

## SOURCES OF JOB STRESS IN ENGINEERING FACULTY : A STATISTICAL STUDY

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### **ABSTRACT:**

As the present scenario is circulating around anxiety and people are given to put extra emphasis because they think that it is important. Stress is considered to be an important problem among teachers. Teachers in the universities perform their jobs in various environments. Therefore the psychological problems of teachers caused by work conditions, their perception of work environment and how they cope with these problems differ. This study investigates factors that contributed stress and the level of professional stress among engineering faculty. There were five factors to analyze the stress in this study: Work stressors, role stressors, personal development stressors, interpersonal relation stressors and organizational climate stressors (Telaprolu and George, 2005). The research includes 150 faculty members and the data collected from them is analyzed by using frequency, percent average, standard deviation, t-test and Analysis of variance(ANOVA). The data obtained from the research is analyzed and evaluated. The ways that could decrease the stress of teachers are proposed.

**Keywords:** Job stress, Engineering faculty, Working conditions, ANOVA, t-tet.

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**INTRODUCTION:**

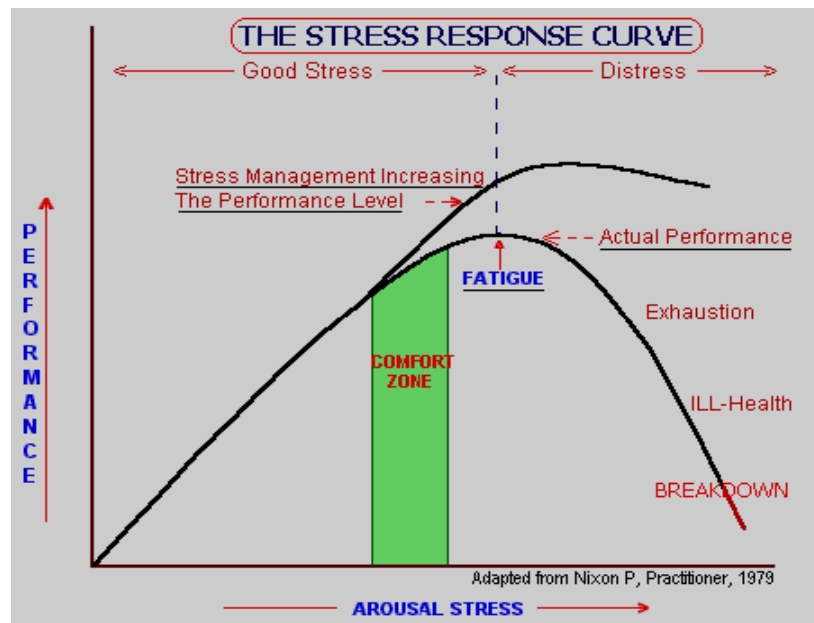
Stress at work is a relatively new phenomenon of modern lifestyles. The nature of work has gone through drastic changes over the last century and it is still changing at whirlwind speed. They have touched almost all professions. Traditionally university teaching has been perceived as a stress-free profession, particularly by those who are not related to this profession (Fischer, 1994) however since the last two decades with the inflow of many private sector universities, higher education institutions are commonly labeled as stressful environments (Barkhuizen & Rothmann, 2008). During the last decade, a fast growth has been observed in higher education institutions, particularly in developing countries, leading to higher competition and deteriorated organizational climate in most of the public and private sector universities (Rajarajeswari 2010). Just like the corporate sector, in this era of change the responsibilities of academicians have increased, and now faculty members are supposed to play many other roles besides their traditional roles of teaching and research. Role stress is a burning issue now a days, particularly in this context. stressful encounters over a long period of time lead to reduced physical and mental well-being (Burke & Greenglass, 1995) and can end up in a chronic state of exhaustion or burnout (So-Kum Tang et al., 2001). Behavioral symptoms of teacher stress include poor time management, inability to concentrate, irritation and aggression, withdrawal from supportive relationships, abuse of alcohol, caffeine or tobacco and, if not managed properly, it leads to absenteeism, resignation, conflict with students and turnover intentions (Stevenson and Harper, 2006).

