



## A Questionnaire Based Study to Evaluate the Prevalence of Mental Stress among Undergraduates in an Engineering College in South Gujarat, India

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### ABSTRACT

**Background:** In the last few years, there has been an increase in mental stress and consequently mental illness and suicide rates worldwide. Young adults entering college are one of the most vulnerable population due to the major transition from teenage to adulthood. This study evaluates the prevalence of mental stress among the engineering college students.

**Materials and methods:** This was a cross-sectional, questionnaire-based survey conducted in an engineering college after obtaining approval from the institutional ethical board and the Dean of the college. The questionnaire was distributed online via Google form links using a non-probability sampling approach. The questionnaire contained two parts – first part contained questions regarding the demographic details of the students and the second part contained ten multiple-choice questions to assess the mental health of students. The questions were inspired from the questionnaires available online from previous studies on similar topics as well as by patient health questionnaire-9 (PHQ-9) which is used for screening and diagnosing individuals with anxiety, stress and depression. Descriptive statistics was used to analyze and report results.

**Results:** A total of 246 completely filled questionnaires were evaluated. The age range of study population was from 17 to 26 years with mean age being  $20.85 \pm 3.16$  years. 61.79% were male. Approximately half of the study population showed some symptoms of mental stress and depression such as little interest in doing things, difficulty sleeping or concentrating, change in eating habits and being fidgety or slow. 48.78% students felt bad about themselves and 19.51% had thoughts of self-harm several days a week. Majority of the students believed that mental health awareness programs will be beneficial for their psychological well-being.

**Conclusion:** The prevalence of stress among the engineering college students was quite high. Various measures such as awareness, counseling, and mentorship program, as well as reducing their academic burden may help them to cope with stress in a better way.

**KEYWORDS:** Anxiety, Depression, Mental health, Young adults

### INTRODUCTION

Mental health can be defined as a state where every individual feels secure in his mental capabilities with ability to cope with normal life stresses and be able to work effectively and productively to make a contribution towards their community.[1] In the last decade, mental illnesses and drug use disorders have increased by 13%. Worldwide, approximately 20% children and teenagers suffer from psychological illness. The prevalence of mental illness is around 1 in 5 people. Suicide has risen to the second most common cause of mortality among the young adults age group of 15 to 29 years.[2] Nowadays, very often, people are seen with psychological issues where they are not able to deal with their surroundings and situations. Sometimes, this unhealthy mental state makes them take the extreme step of committing suicide.

Students entering college from school are entering a completely new phase of their life. From a sheltered environment at home, suddenly they become adults and are thrown in to the grinds of life. This creates a lots of anxiety and pressure on these young minds making them vulnerable to depression and suicide. This affects the quality of life of young students and can lead them to unhealthy practices such as drug abuse.[3]

There are various factors which are responsible for mental stress among engineering college students such as academic and social challenges, relationship issues, financial dependence, academic stress as well as peer pressure etc.[4] In addition to this, the recent



COVID-19 pandemic, which has been ongoing for past two years have escalated these negative feelings leading to exponential rise in the cases of depression, anxiety and insomnia among the general population.[5] Project deadlines, assignment submissions, tough examinations, terrorizing professors, family expectations, financial burdens all add to the frustration and mental stress of engineering students.[6] Thus, this study was carried out with an aim to identify the prevalence of mental stress among the engineering college students to help the colleges and families with better stress management for their students.

## MATERIALS AND METHODS

### Study Design and Participants

This was an observational, cross-sectional survey conducted in an engineering college among the undergraduate students to assess the effect of stress on their mental health. The study was started after obtaining approval from the institutional ethical board as well as the Dean of the engineering college. Only the participants giving written informed consent were included in the survey.

### Study procedure

This was a questionnaire-based survey which was carried out via a pre-approved, pre-validated questionnaire. The questionnaire was distributed online using a non-probability sampling approach. Google form was used for questionnaire and the links were sent to the students using social media. It also contained a brief description of the study with its aim and objectives. The questionnaire contained two parts – first part contained questions regarding the demographic details of the students like their age and gender; the second part contained the questions to assess the mental health of students. The questions were multiple-choice. All the students were instructed to submit the questionnaire only once and answer all the questions completely. Complete privacy and confidentiality of students was maintained. The nine questions used in this survey were inspired from the questionnaires available online from previous studies on similar topics regarding mental stress among students. It was also influenced by the patient health questionnaire-9 (PHQ-9) which is used for screening and diagnosing individuals with anxiety, stress and depression. On an average, the questionnaire took 6 minutes to complete.

