



School of Science and Engineering

Project Title:

**Exploring the correlation between mental health and
academic performance.**

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1. Introduction : Brief overview of the project

In today's fast-paced academic environment, Students now have to deal with a lot of obstacles that may negatively affect their mental health. They are often juggling their obligations due to the pressures of extracurricular activities, their personal lives, and their pursuit of academic greatness. Therefore, it is crucial to comprehend how mental health and academic achievement are connected. The goal of this engineering statistics project is to investigate this significant connection and offer insights that can help support networks, legislators, and educational institutions create an atmosphere that is favorable for students.

2. Scope of the project : a comprehensive description of the project's:

a) Objectives :

The goals behind our project that examines the relationship between mental health and academic performance lies in:

- Analyzing the link between mental health indicators (such as stress, anxiety, and depression) and academic achievement among university students.
 - Determining the primary contributors of problems with mental health in the academic setting.
 - Evaluating the impact of mental health interventions on academic achievements
- To provide educational institutions practical solutions for improving the intellectual and mental well-being of students.

b) Constraints :

A number of limitations may arise while collecting data that investigates the relationship between academic achievement and mental health. These limitations should be taken into account when planning and carrying out the project. These are a few typical constraints:

- **Time :** Limited time for conducting surveys, interviews, and data analysis.
- **Data Availability:** One major barrier may be the lack of thorough and accurate data on academic achievement and mental health markers. Privacy regulations may impose restrictions on data or prevent it from being available in the necessary depth.
- **Data Quality:** Inaccuracies, biases, outliers, and missing values can all impair the quality of data, even when it is available and can therefore compromise the statistical analysis's accuracy.
- **Data gathering Method:** The accuracy and dependability of the data gathering method, such as in administrative records or self-report surveys, may be impacted.
- **Correlation vs. Causation:** Determining a cause and effect relationship is difficult, so the research might just focus on finding correlations rather than causal relationships between mental health and academic success.

c) Assumption

- **Emotional Well-Being:** Students with improved mental health, as shown by reduced stress, anxiety, and depression, are thought to be more likely to experience a pleasant emotional state that enhances motivation, focus, and general academic performance. While others that deal with mental health issues are more likely to perform well academically.

3. Survey results: Analyzing the questionnaire findings.

Here are the results after conducting our survey:

	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
1	ID	Start time	Completion time	Email	Specify your gender	How old are you?	What is your current year?	What is your current GPA?	Have you ever dealt with mood?	Have you ever dealt with depression?	Have you ever dealt with an	How intense of your stress on a day	How would you rate your	Have you ever sought help in	consider taking a break or do
2	1	10/14/23 13:21:45	10/14/23 13:22:57	anonymous	Female	19	year 2	between 3.50 to 4	yes	Maybe	Yes		7	3 yes	Yes
3	2	10/14/23 13:22:18	10/14/23 13:23:24	anonymous	Female	19	year 2	between 3 to 3.50	yes	Yes	Yes		9	1 no	Yes
4	3	10/14/23 13:27:18	10/14/23 13:28:04	anonymous	Male	18	year 2	between 3.50 to 4	no	No	No		8	3 no	No
5	4	10/14/23 13:27:23	10/14/23 13:28:19	anonymous	Male	20	year 2	between 3.50 to 3	yes	No	Yes		6	4 no	Yes
6	5	10/14/23 13:27:43	10/14/23 13:28:29	anonymous	Female	19	year 2	between 3 to 3.50	yes	Yes	Yes		9	2 yes	Yes
7	6	10/14/23 13:27:48	10/14/23 13:28:01	anonymous	Male	21	year 2	between 3.50 to 4	no	No	Yes		7	5 no	No
8	7	10/14/23 13:30:38	10/14/23 13:32:04	anonymous	Female	21	year 2	between 2 to 2.50	yes	Yes	Yes		10	4 yes	Yes
9	8	10/14/23 13:27:49	10/14/23 13:33:34	anonymous	NI	1	year 2	between 2.50 to 4	yes	Yes	Yes		7	2 yes	Yes
10	9	10/14/23 13:38:45	10/14/23 13:39:30	anonymous	Female	2	year 4	between 2.50 to 3	yes	No	No		7	3 yes	No
11	10	10/14/23 13:44:39	10/14/23 13:45:39	anonymous	Female	1	year 4	between 3.50 to 4	yes	Maybe	Maybe		7	2 no	Yes
12	11	10/14/23 13:45:42	10/14/23 13:46:34	anonymous	Female	1	year 2	between 2.50 to 4	no	No	Yes		5	5 no	No
13	12	10/14/23 13:58:34	10/14/23 13:51:37	anonymous	Male	15	year 2	between 3.50 to 4	no	Maybe	No		5	4 no	No
14	13	10/14/23 14:22:58	10/14/23 14:24:42	anonymous	Female	14	year 2	between 3 to 3.50	yes	Maybe	Yes		8	2 no	Yes
15	14	10/14/23 14:25:50	10/14/23 14:27:06	anonymous	Female	13	year 4	between 3.50 to 4	Maybe	Yes	Yes		4	3 no	No
16	15	10/14/23 14:33:00	10/14/23 14:34:35	anonymous	Female	16	year 2	between 2.50 to 3	yes	No	No		7	2 yes	No
17	16	10/14/23 14:43:20	10/14/23 14:44:21	anonymous	Male	1	year 2	between 3 to 3.50	Maybe	Maybe	Maybe		3	4 no	No
18	17	10/14/23 14:48:51	10/14/23 14:49:31	anonymous	Male	14	year 1	between 3 to 3.50	yes	Yes	Yes		8	2 no	No
19	18	10/14/23 14:45:47	10/14/23 14:53:04	anonymous	Female	15	year 2	between 3 to 3.50	yes	Yes	Yes		6	2 yes	No
20	19	10/14/23 15:31:37	10/14/23 15:32:26	anonymous	Female	19	year 2	between 3.50 to 4	Maybe	Maybe	Yes		7	3 no	No
21	20	10/14/23 15:36:48	10/14/23 15:38:15	anonymous	Female	14	year 4	between 3 to 3.50	yes	No	Yes		5	1 no	No
22	21	10/14/23 16:04:48	10/14/23 16:07:58	anonymous	Female	19	year 2	between 3.50 to 4	yes	Yes	Yes		10	5 no	Yes
23	22	10/14/23 16:24:00	10/14/23 16:25:04	anonymous	Female	19	year 4	between 2.50 to 3	yes	Maybe	Yes		8	3 no	Yes
24	23	10/14/23 16:40:03	10/14/23 16:41:03	anonymous	Female	19	year 4	between 2.50 to 3	yes	Yes	Yes		9	1 yes	Yes
25	24	10/14/23 17:12:19	10/14/23 17:12:10	anonymous	Male	19	year 2	between 3 to 3.50	Maybe	Maybe	Yes		7	4 no	No
26	25	10/14/23 17:28:24	10/14/23 17:29:14	anonymous	Female	19	year 2	between 3 to 3.50	yes	Maybe	Yes		8	2 no	No
27	26	10/15/23 0:08:34	10/15/23 0:02:24	anonymous	Male	15	year 2	between 2.50 to 3	Maybe	No	Yes		3	3 no	No
28	27	10/15/23 11:20:07	10/15/23 11:29:15	anonymous	Female	15	year 2	between 2.50 to 3	yes	Yes	Yes		8	2 yes	Yes
29	28	10/15/23 13:57:11	10/15/23 13:58:30	anonymous	Female	19	year 2	between 3 to 3.50	Maybe	Maybe	Maybe		8	2 no	No
30	29	10/15/23 14:04:41	10/15/23 14:08:00	anonymous	Female	20	year 2	between 2.50 to 3	Maybe	Yes	Yes		6	3 no	No
31	30	10/15/23 15:26:06	10/15/23 15:27:31	anonymous	Female	20	year 2	between 3 to 3.50	no	No	Yes		7	2 yes	No
32	31	10/15/23 15:47:37	10/15/23 15:48:43	anonymous	Female	20	year 2	between 3.50 to 4	yes	Yes	Maybe		7	3 yes	No
33	32	10/15/23 16:35:18	10/15/23 16:36:18	anonymous	Male	20	year 2	between 3 to 3.50	yes	Yes	Yes		6	4 yes	No
34	33	10/15/23 17:52:14	10/15/23 17:53:29	anonymous	Female	22	year 4	between 2.50 to 3	Maybe	Maybe	Maybe		7	3 no	No

