



MENTAL HEALTH ANALYTICS & PREDICTION IN UNIVERSITY STUDENTS



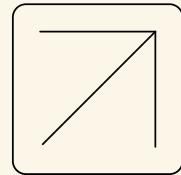
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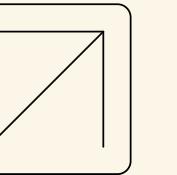
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RECAP FROM PRIOR PRESENTATION



EXPANDED STATISTICAL ANALYSIS

Based on our professor's feedback, we further analyzed the impact of demographics on mental health symptoms.

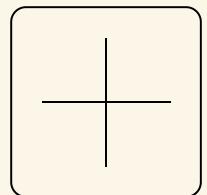


DASHBOARD INTEGRATION FINALIZED

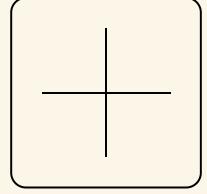
Dashboard updated per professor's feedback, using the correct type to better present key demographic and mental health statistics.



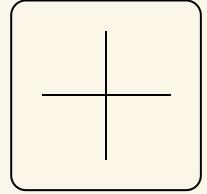
UPDATE ON THE PROGRESS



Methodology- Revised Exploratory Data Analysis



Methodology- Expanded Statistical Analysis



Website and Dashboard Demo



Preliminary Results

	Age Group	Gender	Department	Academic Year	CGPA	Scholarship
Anxiety Label	No, p = 0.058	Yes, p < 0.001	Yes, p = 0.009	Yes, p < 0.001	No, p = 0.105	No, p = 0.069
Stress Label	Yes, p < 0.001	No, p = 0.816				
Depression Label	Yes, p = 0.002	Yes, p < 0.001	No, p = 0.187	Yes, p = 0.003	Yes, p = 0.040	No, p = 0.446

Demographic factors significantly associated with mental health outcomes:



Anxiety Label

- Gender
- Department
- Academic Year



Stress Label

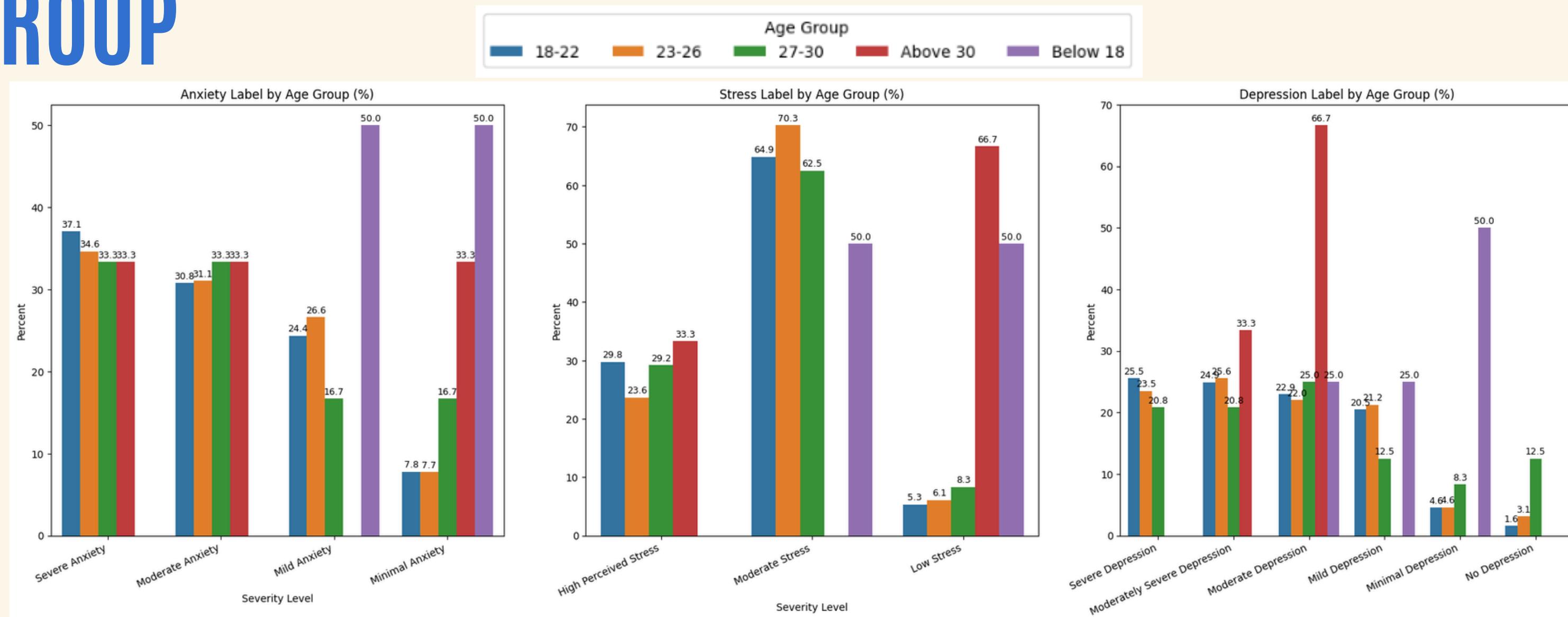
- Age Group
- Gender
- Department
- Academic Year
- CGPA



