Impact of Depression, Anxiety and Stress on Academic Achievement among Engineering Students

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ABSTRACT

The present study is aimed to find the relationship of Depression, Anxiety and Stress with Academic achievement among engineering students. The target population of the study comprised of students of few Engineering colleges under VTU (Visvesvaraya Technological University). For the study, a sample of 20 Undergraduate students of the Visvesvaraya Technological University (studying Engineering) was taken. The Beck’s Depression Inventory, Beck’s Anxiety Inventory, and Cohen Perceived Stress Scale were used to measure the level of depression, anxiety and stress respectively among the students. The in-depth investigation of the findings obtained through this study reveals that there exists a relation between Depression, Anxiety and Academic score of students. Level of Stress was found high for both Low and High scorers. The findings of the study will be useful in assisting Educators, Counselors, Psychologists, and Researchers to develop strategies to enhance students’ psychological well-being.

Keywords: Anxiety, Beck, Depression, Inventory, Stress, Low and High Achieving Students, University.

Depression, stress, and anxiety are among the psychological problems that are common among students. According to Porter (1990), up to 60% of university students left university without finishing their degrees; the majority of these students leave within the first two years due to inability to manage these psychological conditions, especially to cope with stress. Steinberg and Darling (1994) mentioned that 50% of university students who consulted mental health service complained of difficulties in study, anxiety, tension, and depression. They reported that these conditions contributed to poor grades in courses.

Depression, anxiety, and stress were found to be interrelated to each other. The overlapping symptoms of these three psychological problems can lead to all sorts of academic problems that can give impact to academic achievement among student. It has been found that students’

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performance in school, college, and university is influenced by the symptoms of depression (Fine & Carlson, 1994; Stark & Brookman 1994), stress (Dusselieir, Dunn, Wang, Shelly, & Whalen, 2005), and anxiety (Anson, Bernstein, & Hobfoll, 1984) which could lead to difficulties in concentration, lack of motivation and interest, poor attendance, and physical health such as headache and fatigability. These conditions will influence students’ academic achievement.

350,000,000 numbers of people globally are affected by some form of depression. 11% percentage of adolescents has a depressive disorder by the age of 18. 70% percentage of women are more likely than men to experience depression in their lifetime. 16,000,000 is the estimated number of adults who had at least one major depressive episode in 2012. This made up approximately 6.9 percent of all adults in the country.

14% percentage of women from a 2013 postpartum depression study had the disorder four to six weeks after giving birth. 30% of college students, reported feeling depressed, which disrupted their ability to function in school. 80% percentage of Indians with major depression don't seek treatment for the mental illness. The highest reported in 18-25 yrs old age are: Depression & Anxiety (38-49%); Suicidal ideation (10-21%); Alcohol abuse (20-30%); Self injury and eating disorders; others (OCD, borderline personality, dysthymia). About 64% dropped out of college due to Mental illness (ACHA, 2007; APA, 2010; Blanco et al, 2008; CDC, 2002; NAMI, 2012). In India- 45% of suicides involve 15-29 yrs old; 5.3% involves graduates and post graduates (NCRB, 2007).

For every one person succeeding 10 would have attempted 2nd Leading cause of death of young people in India (Aaron et al., 2004). 90%- diagnosable psychiatric illness, usually depression & hopelessness- strongest predictors of suicide (Ang & Huan, 2006; APA, 2004). In 2006, 16 students in a day - committed suicide across India due to exam stress ( TOI, March, 2008).

India is on the verge of becoming the suicide capital of the world with over 90 percent of deaths caused due to various types of depression including bipolar depressive disorder. Speaking ahead of World Mental Health Day on October 10, the doctors also said that in the last few decades, the number of suicides have tripled and has been the highest in the age group of 15-24 years.

"It has been found that about 40 percent suicides among males and 56 percent of suicides in females are in the age group of 15-24 years and the leading cause is depression, which is the biggest form of mental disorder," said Atmesh Kumar, consultant of mental health at city-based Saroj Hospital.

Kumar said that due to the ignorance, depression not only affects the mental health but also the depicts various bodily symptoms like muscle pain, fatigue and head ache. "Almost 90 percent of suicide victims suffer from some psychiatric disorder and the majority are due to
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depression. The increase in suicides are due to increasing stress levels, lack of family support and lack of timely treatment and many socioeconomic factors and substance, intoxicant abuse," he said.

Failed relationship, family pressures or studies, peer pressure (tough competition). Students pursuing professional courses and female students show higher scores - often related to academic goals, performance and exams (Isabella & Manjula, 2011; Jadoon et al, 2010; Ospina et al, 2011; Uras, et al., 2012). Sources of academic stress include: Academic pressures (73%); Not enough time for studies (63%); Future/career (61%); Finances (41%); Not enough time (other) (40%). Inappropriate academic choices, unrealistic parental expectations, limited opportunities to get admission in to professional courses and good colleges (Das & Majula, 2009; Meghna & Manjula, 2012; Hesi & Manjula, 2011; Saumya & Manjula, 2010; Sahani, 2006).