Job stress has been defined as the nonspecific response of the body to any demands made upon it (Selye, 1976). Another definition given by Stephen Robbins (1999) stress has been stated as “a dynamic condition in which an individual is confronted with an opportunity, constraint or demand related to what he or she desires and for which the outcome is perceived to be both uncertain and important.” McGrath defined stress from a psychological point of view which is an interaction between the individual resources and environmental demands. Stress is an inevitable and unavoidable component of life due to increasing complexities and competitiveness in living standards. The speed at which change is taking place in the world today is certainly overwhelming and breathe taking. In the fast changing world of today, no individual is free from stress and no profession is stress free. Everyone experiences stress, whether it is within the

family, business, organization, study, work, or any other social or economical activity. Teacher stress seems to be a universal phenomenon. Teaching is a highly stressful career, and teachers are leaving the profession at an alarming rate (Hanushek, 2007; Ingersoll, & Smith, 2003). According to the most recent Teacher Follow-up Survey, 32% of teachers who changed institutions cited “poor working conditions” as an important reason for their decision, and over 37% of teachers who left the profession stated they were leaving to “pursue a job outside of teaching” (Cox et al., 2007). Geving (2007) found that poor student behavior is a main contributor to teacher stress. Other cited reasons for teacher stress are lack of administrative support (Blase, Blase, & Du, 2008; Lambert et al., 2006) and the excessive number of tasks that are required of new teachers who have not acquired successful task-management skills (Brown, 2005).

### Stress and Performance:

To better understand the effects of stress to performance, Nixon, P. (1979) created the following graph of the stress performance curve explaining how stress affects performance in theoretical terms.



The curve shows that as the level of stress increases, the performance level also increases, to the point of eustress, or healthy tension. Near the point of fatigue, an identified area called the Comfort Zone indicates the range of stress levels that we can absolutely manage and facilitates good performance levels.

As stress begins to be perceived as overwhelming or excessive, the person reaches a fatigue point wherein the performance levels starts to decline. The ultimate end of overwhelming stress, called burnout, can be exhaustion, ill-health or breakdown.

## II. Review of Literature:

Job stress has been defined as the nonspecific response of the body to any demands made upon it (Selye, 1976). It is considered to be an internal state or reaction to anything we consciously or unconsciously perceive as a threat, either real or imagined (Clarke & Watson, 1991). In 2000, Wiley reported that the consequences of stress can take the form of behavioral characteristics like Disturbing the interpersonal relationships or decrease in the work performance. He also found that some amount of stress experienced by the teachers is due to school's culture and climate. Several studies have shown that occupational stress can lead to various negative consequences for the individual and the workplace (Oginska-Bulik, 2006). Stress in the workplace can ultimately rob people of their spirit and passion for the job, resulting in impaired individual functioning (Fairbrother & Warn, 2003), low motivation (Vakola & Nikolaou, 2005), decreased morale (Faragher et al, 2004; Salmond & Ropis, 2005), dampened initiative, reduced interest in working (Fairbrother & Warn, 2003), high absenteeism rates (Ho, 1997), decreased capacity to perform (Michie, 2002), poor job performance (Jepson & Forrest, 2006), reduced efficiency (Shain, 1999), poor quality control, decline in productivity (Faragher et al, 2004;) and low quality products and services (Vakola & Nikolaou, 2005). Occupational stress can also lead to loss of a sense of responsibility, lack of concern for colleagues (Fairbrother & Warn, 2003), breakdown in personal relations with colleagues, low levels of mutual understanding and tolerance, irritability, indecisiveness, poor communication, poor interpersonal skills, feelings of isolation and alienation (Brown et al, 2002), loss of capability to regulate one's own emotions (Oginska-Bulik, 2005), reduced job satisfaction, poor organizational commitment (Vakola & Nikolaou, 2005), problems of staff retention (Jepson & Forrest, 2006), early retirement (Michie, 2002), and premature death (Rodham & Bell 2002).