Depression Label

- Age Group
- Gender
- Academic Year
- CGPA

AGE GROUP



Anxiety:

- Not significant

Stress:

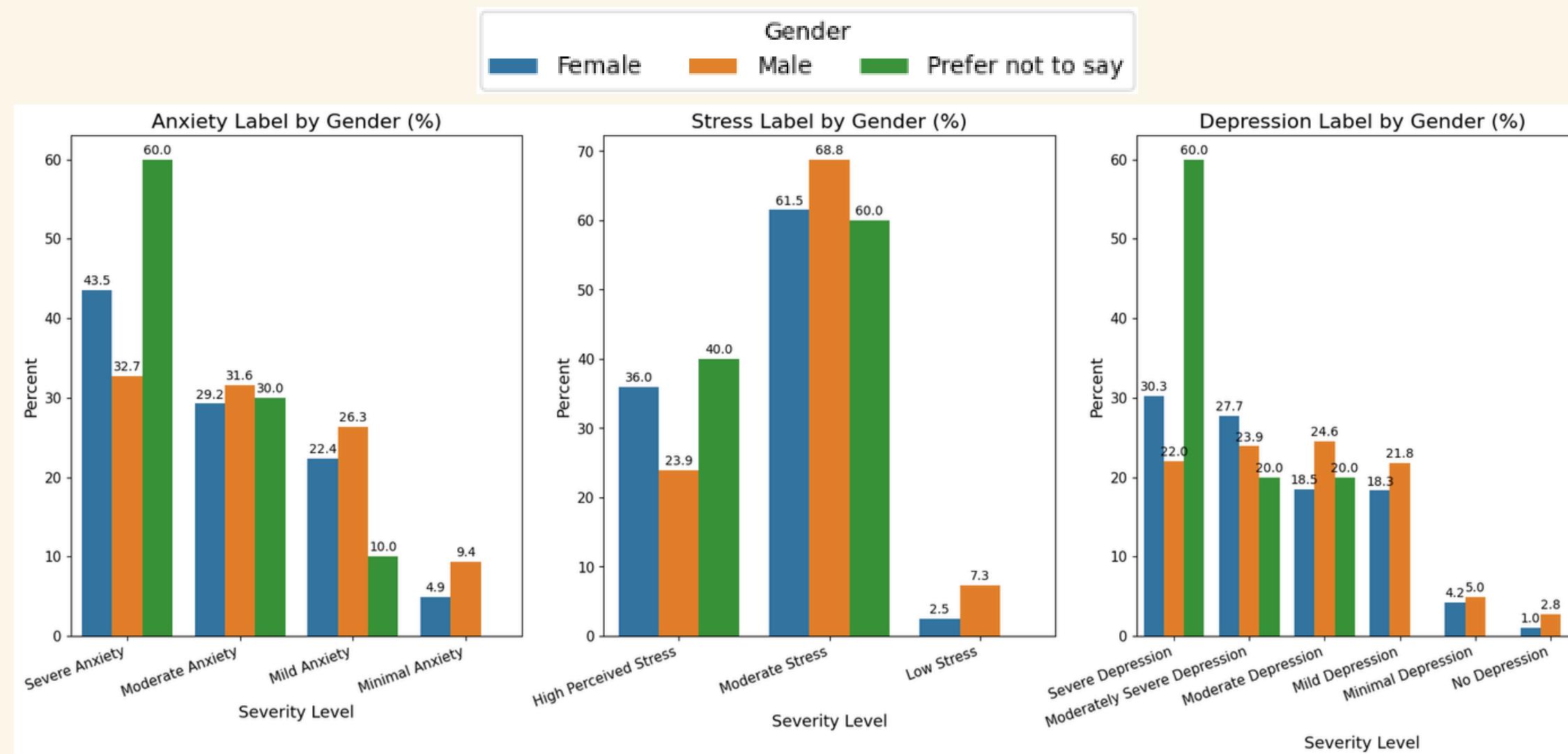
- For high perceived stress, the 23-26 age group had the lowest rate and showed a statistically significant difference ($p = 0.005$); other age groups showed no significant difference.
- No significant differences were found at other stress levels.

