attention, memory, learning), endocrine (prone to diabetes, increase in release of catecholamine and cortisol).⁶ Stress can lead to development of immune related disorders, mainly involving infectious diseases, autoimmune disorders and cancer. Chronic stress will lead to a condition called “sickness syndrome” also called “sickness behaviour” presenting with anhedonia, fatigue, dysphoria, altered sleep-wake cycle, anorexia, social withdrawal and cognitive deficits.⁷

Early diagnosis of the stress induced mental health issues among IT employees not only improves the quality of life but also has remarkable effect on the productivity which in turn reflects on the India’s economy. Identifying Depression, Anxiety and Stress in early stages and early intervention can help improve the mental and physical health and work productivity. Hence the study aimed to study the prevalence of Depression, Anxiety and Stress among IT professionals and the association of their severity with working hours and years of experience. Knowing the prevalence of Depression, Anxiety and Stress among IT Professionals helps in making intervention strategies and prevention strategies at work place. Creating a healthy and productive working environment.

Materials and Methods

Study Design and Sample

The cross-sectional observational study was conducted among employees working in IT industry in November 2024. Using the formula $n = 4pq/d^2$, sample size was calculated considering the previous prevalence of depression among IT individuals i.e. 54% ($p=54$) and a margin of error of 10%. A minimum sample size of 100 was required.

Procedure and Data Collection

The study was conducted by the Department of Psychiatry, HIMS, Hassan. After getting clearance from IRC and IEC of the institute. Demographic details including substance use, working hours and years of experience were collected using a semi structured proforma. Depression, Anxiety and Stress were assessed using DASS 21⁸ (Depression Anxiety Stress Scale) questionnaire. Google forms were circulated in various social media platforms and responses were assessed. Consenting individuals working in IT industry were considered for the study and non-consenting individuals were excluded from the study. A total of 150 responses were received and 7 refused to consent and a total of 143 were considered for the final study.

Instruments

A semi structured proforma for demographic variables, substance use, working hours and years of experience. DASS21 questionnaire to assess Depression, Anxiety and Stress. It is a self-reporting questionnaire. The following is the scoring for each parameter. Depression (0-9 Normal, 10-13 Mild, 14-20 Moderate, 21-27 Severe, 28+ Extremely severe), Anxiety (0-7 Normal, 8-9 Mild, 10-14 Moderate, 15-19 Severe, 20+ Extremely severe) and Stress (0-14 Normal, 15-18 Mild, 19-25 Moderate, 26-33 Severe, 34+ Extremely severe).

Data Analysis

Data was analysed using SPSS statistics software (version 29.0.2.0). Descriptive Analysis (frequencies and percentage) was used for Demographical variables, work related variables and DASS 21 severity scores. Association between descriptive variables and scores of DASS 21 was found using Chi-square test, P value of 0.05 was considered significant for association.

Results

Among the 143 consenting individuals 81 (56.6%) were females and 62 (43.4%) were males. Mean age of the participants was 29.1 ± 6.76 . The study showed 60.8% were unmarried, 38.5% were married and 0.7% were

divorced. 110 were graduated and 33 were post graduates. 18 individuals reported substance use (Table 01). Table 02 shows Years of experience, working hours and possible stressors.

Table 1: Demographic variables of the study population

Variables		No. of cases (n)	Percent (%)
Age	21-30 years	118	82.5
	31-40 years	16	11.2
	41-50 years	5	3.5
	51-60 years	4	2.8
Mean Age and SD		29.1 ± 6.76	
Gender	Male	62	43.4
	Female	81	56.6
Marital Status	Unmarried	87	60.8
	Married	55	38.5
	Divorced	1	0.7
Substance Use	Alcohol	5	3.5
	Nicotine	2	1.4
	Alcohol and Nicotine	11	7.7
	None	125	87.4
Education	Graduation	110	76.9
	Post Graduation	33	23.1
Total (n)		143	100

n - frequency, % - percentage

Table 2: Years of experience, working hours and possible stressors among the study population

		No. of cases (n)	Percent (%)
Years of Experience	1-5	81	56.6
	6-10	47	32.9
	11-15	6	4.2
	16-10	3	2.1
	>20	6	4.2
Working Hours	≤ 5	4	2.8
	6-10	124	86.7

	11-15	14	9.8
	>15	1	0.7
Total (n)		143	100
Stressors	Financial	62	43.4
	Health	50	35
	Studies	17	11.8
	Interpersonal relationship issues	34	23.8
	Marital conflict	15	10.5
	Work	88	61.5
	None	30	21

n - frequency, % - percentage (32.9%) had Anxiety and 20 (14%) reported

Scores of Depression, Anxiety and Stress were assessed using DASS 21 and prevalence was determined. Among the studied sample 46 (32.2%) had Depression, 47