The stressful conditions results in decrease in communication, motivation, performance etc. Stress can be caused by environmental, organizational, and individual variables (Matteson & Ivancevich, 1999; Cook & Hunsaker,2001). Organizational-based factors have been known to induce job stress for employees at the workplace (Greenhaus & Beutell, 1985). These factors are commonly termed as organizational stressors since they serve as agents that trigger the various stress reactions (Von Onciul, 1996). Among the numerous organizational sources of stress, only five variables were investigated in this study namely Work stressors, role stressors, personal development stressors, interpersonal relation stressors and organizational climate stressors (Telaprolu and George, 2005).

### III Objectives of the study:

The present study is carried with the following objectives:

1. To know the demographic profile of university faculty members.
2. To study the factors influencing stress among the faculty members.

### IV Methodology:

Selection of factors causing stress is adopted from the heavy literature review is being studied. The instrument developed by Telaprolu and George (2005), was adopted in this study to measure the level of stress among the university faculty. A pilot study was conducted on 20 faculty members of university Colleges of Andhra Pradesh. The reliability of overall scale was  $\alpha=0.8125$ . Every item in the instrument is logically linked with the objectives of the study, backed by the literature review, which ensures its validity. The instrument consists of two parts. First part consists of questions related to demographic variables such as gender, age, salary, designation, type of the institute etc. Second part consists of questions related to measurement of various stressors identified as potential source of stress. They are Work stressors, role stressors, personal development stressors, interpersonal relation stressors and organizational climate stressors. second part consisted of 46 statements and had a five-point scale as 'always', 'frequently', 'sometimes', 'rarely' and 'never' with scorings as 4,3,2,1 and 0 respectively. The range of scores was 0 to 184. Based on the total scores, the level of stress was quantified as follows

Category	Range	Score
Low stress	0 – 46	1
Moderate stress	47 – 92	2
High stress	93 - 138	3
Extreme stress	139-184	4

The data was collected using stratified random sampling technique by covering faculty of technical / non-technical institutions of Andhra Pradesh. Out of 200 questionnaires were sent to faculty members of degree and engineering colleges, 170 were return and 150 were used for analysis. The data was analyzed through SPSS software to give statistical treatment for descriptive statistics, t-test and one-way ANOVA tests.

#### IV Analysis and Interpretation of data:

The results of the analysis of the collected data are presented below:

##### (a) Socio-demographic variables of respondents:

The age of participants in this study ranged from 24 to 60 years old with an average of 37 years and 8.5 years of standard deviation. Their experience ranged between one and 34 years with an average of 9 years and 7 years of standard deviation.

**Table-1 The frequency distribution of faculty socio-demographic variables.**

Particulars	Category	Frequency	Percentage
Gender	Male	100	66.67%
	Female	50	33.33%
Age	Below 30 years	65	43.33%
	30 – 40 years	55	36.67%
	Above 40 years	30	20.00%
Marital Status	Single	35	23.33%
	Married	115	76.67%

Education	Graduation	10	06.67%
	Post Graduation	95	63.33%
	Doctorate/ Post doctorate	45	30.00%
Experience	Less than 3 years	30	20.00%
	3-6 years	72	48.00%
	6-9 years	27	18.00%
	Above 9 years	21	14.00%
Salary	Less than 10,000	20	13.33%
	10001-20000	27	18.00%
	20001-30000	54	36.00%
	30001-40000	33	22.00%
	Above 40000	16	10.67%
Designation	Assistant Professor	102	68.00%
	Associate Professor	32	21.33%
	Professor	15	10.00%
Dependents	1	23	15.33%
	2	37	24.67%
	3	79	52.67%
	4 & above	11	07.33%

(Basis: Primary data)

It could be evidenced from the Table-1 above, the sample consists of 66.67% of male respondents and 33.33% of female respondents. Age of the respondents are bifurcated into three divisions, 43.33% of respondents are less than the age group of 30 years, 36.67% of respondents are falling in the age group from 31 years to 40 years and remaining 20% of respondents are in the age group of more than 40 years. Marital status of the respondents shows that 76.67% are married and 20% are single and less than 3.3% belonging to divorced and widow category. The sample consisting of 6.67% respondents are undergraduate degree holders, followed by post graduate degree holders to the tune of 63.33% and remaining 30% are doctorates from the sample. The experience shows that 20% of the respondents has less than three years, 48% of respondents has three to six years, 18% of respondents has six to nine years and 14% are of above nine years experience. 36% of the respondents are drawing salary in the range of 20,001 -

30,000 per month and 68% of respondents are Assistant professors. Number of dependents shows that 52.67 % of respondents have to focus 3 dependents in their family.