6. Data collection: Description of the data collected.

	A	B	C	D	E	F	G	H	I	J	K
	Choose your gender	What is your course?	Your current year of Study	What is your CGPA?	Do you have Anxiety?	Do you have Depression?	mental health during or academic journey	the intensity of your stress on a daily basis	consider taking a break or dropping out of your academic program	Did you seek any specialist for a treatment?	
1	Female	18 General engineering	year 1	3.00 - 3.49	No	Yes		3	7 Yes	No	
2	Female	22 Business Administration	year 3	3.00 - 3.49	No	Yes		1	9 No	No	
3	Male	23 General engineering	year 4	3.00 - 3.49	No	No		2	9 No	No	
4	Male	19 General engineering	Year 2	3.50 - 4.00	No	No		4	6 Yes	No	
5	Female	19 International studies	Year 2	2.00 - 2.99	No	No		2	9 No	No	
6	Female	22 International studies	year 1	3.50 - 4.00	No	No		5	7 No	No	
7	Female	24 General engineering	Year 3	3.00 - 4.00	No	Yes		4	10 No	No	
8	Female	18 Computer Science	year 1	3.00 - 3.49	Maybe	Yes		2	7 No	No	
9	Male	18 General engineering	year 1	3.00 - 3.49	No	No		3	7 No	No	
10	Female	23 Computer Science	Year 3	3.50 - 4.00	No	No		2	7 No	No	
11	Female	24 International studies	year 3	3.00 - 3.49	No	No		5	5 No	No	
12	Female	22 Business Administration	Year 2	3.00 - 4.00	Yes	No		4	5 No	No	
13	Female	19 General engineering	year 1	3.00 - 3.49	No	No		2	8 Yes	No	
14	Female	24 Computer Science	year 1	3.00 - 4.00	No	maybe		2	4 No	No	
15	Female	24 General engineering	year 1	3.00 - 3.49	No	No		2	7 No	No	
16	Female	23 Computer Science	Year 3	3.00 - 4.00	Yes	Yes		4	2 Yes	No	
17	Female	18 Business Administration	year 1	3.50 - 4.00	No	No		2	8 No	No	
18	Female	18 General engineering	year 1	3.00 - 4.00	Maybe	No		2	8 No	No	
19	Male	24 General engineering	Year 2	3.00 - 3.49	Yes	maybe		3	7 No	No	
20	Female	24 Business Administration	Year 3	3.50 - 4.00	Yes	Yes		1	5 Yes	No	
21	Female	23 Computer Science	year 4	3.50 - 4.00	No	No		3	10 No	No	
22	Female	23 Business Administration	Year 2	3.00 - 3.49	No	No		3	8 No	No	
23	Male	19 Computer Science	year 1	3.00 - 3.49	No	maybe		1	9 No	No	
24	Male	19 Computer Science	Year 2	3.00 - 4.00	No	No		4	7 No	Yes	
25	Male	18 Computer Science	Year 2	3.00 - 4.00	Yes	Yes		3	8 No	No	
26	Female	18 Business Administration	year 1	3.00 - 3.49	Yes	Yes		3	2 Yes	No	
27	Female	18 General engineering	year 1	2.00 - 2.99	No	No		2	8 No	No	
28	Female	18 Human resource development	Year 3	3.00 - 3.49	No	Yes		2	8 No	No	
29	Female	19 Business Administration	year 1	2.00 - 2.99	Maybe	maybe		3	6 Yes	No	
30	Female	22 Inevitable energies	year 1	3.50 - 4.00	Maybe	No		2	7 No	No	
31	Female	24 General engineering	Year 2	2.00 - 2.99	No	Yes		3	7 Yes	No	