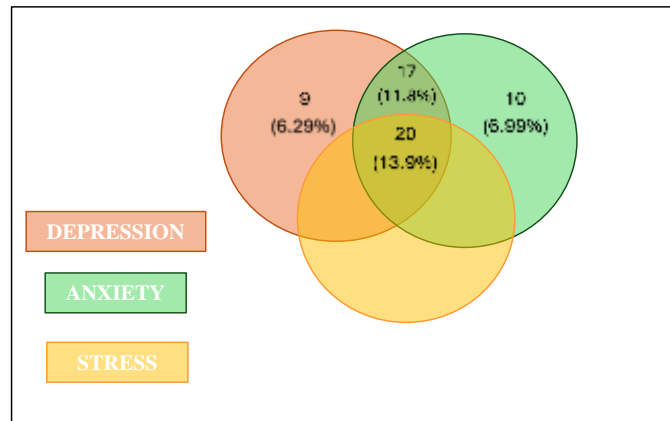
experiencing Stress. (Table 03)

Table 3: Prevalence and Severity of Depression, Anxiety and Stress among study population using DASS 21 scores

	Mean Score	Normal	Mild	Moderate	Severe	Extremely Severe	Total
Depression Severity n (%)	7.73	97 (67.8)	16 (11.2)	28 (19.6)	2 (1.4)	0 (0)	143 (100)
Anxiety Severity n (%)	6.43	96 (67.1)	14 (9.8)	21 (14.7)	7 (4.9)	5 (3.5)	143 (100)
Stress Severity n (%)	8.22	123 (86.0)	13 (9.1)	7 (4.9)	0 (0)	0 (0)	143 (100)

n - frequency, % - percentage

Depression alone was seen in 9 (6.29%) individuals and Anxiety was seen in 10 (6.99%) individuals.



Graph 1: Overlap of diagnosis of Depression, Anxiety and Stress. (n- frequency, % -percentage)

Of the 143 subjects studied, 20 individuals i.e. 13.9% had all 3 Depression, Anxiety and Stress. Seventeen individuals i.e. 11.8% had both Depression and Anxiety.

Chi-square test was used to study the association between age, gender, working hours, years of experience with the scores of Depression, Anxiety and Stress, *P* value of less than 0.05 was considered significant. Age, gender, working hours and years of experience were associated with scores of depression which was statistically significant. It was found that younger individuals were more depressed. Females were more depressed than males. Individuals with longer working hours were more prone to depression. Beginners in the early career as IT professionals were more susceptible to depression than individuals with experience. No statistically significant association was seen with the marital status and depression (Table 04).

Table 4: Association between age, gender, marital status, working hours and years of experience with severity of Depression.

Parameters		Depression Severity				Chi-Square test	
		Normal	Mild	Moderate	Severe	χ^2 Value	P Value
Age	21-30	76	15	26	1	18.389	0.031*
	31-40	13	1	2	0		
	41-50	4	0	0	1		
	51-60	4	0	0	0		
Gender	Male	42	10	8	2	7.49	0.05*
	Female	55	6	20	0		
Marital status	Married	40	3	10	2	10.323	0.114
	Unmarried	57	13	17	0		
	Divorced	0	0	1	0		
Working hours	≤ 5	3	0	1	0	17.905	0.036*
	6-10	90	13	20	1		
	11-15	4	3	6	1		
	> 15	0	0	1	0		
Years of experience	1-5	51	11	19	0	29.478	<0.001*
	6-10	33	5	8	1		
	11-15	5	0	1	0		
	16-20	2	0	0	1		
	> 20	6	0	0	0		

n - frequency, % - percentage, * P- value < 0.05 is considered significant

Age, gender, working hours and years of experience did not have any significant association with the scores of Anxiety. But marital status played a significant role,

where unmarried individuals experienced more severe anxiety compared to married individuals which was statistically significant (Table 05).

Table 5: Association between age, gender, marital status, working hours and years of experience with severity of Anxiety.

Parameters		Anxiety Severity					Chi-Square test	
		Normal	Mild	Moderate	Severe	Extremely Severe	χ^2 Value	P Value
Age	21-30	77	12	19	6	4	8.496	0.745
	31-40	11	2	2	1	0		
	41-50	4	0	0	0	1		
	51-60	4	0	0	0	0		
Gender	Male	44	9	6	1	2	7.038	0.134
	Female	52	5	15	6	3		

Marital Status	Married	38	4	7	2	4	24.145	<0.001*
	Unmarried	58	10	14	4	1		
	Divorced	0	0	0	1	0		
Working hours	≤ 5	3	0	0	1	0	9.64	0.648
	6-10	86	11	18	5	4		
	11-15	6	3	3	1	1		
	> 15	1	0	0	0	0		
Years of experience	1-5	50	7	17	4	3	18.205	0.312
	6-10	33	6	4	3	1		
	11-15	5	1	0	0	0		
	16-20	2	0	0	0	1		
	> 20	6	0	0	0	0		

n - frequency, % - percentage, * *P* - value < 0.05 is considered significant

Stress did not have statistically significant association with gender, age, years of experience and working hours. But it was noted that married individuals were more stressed than the unmarried individuals and divorced

sample couldn't be considered due to small number. Highlighting the statistically significant association between married individuals and stress levels (Table 06).