### Data analysis

The data obtained from the questionnaire was entered into Microsoft Excel 2016. Descriptive statistics of mean and percentage was used to evaluate the results.

## RESULTS

Out of 250 students, a total of 246 students responded to the questionnaire sent to them. They answered all the questions. The age range of study population was from 17 to 26 years with mean age being  $20.85 \pm 3.16$  years. The most common age group was 17-20 years of age (56.50%). 61.79% (n=152) were male and 38.21% (n = 94) were female. Table 1 gives the demographic details of study population.

**Table 1.** Demographic details of study participants

Age group	Number (n = 246)	Percentage (%)
17-20	139	56.50
21-25	90	36.58
>25	17	6.91
Gender	Number (n = 246)	Percentage (%)
Male	152	61.79
Female	94	38.21

The responses obtained from the PHQ-9 survey conducted to assess the magnitude of stress, anxiety and depression among students are given in table 2. Even though they were college students, approximately half of the study population showed some symptoms of mental stress and depression. 51.22% (n = 126) had little interest or pleasure in doing things for several days in a week. 53.66% (n = 132) felt depressed and 52.04% (n = 128) could not sleep well also for several days. Only one participant had appetite issues nearly every day. The response to the question about whether students felt bad about themselves or about letting their parents down



ranged from nine students feeling it nearly every day to 69 students who never felt down. More than half of the students had trouble concentrating on the daily routine tasks (55.28%, n = 136) as well as had motor problems being either fidgety or slow (54.88%, n = 135). Out of 246 students who participated in the survey, 0.81% (n = 2) had suicidal thoughts nearly every day; but majority of the students (67.89%, n = 167) never had any such thoughts of self-harm. Majority of the students (75.61%, n = 186) believe that mental awareness programs, if conducted in college can be helpful for their mental health.

**Table 2.** Response to survey questions

Question	Number (n = 246)	Percentage (%)
<b>1. Little interest or pleasure in doing things?</b>		
a) Not at all	33	13.42
b) Several days	126	51.22
c) More than half of the day	77	31.30
d) Nearly every day	10	4.06
<b>2. Feeling down, depressed, or hopeless?</b>		
a) Not at all	45	18.29
b) Several days	132	53.66
c) More than half of the day	64	26.02
d) Nearly every day	5	2.03
<b>3. Trouble falling or staying asleep, or sleeping too much?</b>		
a) Not at all	43	17.48
b) Several days	128	52.04
c) More than half of the day	70	28.45
d) Nearly every day	5	2.03
<b>4. Feeling tired or having little energy?</b>		
a) Not at all	45	18.29
b) Several days	134	54.47
c) More than half of the day	63	25.61
d) Nearly every day	4	1.63
<b>5. Poor appetite or overeating?</b>		
a) Not at all	58	23.58
b) Several days	131	53.25
c) More than half of the day	56	22.76
d) Nearly every day	1	0.41
<b>6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down?</b>		
a) Not at all	69	28.05
b) Several days	120	48.78
c) More than half of the day	48	19.51
d) Nearly every day	9	3.66
<b>7. Trouble concentrating on things, such as reading the newspaper or watching television?</b>		



a) Not at all	23	10.56
b) Several days	136	55.28
c) More than half of the day	73	29.67
d) Nearly every day	14	5.69
<b>8. Moving or speaking so slowly that other people could have noticed? Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual?</b>		
a) Not at all	60	24.39
b) Several days	135	54.88
c) More than half of the day	49	19.92
d) Nearly every day	2	0.81
<b>9. Thoughts that you would be better off dead, or of hurting yourself in some way?</b>		
a) Not at all	167	67.89
b) Several days	48	19.51
c) More than half of the day	29	11.79
d) Nearly every day	2	0.81
<b>10. Do you think mental awareness programs will help students?</b>		
a) No	15	6.10
b) Yes	186	75.61
c) Maybe	45	18.29
<b>Score- Not at all=0; Several days= 01; More than half the days=02; Nearly every day=03</b>		