**b) Stress Factors and Stress level:**

**Table -2: Source of Stress mean and standard deviations**

Faculty stress factors	N	Mean	Standard Deviation	Co-efficient of Variation
Work stressors	150	1.94	0.67	34.53%
Role stressors	150	1.75	0.58	33.14%
Personal development stressors	150	2.07	0.61	29.47%
Interpersonal relation stressors	150	1.90	0.54	28.42%
Organizational climate stressors	150	1.89	0.64	33.86%



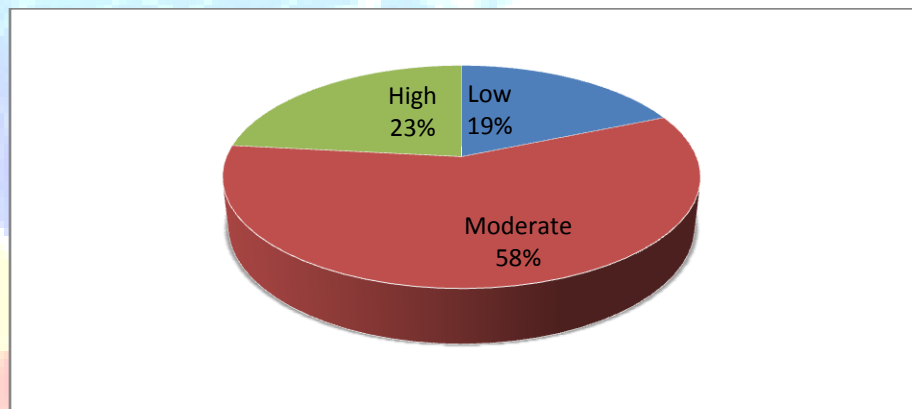
Table-2 shows the mean ratings and standard deviations to the five sources of stress for the whole sample. The means ranged from 1.75 to 2.07; standard deviations form 0.54 to 0.67. As evidenced by the mean ratings, the top source of stress university faculty is Personal development stressors with mean score 2.07 (highest) and standard deviation 0.61. This followed



by faculty work stressors (with mean 1.94 and S.D 0.67), Interpersonal relation stressors(with mean 1.90 and S.D 0.54), Organizational climate stressors( with mean 1.89 and S.D 0.64) and Role stressors(with mean1.75 and S.D 0.58).

**Table -3 : Faculty overall stress: Frequency and Percentage**

Stress level	Frequency	Percentage
Low	28	18.67%
Moderate	87	58.00%
High	35	23.33%
Total	150	100.00%



It could be seen from the Table-3, 58 percent of respondents fall into the moderate stress category. Results also showed that 23.33 percent and 18.67 percent of respondents having high and low stress respectively for overall stress.

#### **Stress with respect to demographic variables:**

Independent t-test and one-way ANOVA are applied to check whether any significance difference exists among the stress scores of faculty members of different demographic variables such as gender, marital status, age, income and type of the institution etc.,

#### **i) Gender differences in stress levels:**

**Table-4. Comparison of the means for overall stress between the male and female faculty members**

Gender	N	Mean	S.D	t-value	Sig.
Male	100	1.90	0.51	0.432	0.673
Female	50	1.87	0.44		