32	Female	24 Business Administration	Year 2	3.00 - 3.49	Yes	No		4	6 No	No	
33	Female	22 General engineering	year 4	3.00 - 4.00	No	No		3	7 No	No	
34	Female	22 Inevitable resource development	Year 2	3.00 - 3.49	No	Yes		2	2 No	No	
35	Male	19 Business Administration	year 1	0 - 1.99	No	No		1	4 No	No	
36	Male	22 Inevitable energies	year 2	3.50 - 4.00	No	No		2	7 Yes	No	
37	Male	18 Computer Science	year 1	3.50 - 4.00	Yes	maybe		4	8 Yes	No	
38	Female	19 General engineering	year 1	3.00 - 4.00	Yes	No		2	10 No	No	
39	Female	18 General engineering	year 4	3.50 - 4.00	No	No		5	9 No	No	
40	Female	24 Computer Science	year 2	3.00 - 3.49	No	Yes		4	9 No	No	
41	Female	24 Computer Science	year 3	3.50 - 4.00	No	maybe		2	7 Yes	No	
42	Female	23 ENIS	year 1	2.00 - 2.99	No	Yes		3	10 Yes	No	
43	Female	18 Computer Science	year 2	3.00 - 4.00	Maybe	No		2	8 No	No	
44	Female	18 ENIS	year 3	3.00 - 3.49	No	No		5	8 No	No	
45	Female	23 ENIS	year 2	3.00 - 3.49	Yes	Yes		4	5 Yes	No	
46	Female	19 Computer Science	year 1	3.00 - 4.00	No	Yes		2	7 Yes	No	
47	Male	21 Computer Science	year 1	3.00 - 3.49	No	No		2	10 No	No	
48	Male	22 Inevitable energies	Year 2	3.50 - 4.00	No	maybe		2	9 No	No	
49	Female	20 communication studies	Year 3	3.00 - 3.49	Yes	Yes		4	2 No	No	
50	Female	18 Computer Science	year 1	3.50 - 4.00	No	No		2	10 No	No	
51	Female	23 communication studies	year 1	3.00 - 3.49	No	No		2	3 No	No	
52	Female	18 communication studies	Year 3	3.00 - 3.49	No	No		3	7 Yes	No	
53	Female	19 Computer Science	year 1	3.50 - 4.00	No	No		1	1 No	No	
54	Female	18 communication studies	Year 1	3.00 - 4.00	No	maybe		2	2 Yes	No	
55	Female	24 General engineering	year 1	3.00 - 4.00	No	No		3	6 Yes	No	
56	Female	24 General engineering	year 1	3.00 - 4.00	No	No		1	9 No	No	
57	Female	23 General engineering	year 1	3.00 - 4.00	Yes	Yes		4	8 No	No	
58	Male	18 ENIS	Year 3	3.00 - 3.49	Yes	No		2	9 No	No	
59	Female	18 ENIS	Year 3	3.00 - 3.49	No	Yes		2	6 No	No	
60	Female	24 ENIS	year 1	3.50 - 4.00	No	No		3	10 No	No	
61	Female	18 Business Administration	Year 3	3.50 - 4.00	No	No		2	8 Yes	No	
62	Female	19 Business Administration	Year 2	3.00 - 3.49	No	Yes		3	9 No	No	
63	Male	18 ENIS	year 1	0 - 1.99	No	No		4	7 No	No	
64	Male	24 Business Administration	Year 3	3.00 - 4.00	Yes	maybe		3	8 No	No	
65	Female	24 ENIS	year 1	3.00 - 4.00	Yes	No		3	2 Yes	No	
66	Female	23 General engineering	year 1	3.00 - 3.49	No	Yes		1	8 No	No	
67	Female	18 communication studies	Year 2	3.00 - 3.49	Maybe	No		2	8 Yes	No	
68	Female	19 International studies	Year 2	0 - 1.99	No	No		4	6 No	No	
69	Female	19 International studies	Year 2	0 - 1.99	No	No		4	6 No	No	

