



Comparative study of Stress Male and Female of Final Year Engineering Students

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ABSTRACT

Engineering education in India rooted during the British era. It started with the main focus on Civil Engineering and now expanded its branches in different specialized areas. The diversified braches of engineering provides wide opportunities of employment in various public and private organizations with handsome packages. This has resulted in popularity of engineering courses across the country. To meet the demand for engineering courses, India is increasing its sanctioned intake for engineering courses. In the last five years 2011-2015 the sanctioned strength grew from 1.15 lakhs to 5.51 lakhs. The number of female students enrolling for engineering courses has also showed tremendous increase in last decade. Today, a large number of Indian engineers have left remarkable impact on the world internationally. To attain these positive outcomes, students have to face many problems and challenges during undergraduate engineering courses. The process of professional education is often stressful. Various studies across the globe have emphasized that students undertaking professional courses, such as medical and engineering studies are subjected to higher stress. Excessive stress could lead to psychological problems like depression, anxiety and also it may cause suicides.

I.INTRODUCTION

Engineering and Medical are considered as one of the most esteemed profession in India. When kids in India are asked what they want to be when they grow up – the first answer that that comes immediately in their mind is engineer or doctor. A majority of students wish to pursue education in engineering and medical after 10+2 level. This demand for engineering courseshas resulted in mushrooming of many private engineering colleges across the country. Now it has become easier for students to get admission for engineering courses. But the road is still not smooth for the students. They have to face many challenges and problems during the four years of their graduation. The nature of problems that students face during undergraduate engineering course is different for different semesters and for gender. These problems and challenges are discussed in the next section of this research paper. Final year engineering students are introduced to various stressors which lead to stress and anxiety during four year undergraduate engineering programme. Researchers interviewed the participants and discussed about the major stressors. The information collected from students present a brief overview of major stressors to the students.



STRESSORS TO FINAL YEAR ENGINEERING STUDENTS

During the three years of studies, students accommodate themselves to the new environment, make new friends, get used to for examinations and other home works, understand the subjects, and prepare themselves for self study. When student enroll for final years, he is introduced with new stressors. After completing his graduation, students have to struggle to make their career in the field they have chosen four years back.

The first challenge for the students is to get good campus placement. Students have to train themselves well for the job market. This requires many additional certificates which make the resume more attractive and convincing for the employers, enhance communication skills, an up-to-date knowledge about new technology, the basic knowledge of the subject learned during four year engineering programme and get in touch with recruiters by various means. Here students face fewer burdens of studies but more burdens of mini and mega projects that they have to submit in final year. Preparing for various entrance examinations to get admission in good universities for higher studies and placements in public and private organizations is an additional academic burden on students during the final year.

This is the time when students are involved in close friendship, personal or romantic relationships. There is always fear of separating from partner and losing a relationship. In addition to these, expectations from parents, responsibilities towards family also create stress and anxiety among final year students

STRESSORS TO FEMALE ENGINEERING STUDENTS

These stressors discussed above are common to both male and female students. But still female students encounters with some additional problems. Even though the number of female students appearing for engineering has increased since last decade, but still male dominance has not changed. Female students are aware that they are entering is a field which is classically dominated by males. This creates emotional problems which affects female engineers. The gender bias is even severe in Mechanical and Civil Engineering fields, where more than 90% of the class population is dominated by male. Most of the professors are male and the delivery of material is tailored towards men. The minority in most classes' makes women feel like that they need to prove themselves to their professors, male counterparts and industry leaders. Also, there is a lack of female companionship and there are high levels of competitiveness within the women in classes, which contributes to feelings of isolation and loneliness.

By studying these stressors it can be concluded that stress is an inevitable part of engineering student's life. Male or female, first year or final year students, everyone reports lesser or higher degree of stress and anxiety. However, the major focus of the present paper is to help these students to formulate proper coping strategy.

Stress is a part and parcel of everyone's life. However, the term "stress" is interpreted negatively by most of the people. For those people who interpret stress negatively, stress is something that is negative and unpleasant. Without proper knowledge about their stress level, people use stress and anxiety interchangeably. For adapting proper stress management

strategies, it becomes extremely important to understand one's level of stress and anxiety. In the present study an attempt has made to examine the stress and anxiety level of students. This will be a primary step for formulating proper counseling and stress management strategy.

II. METHODOLOGY

OBJECTIVES OF THE

STUDY:

1. To assess the proportion of students with Depression, Anxiety and Stress in their final years of Engineering.
2. To find out the impact of Depression, Anxiety and Stress in their life and to help them to overcome it.

PARTICIPANTS

The current study was conducted at a private engineering college. The sample consisted of 200 undergraduate engineering students. These students are selected randomly and studying in various private engineering institutions in first year and final year at different branches of engineering. The age of the students ranges between 18-23 years. These students belong to different socio-economical background. The details of the sample are presented in table 1.

Table 1: Description of sample size

Education Level	Gender	N	Total
First Year	Male	42	100
	Female	58	
Final Year	Male	65	100
	Female	35	

After obtaining the scores of each of the subject on stress and anxiety, the data was analyzed using SPSS 20 (Statistical Package for the Social Sciences). Two Way ANOVA was used to compare the means of the groups of students. The mean and standard deviation for stress scores are presented in table 2.