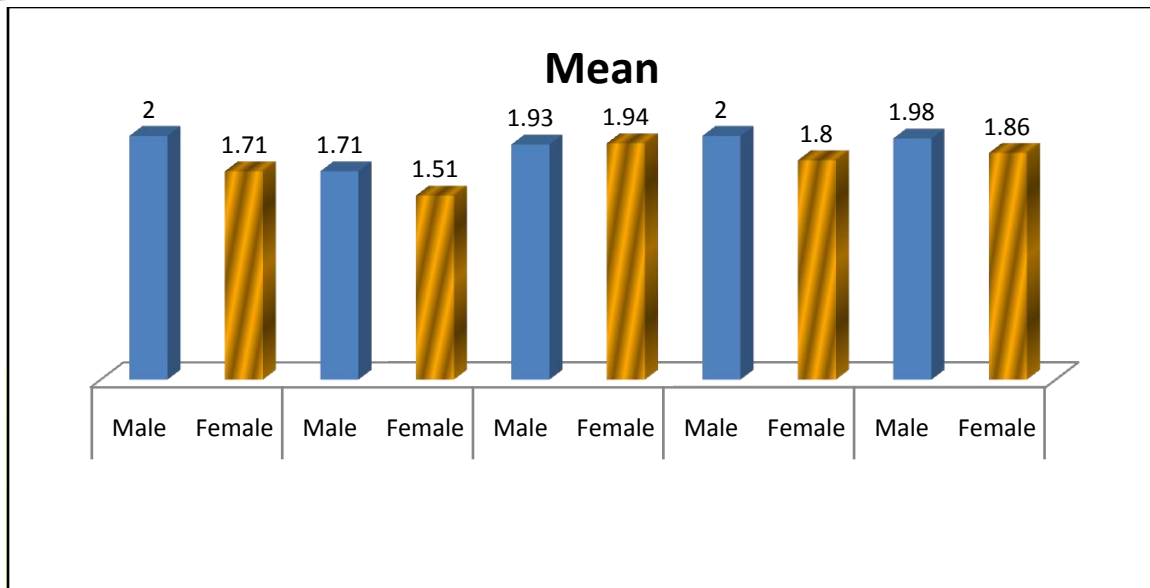
\* $p < 0.05$

Table-4 shows that there is no significant difference between the overall stress scores of male and female faculty members ( $p$ - value  $> 0.05$ ). Independent t-test is applied to check whether there is any significant difference between individual stress factors for gender. Table- 5 shows that there exists a significant difference between male and female only for work stressors.

**Table-5. Comparison of the means of male and female faculty members with respect to stress factors**

Factors	Gender	N	Mean	S.D	t-value	Sig.
Work stressors	Male	100	2.00	0.64	2.006	0.048*
	Female	50	1.71	0.62		
Role stressors	Male	100	1.71	0.55	1.513	0.134
	Female	50	1.51	0.61		
Personal development stressors	Male	100	1.93	0.65	-0.063	0.95
	Female	50	1.94	0.68		
Interpersonal relation stressors	Male	100	2.00	0.60	1.441	0.154
	Female	50	1.80	0.63		
Organizational climate stressors	Male	100	1.98	0.50	0.98	0.33
	Female	50	1.86	0.60		

\* $p < 0.05$



ii) Marital Status Differences in Stress Levels:

Table-6 Comparison of the means for overall stress between un-married and married faculty members

Marital status	N	Mean	S.D	t-value	Sig.
Married	115	2.10	0.68	0.5617	0.421
Un-married	35	1.89	0.59		