Depression:

- For severe depression, the 27-30 age group had the lowest rate and showed a statistically significant difference ($p = 0.002$); other age groups showed no significant difference.
- No significant differences were found at other depression levels.

Age Above 30 and Below 18 results are likely unreliable due to very few cases.

GENDER



Anxiety:

- For severe anxiety, females had a higher rate than males and showed a statistically significant difference ($p = 0.000$).
- No significant differences were found at other anxiety levels.

Stress:

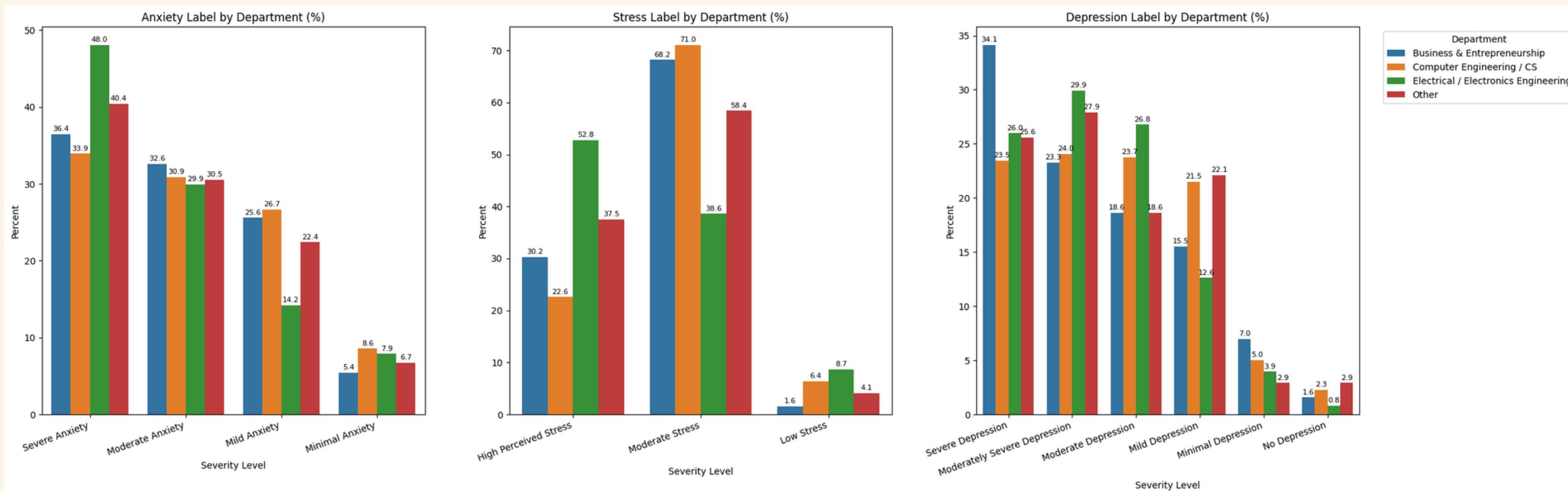
- For high perceived stress, females had a higher rate and showed a statistically significant difference ($p = 0.00$).
- For moderate stress, females had a lower rate and showed a statistically significant difference ($p = 0.00$).
- No significant differences were found at low stress levels.