Table 6: Association between age, gender, marital status, working hours and years of experience with severity of Stress.

Parameters		Stress Severity			Chi-Square test	
		Normal	Mild	Moderate	χ^2 Value	<i>P</i> Value
Age	21-30	101	11	6	4.466	0.614
	31-40	14	2	0		
	41-50	4	0	1		
	51-60	4	0	0		
Gender	Male	54	6	2	0.679	0.712
	Female	69	7	5		
Marital status	Married	46	3	6	17.61	<0.001*
	Unmarried	77	9	1		
	Divorced	0	1	0		
Working hours	≤ 5	4	0	0	6.831	0.337
	6-10	109	10	5		
	11-15	9	3	2		
	> 15	1	0	0		
Years of experience	1-5	69	8	4	7.139	0.522
	6-10	41	4	2		

	11-15	5	1	0		
	16-20	2	0	1		
	> 20	6	0	0		

n - frequency, % - percentage, * *P* - value < 0.05 is considered significant

Discussion

Among the IT professionals our study reported majority study participants were aged 21-30 years i.e., 82.5%, which is similar to the findings of Ramesh N et al.⁹ and Ghatule A et al.¹⁰ reported higher number of participants aged 21-30 years and least among those > 40 years. Mean age of our study sample was 29.1 ± 6.76, similar to study of Ramesh N et al.⁹ where mean age of sample was 29.23.

Our study had female predominance of 56.6% unlike studies by Ramesh N et al.⁹, Rajendran AJ et al.³ and James C et al.¹¹ whose sample had male predominance. Our sample had more unmarried individuals 60.8% than married, similar findings were seen in studies conducted by James C et al.¹¹ and Ghatule A et al.¹⁰

Our study reported work issues (61.5%), financial issues (43.4%) and health related (35%) issues as the major stressors, other stressors like interpersonal relationship issues, marital conflicts and education contributed to 46.1% and 21% of the sample reported not having any stressor. Some studies reported work as the major stressor contributing to Stress, Anxiety and Depression. With contributing factors being long working hours, heavy workload, job uncertainty and poor work life balance.

Depression was found in 32.2% of the sample, 32.9% had anxiety and 14% had stress in our study. The findings are similar to results of Rajendran AJ et al.³ who reported Depression in 42%, anxiety in 54% and stress in 18% of his sample. A study by James C et al.¹¹ reported 18.35%, 18.3% and 23% of depression, anxiety

and stress respectively. A study by Ramesh N et al.⁹ reported 13 of the 149 experienced stress. And also concluded none of them required immediate clinical intervention.⁹ The global prevalence of depression and anxiety are 12.9% and 4% respectively.⁷ This alarmingly high prevalence of Depression and Anxiety among the IT professionals more than the general population highlights the need for mental health screening programs in IT sectors. Problem solving, coping strategies and stress management has to be inculcated along with the busy work schedules. Prevention Strategies and help seeking behaviour need to be taught. Early intervention can help in reduction of severity of the conditions.

Age, working hours, years of experience and gender had a statistically significant association with scores of depression. Younger individuals were more depressed than older individuals. Longer the working hours more was the depression, beginners had more depression compared to the experienced professionals. No similar association was found between marital status and depression. There is statistically significant association between marital status and anxiety and stress. It was noted that married individuals were more stressed and unmarried individuals were more anxious. No similar associations were found between the other variables and scores of anxiety and stress. Very few researchers studied the association between the variables and DASS 21 scores. One study reported statistically significant association between age and perceived stress where younger individuals were more stressed.³

Since depression has multifactorial causation and has no single risk factor. Younger age group, female gender, longer working hours and beginning years of career as an IT professionals can be considered as some of the risk factors for depression. Since unmarried study population reported more anxiety, mental health interventions of anxiety management can be more focussed on unmarried population. Since the married individuals reported more stress, stress management techniques focusing on marital issues can be addressed in this group.

Conclusion

From the study it can be concluded that individuals working in IT are more prone to Depression and Anxiety due to various stressors, with major stressors being work, financial and health. With workplace pressure, deadlines, overwork, underpayment being the contributing factors. Association between depression and age, gender, working hours and years of experience was found to be statistically significant. Age and female gender are non-modifiable factor, but working hours can be modified. It was also found that unmarried individuals experienced more anxiety and married individuals experienced more stress.

Our study revealed more than 30% of the individuals has Depression and Anxiety with 14% experiencing stress. The numbers are alarming, hence to mitigate these mental health issues, the company must initiate prevention strategies like stress management, regular screening for mental health issues. Promote, develop and address solution to mental health issues at work place in initial stages. Special emphasis can be placed on female staff. Focusing on stress management and addressing marital issues in married population and addressing anxiety issues in unmarried population plays a significant role. This will help in creating a healthy and

stress-free working environment, which will increase the overall work productivity, in turn contributing to improvement of global economy.

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