7. Data cleaning and preprocessing : Ensuring reliability and coherence of the data.

This is our data after the cleaning process where we changed “yes ” to a value of 1, “No ” to a value of 0 and “ maybe ” to a value of 2.

	A	B	C	D	E	F	G	H	I	J	K
1	Choose your Age What is your course? Your current year What is your GPA? Do you have Anxiety? Do you have Depression? mental health during ur academic journey the intensity of your stress on a daily basis Have you ever had to consider taking a break or dropping out of your acc Did you seek any specialist for a treatment?										
2	Female	18 General engineering	year 1	3.50 - 3.49	0	1	3	7	1	0	0
3	Female	22 Business Administration	year 3	3.00 - 3.49	0	1	1	8	0	0	0
4	Male	23 General engineering	year 4	3.50 - 3.49	0	0	3	8	0	0	0
5	Male	19 General engineering	Year 2	3.50 - 4.00	0	0	4	6	1	0	0
6	Female	19 International studies	Year 2	3.50 - 3.49	0	0	2	9	0	0	0
7	Female	20 International studies	year 1	3.30 - 4.00	0	0	9	7	0	0	0
8	Female	24 Computer Science	year 1	3.50 - 4.00	1	0	4	10	0	0	0
9	Female	18 General engineering	year 1	3.00 - 3.49	2	1	2	7	0	0	0
10	Male	19 General engineering	year 1	3.50 - 3.49	0	0	3	7	0	0	0
11	Male	24 Computer Science	Year 3	3.50 - 4.00	0	0	7	7	0	0	0
12	Female	24 International studies	year 3	3.00 - 3.49	0	0	5	5	0	0	0
13	Female	20 Business Administration	Year 2	3.50 - 4.00	1	0	4	9	0	0	0
14	Female	19 General engineering	year 1	3.00 - 3.49	0	0	2	8	1	0	0
15	Female	24 Computer Science	year 1	3.50 - 4.00	0	0	2	7	0	0	0
16	Female	23 Computer Science	Year 3	3.50 - 4.00	1	1	4	3	1	0	0
17	Female	18 Business Administration	year 1	3.30 - 4.00	0	0	2	8	0	0	0
18	Female	19 General engineering	Year 2	3.50 - 3.49	1	2	3	7	0	0	0
19	Female	24 Business Administration	Year 3	3.50 - 4.00	1	0	1	1	1	0	0
20	Female	24 Computer Science	year 4	3.50 - 4.00	0	0	5	10	0	0	0
21	Female	23 Business Administration	Year 2	3.00 - 3.49	0	0	3	8	0	0	0
22	Male	18 Computer Science	Year 2	3.50 - 3.49	0	2	1	9	0	0	0
23	Male	18 Computer Science	year 1	3.50 - 4.00	0	0	4	7	1	0	0
24	Female	19 Business Administration	year 1	3.00 - 3.49	1	1	3	3	1	0	0
25	Female	18 General engineering	year 1	2.50 - 2.49	0	0	2	8	0	0	0
26	Female	18 Human resource development	Year 3	3.00 - 3.49	1	1	2	8	0	0	0
27	Female	19 Business Administration	year 1	4.00 - 2.99	2	2	3	7	0	0	0
28	Female	18 Renewable energies	year 1	3.50 - 4.00	2	0	2	8	1	0	0