Edu_level	Gender	Mean	Std. Deviation	N
R . S . S w a t h i				Page 3

First Yr	Female	5.3103	3.29916	58
	Male	6.7143	3.96500	42
	Total	5.9000	3.64179	100
Final Year	Female	4.9143	2.87352	35
	Male	4.9077	3.63887	65
	Total	4.9100	3.37578	100
Total	Female	5.1613	3.13567	93
	Male	5.6168	3.85503	107
	Total	5.4050	3.53745	200

Table 2: Mean and SD for stress scores

The results of the table shows that the first year students have obtained the mean score of 5.90 indicating their high stress score than the final year students who obtained the mean score of

4.91. For gender, the obtained mean scores are female ($M = 5.1613$) and male ($M = 5.6168$) shows that male students reported more stress than female students. To find whether there is any statistical significant difference in mean of stress level, a two way analysis of variance was applied. The results of Two Way ANOVA are discussed below

Table 3: Table showing results on Two Way ANOVA for stress scores

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	97.021 ^a	3	32.340	2.649	.050

Gender	22.970	1	22.970	1.881	.172
Edu_level *					
Gender	23.405	1	23.405	1.917	.168
Error	2393.174	196	12.210		
Total	8333.000	200			
Intercept	5614.533	1	5614.533	459.828	.000

Corrected Total	2490.195	199			
a. R Squared = .039 (Adjusted R Squared = .024)					

The Two Way ANOVA showed no significant main effect of gender on stress level of students, $F = 1.881, p > .05$. The main effect of education level was significant, $F = 4.674, p < .05$. Hence first year students experienced more stress than final year students. Also, the interaction between gender and education level was not significant, $F = 1.917, p > .05$. The effect of gender on stress was the same for each age group.

Table 4: Mean and SD for anxiety scores

Edu_level	Gender	Mean	Std. Deviation	N
First Yr	Female	6.9655	3.16209	58
	Male	7.2143	3.08842	42
	Total	7.0700	3.11806	100
	Female	6.0857	3.14709	35

Final Yr	Male	5.6000	3.18591	65
	Total	5.7700	3.16501	100
Total	Female	6.6344	3.16841	93
	Male	6.2336	3.23186	107
	Total	6.4200	3.20075	200

From table 4, first year students mean score on anxiety is $M = 7.07$, and final year students mean score on anxiety $M = 5.77$. This shows that first year students reported more anxiety than final year students. Also mean anxiety score of male student ($M = 6.23$), female student ($M = 6.63$) show that female students reported more anxiety than male students. A two way ANOVA was carried out to find the statistical significance difference in mean anxiety scores.

III. LITERATURE SURVEY

There has been extensive research on college students' stress and anxiety so far. The major focus of these studies was identifying the stressors for college students and how it affects the physical and mental well being and finally the academic achievement of the students. A number of studies have been conducted on engineering students so far. Lindsay E. D, Rogers H. (2010) in their study presented data gathered from first-year engineering students regarding their perceptions of their levels of stress and workload throughout a semester of study. Stress is investigated both as an absolute measure, and also as a measure relative to the students' perception of 'normal'. Fedler R, Fedler G. N, Hamrin C. E, Dietz E. J. (1995) examined gender differences in chemical engineering students' academic performance. Zhang G, Anderson

T. J, Ohland M. W, Thorndyke B. R. (2004) work is useful for improving understanding of factors that influence retention of engineering students. this study provide help in suggesting approaches to improving student success in engineering, and also aid for counseling and advising of students seeking an engineering degree. Behare S, Yadav R, Behare P (2011) in an interesting study identified the quality and quantity of stress in medical, engineering, and nursing students. B. Elamurugan (2013) investigated the sources of stress among engineering college students in villupuram district, Tamilnadu. Kumar S, Bhukar J. P, (2013) investigated the stress levels and coping strategies of professional students belonging to Physical Education and Engineering professions. Raghavendran, JGajendra Naidu, (2014) study aimed at measuring academic stress for engineering students. Rizwan A., Farooq S, Alvi M.S.I. & Nawaz S. (2012) analyzed the factors that affect the stress level of female engineering students. In a recent study Pyari, D (2015) compared the anxiety and depression of engineering and medical students. Results revealed significant difference in anxiety level of engineering and medical students, whereas no significant difference was found in depression level of both the students.



III. SUGGESTIONS

1. The study concluded that the final year students go through tremendous amount of anxiety level means extremely high when compare to their stress and depression level. Students are anxious about their job and responsibilities towards their family and society.
2. Institutes are required to conduct stress management programmes well in advanced, so that students will know how to balance their stress level.
3. Colleges needs to encourage and arrange personal counselling to those students, so that they will know that they are worth and have a better future.
4. We can suggest for mentorship programmes which is well practised in foreign colleges and also some of the popular Engineering institutions in India.
5. Institutes have to organize skill oriented programmes for students from their first year onwards, so that they will update themselves with necessary skills which the companies seek for.

IV. CONCLUSION

From the above results and discussion it is clear that first year students reports more stress and anxiety than final year students. Hence, the institutes must undertake the stress management programme for the new entrants so that they will be able to manage their stress and anxiety level and concentrate more on studies. However, the study showed less impact of gender on stress and anxiety level of students.

This study also concludes that in order to improve physical and mental health of the engineering students, institutes should plan proper counseling strategy periodically. These counseling sessions will be helpful for students to express their problems freely to the counselor. This will help students in many aspects. Students can enhance optimism, boost confidence in students and enable them to cope up with stress and anxiety. It will be beneficial for improving overall mental health of students.

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