\*p< 0.05

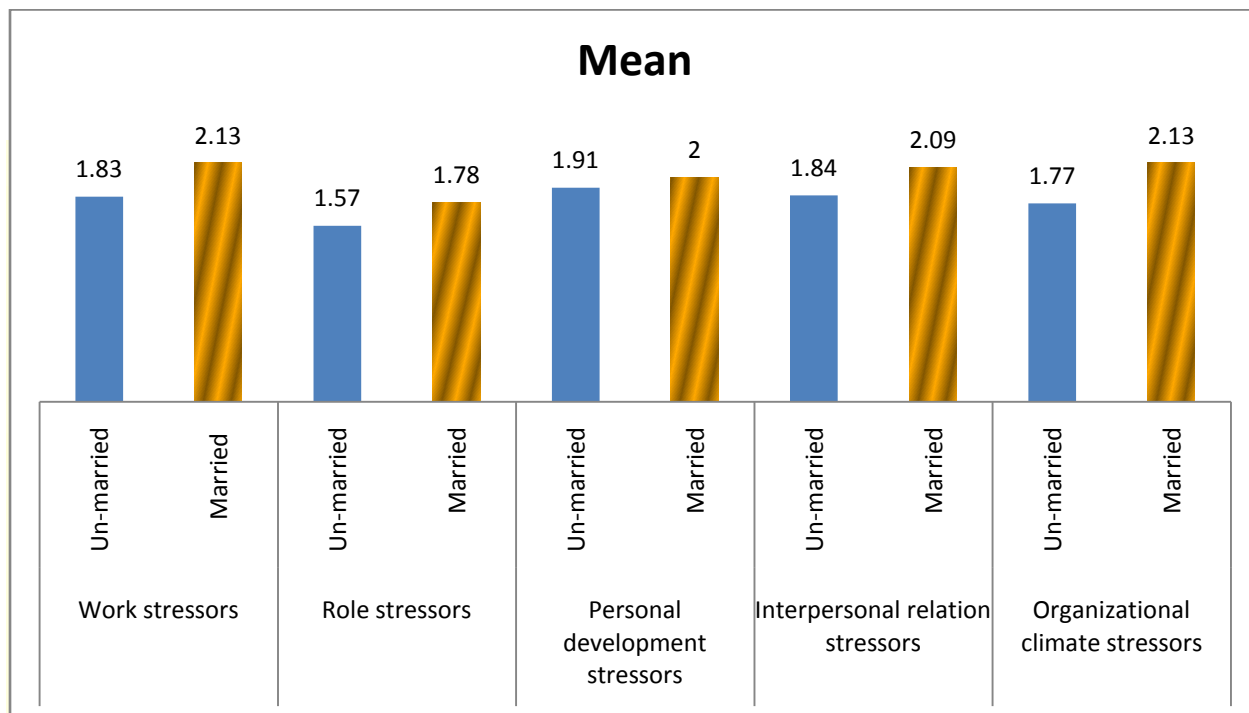
Table-6 shows that there is no significant difference between the overall stress scores of un-married and married faculty members (p- value >0.05). independent t-test is applied to check whether there is any significant difference between individual stress factors for marital status. Table-7 shows that there exists a significant difference between un-married and married faculty members with respect to Work stressors, Role stressors.

Table- 7.Comparison of the means of un-married and married faculty members with respect to stress factors

Factors	Marital status	N	Mean	S.D	t-value	Sig.
Work stressors	Un-married	35	1.83	0.56	-2.188	0.032*
	Married	115	2.13	0.46		
Role stressors	Un-married	35	1.57	0.66	-2.315	0.023*
	Married	115	1.78	0.55		
Personal development stressors	Un-married	35	1.91	0.69	-0.533	0.595
	Married	115	2.00	0.60		

Interpersonal relation stressors	Un-married	35	1.84	0.70	-1.614	0.110
	Married	115	2.09	0.29		
Organizational climate stressors	Un-married	35	1.77	0.54	-1.553	0.125
	Married	115	2.13	0.67		

\*p < 0.05



iii) Age Differences in Stress Levels:

Table- 8. One-way ANOVA represents overall Stress and Age

Stress	Sum of squares	d.f	Mean squares	F	Sig
Between groups	2.995	2	1.497	5.607	0.005*
Within groups	20.555	147	0.267		
Total	23.550	149			