Reilly and Lewis (1991) say that anxiety is hampering for young people's academic achievements. Changing schools, Parents divorcing or pressure of work, exams and test can all be difficult events for students. Anxiety has been linked to poor academic performance. High levels of academic anxiety can negatively affect working memory (Owens, Stevenson, Hadwin, & Norgate, 2012).

RESEARCH METHODOLOGY

A. DATA SOURCE
The sample of this study consisted of 20 Engineering students of the VTU University, out of which 15 were considerable. They were selected using random sampling technique. For the purpose of the study, the participants were divided into two groups, low and high achieving groups. Low achieving group refers to students who obtained percentage below 60%, and high achieving group refers to students who obtained percentage of 60% and above.

B. DATA COLLECTION INSTRUMENTS
i. Beck’s Anxiety Inventory (BAI):
The Beck Anxiety Inventory (BAI) is used to measure the severity of anxiety in adults and adolescents.

ii. Beck’s Depression Inventory (BDI-II):
The Beck Depression Inventory (BDI-II) is used psychometric tests for measuring the severity of depression in adolescents and adults.

iii. Cohen Perceived Stress Scale:
The Perceived Stress Scale was developed to measure the degree to which situations in one’s life are appraised as stressful.

RESULTS AND DISCUSSION
Two types of analyses were performed to identify the differences in psychological problems between high and low achieving students. First, the means and standard deviations were obtained to determine the extent to which these two groups reported experiencing psychological problems. Second, t-tests were conducted to evaluate whether the differences
in psychological characteristics between low and high were significant or not. The result of the same has been tabulated as shown below.

| Measurements | Low Achieving students (3) | High Achieving students (12) | Level of Significance = 0.05 |
|--------------|-----------------------------|-----------------------------|-----------------------------|
| Anxiety      | Mean 27.33, SD 15.95, DF 2  | Mean 15.75, SD 8.88, DF 11  | T test 1.74, p value 0.05   |
| Depression   | Mean 26.67, SD 11.93, DF 2  | Mean 11.83, SD 8.86, DF 11  | T test 2.45, p value 0.014  |
| Stress       | Mean 21.67, SD 7.37, DF 2  | Mean 21.75, SD 6.8, DF 11   | T test 0.019, p value 0.492 |

Table 1: Mean, Standard Deviation, T-test and p values of Measurements

Figure 1: Relationship between Anxiety & Academic Performance

Descriptive analysis also shows that the mean score for Anxiety of low achieving students was 27.33 (SD = 15.95) and the mean score for high achieving students was 15.75 (SD = 8.88). Independent sample t-test yielded a significant difference in Anxiety between the low- and high-achieving group, t(15) = 1.74. Since p<=0.05, the null hypothesis is rejected. In other words, there is effect of Anxiety on student’s academic performance. The results of the test showed that almost 67% of low scorers showed high anxiety and only 20% of high scorers showed high anxiety. This result indicates that low achievers have higher level of anxiety compared to high scorers (See Figure 1).
Descriptive analysis also shows that the mean score for Depression of low achieving students was 26.67 (SD = 11.93) and the mean score for high achieving students was 11.83 (SD = 8.86). Independent sample t-test yielded a significant difference in Depression between the low-and high-achieving group, t(15) = 2.45. Since p<=0.05, the null hypothesis is rejected. In other words, there is effect of Depression on student’s academic performance. The results of the test showed that all low scorers had depression and only 40% of high scorers had depression. This result indicates that low achievers have higher level of depression compared to high scorers (See Figure 2).

The analysis also shows that the mean score for Stress of low achieving students was 21.67 (SD = 7.37) and the mean score for high achieving students was 21.75 (SD = 6.8). Independent sample t-test yielded no significant difference in Stress between the low-and high-achieving group, t(15) = 0.019. Since p>0.05, the null hypothesis is failed to reject. In other words, there is no effect of Stress on student’s academic performance. The results of the test showed that both high scorers and low scorers have high stress (See Figure 3).

**SUMMARY OF FINDINGS**

The analyses on the differences in psychological problems revealed that the two groups differed in their level of psychological problems. It was found that students in low achieving
group reported a higher level of depression and anxiety compared to those in high achieving group; and both low and high achieving group reported higher level of stress.

To summarize, analyses on the differences in psychological problems between low and high achieving group indicate that low achieving students and high achieving students were significantly different in terms of their levels of psychological problems; low achieving students reported higher psychological problems compared to high achieving students.

CONCLUSION

To understand the relationship between psychological well-being and academic performance, the level of depression, anxiety and stress of students are measured. Specifically, students are divided into low-achieving group and high-achieving groups and their depression level, anxiety level and stress level are compared. The findings of the present study indicated that there are differences in psychological problems between low- and high-achieving students in which low-achieving students reported higher level of depression and anxiety compared to students with high academic achievement; and both low and high scorers reported higher level of stress. This finding of the study can help to design programmes and strategies to boost students’ performance in academic life.

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