## DISCUSSION

Over the last decade, mental health awareness has become a global public health concern due to the increasing levels of mental stress. With technological advancement, increasing urbanization, global recession and excessive competition in all aspects of living; the levels of mental stress have increased exponentially. Especially young students, who are just starting colleges, leaving the shelter of their homes are being exposed to the world for the first time. This is a transition period for them which is burdensome on these young adults. It puts them under tremendous pressure of performance leading to rising mental stress. Engineering students especially face tougher challenges, such as entrance exams, assignment deadlines etc. which adds to their academic stress. It has been frequently observed that students who fail to meet certain academic requirements of either passing the exam or being a top ranker, commits suicide because of the pressure. This study was conducted with an objective to evaluate the stress levels in the engineering students and how they are coping with it.

It was observed that more than half of the students faced one or other symptoms of mental stress for several days a week. This is similar to the findings obtained in previous studies by other authors. A recent study published by Karin JJ and Cross JK observed high levels of stress, depression and anxiety among engineering students. [7] They reported it to be due to student's perceptions on inclusion and their engineering identity.[7] A comparative study published recently regarding the levels of mental stress between engineering and medical students reported higher percentage of engineering students (82.87%) suffering from mental stress as compared to 56.9% students of medical college. The results were statistically significant. [8] A moderate level of pressure helps in focusing on learning but acute high levels of stress can lead to suffocation, illness, depression and underperformance in a young adult who is not adequately equipped to cope with the stress.

Based on the survey scores, Table 3 gives the provisional diagnosis and proposed management which can help the students deal adequately with their stress. [9-11]



Table 3. Provisional diagnosis and proposed management

Survey score	Depression severity	Proposed management
0-4	None/minimal	None, mental health awareness by mental health seminars and interactive talks, regularly distributing information pamphlets to the students
5-9	Mild	Observation; help students by mentorship program, conduct the survey again after a month
10-14	Moderate	Plan treatment, start counselling sessions with the students, anonymous communication with students, less assignments and liberal deadlines, scholarships to reduce financial burdens, mental health programs, regular follow up; pharmacotherapy can be added as per need
15-19	Moderately severe	Treatment should be started with psychotherapy as well as pharmacotherapy with antidepressant medications. All of the above measures should be employed by college administration to reduce mental stress of students.
20-27	Severe	Immediate pharmacotherapy with one or more agents, Also a case-based referral to a psychologist or psychiatrist for counselling and multilevel management. Active efforts by college administration as mentioned above to minimize stress among students, by decreasing their academic and financial burden, and creating a positive environment for students.

One of the most effective ways to manage mild to moderate mental stress, anxiety and depression is counselling. But students usually shy away from seeking counselling due to the social stigma associated with the mental illnesses. [12] For moderate to severe stress, pharmacotherapy with antidepressant medications is usually added to the psychotherapy. If institutions can provide students with a positive environment with frequent mental health awareness seminars and motivational speaker talks, it will be really helpful for the students. The other suggestions which could be implemented by the college administrations are starting a student counselling cell or a mentorship program, where they can discuss their problems with a dedicated person freely and anonymously. Various techniques to reduce their academic burden could be reducing the number of exams and assignments, extending deadlines and having a friendly education system. Scholarships or grants can be provided to the deserving candidates for reducing financial burden. Regular screening to identify early signs of stress and depression. Training their staff to identify the warning signals of depression and suicide. Apart from this, students can be coached in yoga, meditation, diet and healthy lifestyle ways. All this will help the students to fight stress in a better way and give their best performance in college.

The study had a few limitations. Firstly, the sample size was small and it may not be representative of the entire population. Secondly, use of self-assessment questionnaire was done to judge the level of mental stress instead of clinical evaluation. Further studies to assess the factors responsible for mental stress could be conducted. Also, such studies across various other student groups such as medical, law colleges etc. would help to assess the level of mental stress among the youth.

**CONCLUSION**

In conclusion, the study reported significant prevalence of mental stress among engineering students. Approximately 52% students had at least one symptom of mental stress such as difficulty concentrating, sleeping, eating as well as feelings of depression and anxiety. Overall, the results will help in better policy making for the administration to reduce the level of mental stress on the young minds. Further longitudinal studies may help in identifying the risk factors and effectiveness of interventions in combating mental stress among the engineering students.



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