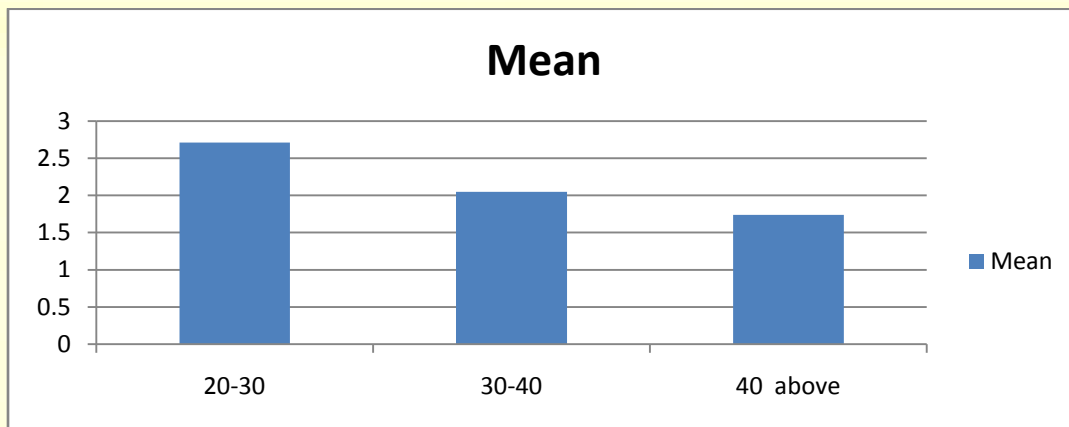
\*p < 0.05

Table -8, the result of the One-way ANOVA shows that there is a high significant difference exists among the stress scores of faculty members because of their age (p-value < 0.05). The average stress score of faculty members with respect to their age are as follows.

**Table -9. Means of the stress experienced at different Age groups**

Age in years	N	Mean	Standard Deviation
20-30	65	2.71	0.42
30-40	55	2.05	0.61
40 above	30	1.74	0.65

The descriptive table-9 shows that the young faculty members have high average stress than older ones. As the age increases, the stress decreases. It may be attributed to the experience of the faculty members, who with experience would learn to cope up.



**iv) Designation Differences in Stress Levels:**

**Table- 10. One-way ANOVA represents overall Stress and Designation**

Stress	Sum of squares	d.f	Mean squares	F	Sig
Between groups	4.313	2	2.156	10.467	0.004*
Within groups	30.375	147	0.206		
Total	34.688	149			

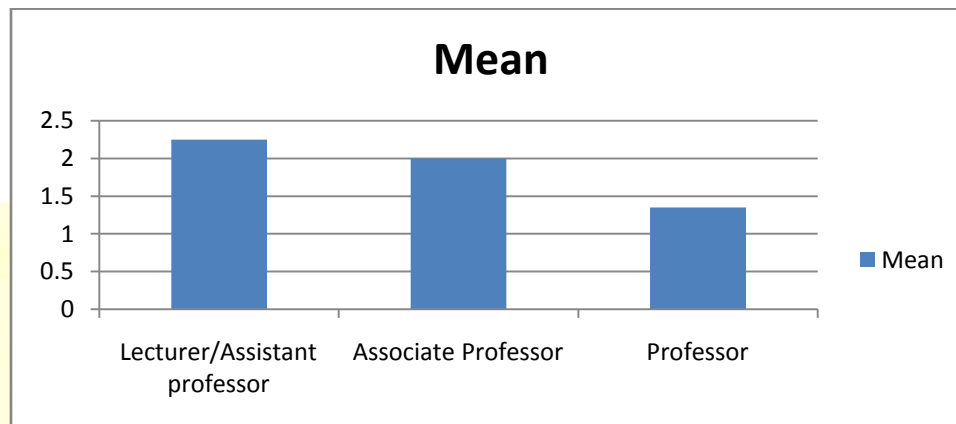
\*p < 0.05

Table-10 shows that there is a significant difference exists among the stress scores of faculty members at different designation levels (p-value < 0.05)

**Table -11. Means of the stress experienced at different designation levels**

Designation	N	Mean	Standard deviation
Lecturer/Assistant professor	102	2.25	0.61
Associate Professor	32	2.00	0.66
Professor	15	1.35	0.47

From the table-11, the average stress of faculty at lower designation is higher as compared to faculty at higher designation; hence as the faculty moves up in designation, the stress level comes down.



### Conclusion:

Occupational Stress is not only confined to employees working in business houses alone, but also very much prevalent among teaching faculty especially working in higher education. In the study, level of stress and the types of stress the teaching faculty undergo is assessed including the various factors that contribute to their stress level. It is observed that the overall stress level is moderate among the teaching faculty with average score of 1.91 and a s.d. of 0.61. Faculty under the age group of below 30 and who are in the designation of Assistant Professor are experiencing more stress compared to others. This is attributed to their experience to cope up with the stress. Gender has significant difference in work stressor, as the male faculty take profession more seriously than the female being the major bread earners for the family. Marital status is having significant difference in work stressors and role stressors, as married have to restore work life balance. The institutions may focus on causes of work stress and initiate steps for a better work environment and guide them through training and counseling. Institutions also may take up measures to provide better work life balance to the faculty.

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