29	Female	24 General engineering	Year 2	2.50 - 2.99	0	1	2	7	1	0	0
30	Female	24 Business Administration	Year 3	3.00 - 3.49	1	0	4	6	0	0	0
31	Female	22 General engineering	year 4	3.50 - 4.00	0	0	3	7	0	0	0
32	Female	20 Human resource development	Year 2	3.00 - 3.49	0	1	3	2	0	0	0
33	Male	19 Business Administration	year 1	0 - 1.99	0	0	1	4	0	0	0
34	Male	23 Renewable energies	year 2	3.50 - 4.00	0	0	3	7	1	0	0
35	Male	18 Computer Science	year 1	3.50 - 4.00	1	2	4	6	1	0	0
36	Female	19 General engineering	year 1	3.50 - 4.00	1	0	2	10	0	0	0
37	Female	18 General engineering	year 4	3.50 - 4.00	0	0	5	9	0	0	0
38	Male	24 Computer Science	year 2	3.50 - 3.49	0	1	4	8	0	0	0
39	Female	24 Computer Science	year 3	3.50 - 4.00	0	2	3	8	1	0	0
40	Female	23 DMS	year 1	2.50 - 2.99	0	1	2	10	1	0	0
41	Female	18 Computer Science	year 2	3.50 - 4.00	2	0	2	8	0	0	0
42	Female	19 DMS	year 3	3.00 - 3.49	0	0	9	8	0	0	0
43	Female	20 DMS	year 3	3.50 - 3.49	1	1	4	1	0	0	0
44	Female	19 Computer Science	year 1	3.50 - 4.00	0	1	2	7	1	0	0
45	Male	21 Computer Science	year 1	3.50 - 3.49	0	0	3	10	0	0	0
46	Male	23 Renewable energies	Year 3	3.50 - 4.00	0	2	2	9	0	0	0
47	Female	20 communication studies	Year 3	3.00 - 3.49	1	1	4	3	0	0	0
48	Female	18 Computer Science	year 1	3.30 - 4.00	0	0	2	10	0	0	0
49	Female	23 communication studies	year 1	3.50 - 3.49	0	0	2	8	0	0	0
50	Female	18 communication studies	Year 3	3.00 - 3.49	0	0	3	2	0	0	0
51	Female	19 Computer Science	year 1	3.50 - 4.00	0	0	1	1	0	0	0
52	Female	18 communication studies	Year 1	3.50 - 4.00	0	2	2	1	0	0	0
53	Female	24 General engineering	year 1	3.50 - 4.00	0	0	3	6	1	0	0
54	Female	24 General engineering	year 1	3.50 - 4.00	0	0	1	5	0	0	0
55	Female	23 General engineering	year 1	3.30 - 4.00	1	1	4	8	0	0	0
56	Female	18 DMS	Year 3	3.50 - 3.49	1	0	2	9	0	0	0
57	Male	19 DMS	Year 3	3.50 - 3.49	0	1	3	8	1	0	0
58	Female	18 DMS	year 1	3.50 - 4.00	0	1	2	8	0	0	0
59	Female	24 DMS	year 4	3.00 - 3.49	1	0	2	4	0	0	0
60	Female	24 DMS	year 1	3.00 - 3.49	0	0	3	9	0	0	0
61	Female	18 Business Administration	Year 2	3.50 - 4.00	0	0	1	10	0	0	0
62	Female	18 Business Administration	Year 3	3.00 - 3.49	0	1	2	9	0	0	0
63	Male	18 DMS	year 1	0 - 1.99	0	0	4	7	0	0	0
64	Male	24 Business Administration	Year 3	3.50 - 4.00	1	2	3	8	0	0	0
65	Female	24 DMS	year 1	3.50 - 4.00	1	0	3	3	1	0	0
66	Female	23 General engineering	year 1	3.00 - 3.49	0	1	1	8	0	0	0
67	Female	18 communication studies	Year 2	3.50 - 3.49	2	0	3	8	1	0	0