Depression:

- For severe depression, females had a higher rate than males and showed a statistically significant difference ($p = 0.001$).
- No significant differences were found at other depression levels.

Results for the 'Prefer not to say' group are unreliable, likely due to very few responses in this category, which leads to unstable estimates in the analysis

Department



Anxiety:

- For severe anxiety, Electrical/Electronics Engineering students had the highest rate and showed a statistically significant difference ($p = 0.025$), but other departments showed no significant difference.
- For other anxiety levels, no significant differences were found.

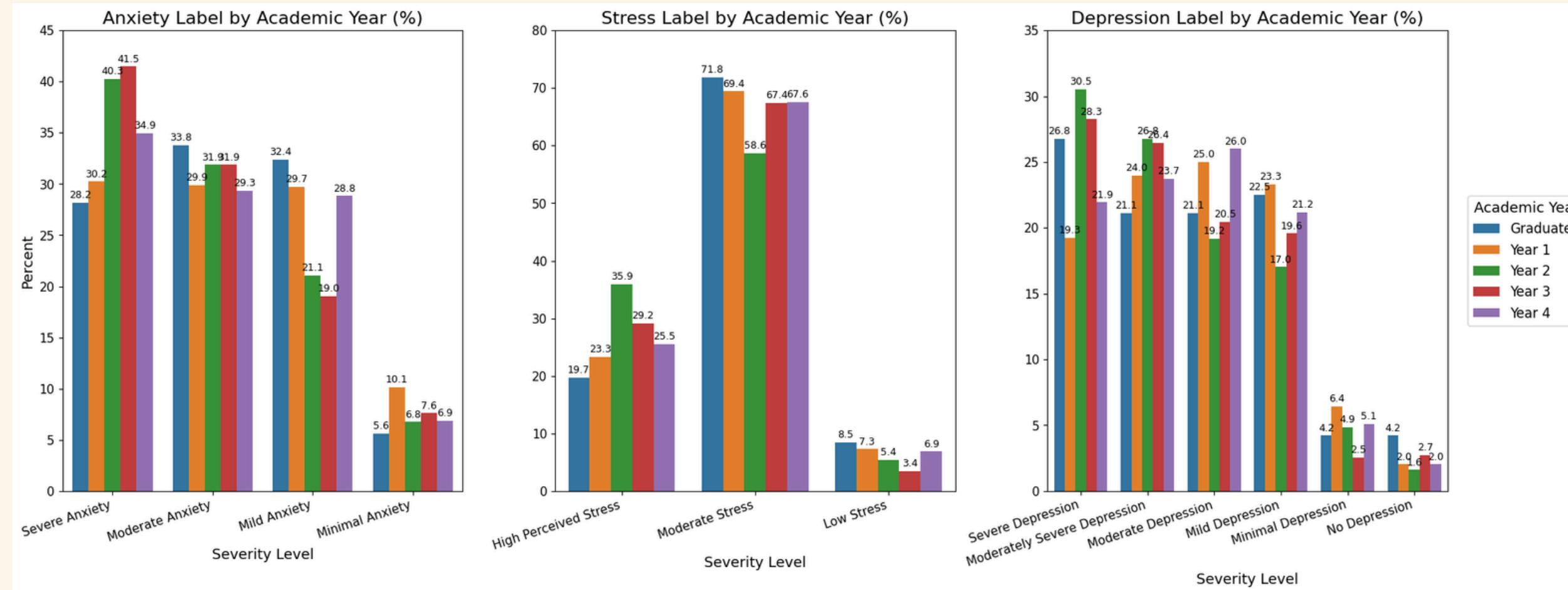
Stress:

- For high perceived stress, Electrical/Electronics Engineering students had the highest rate and showed a statistically significant difference ($p = 0.00$), but other departments showed no significant difference.
- For other stress levels, no significant differences were found.

Depression:

- Not significant

Academic Year



Anxiety:

- For severe anxiety, Year 2 and Year 3 students had higher rates and showed statistically significant differences ($p = 0.019$ and $p = 0.005$); other year groups showed no significant difference.
- No significant differences were found at other anxiety levels.

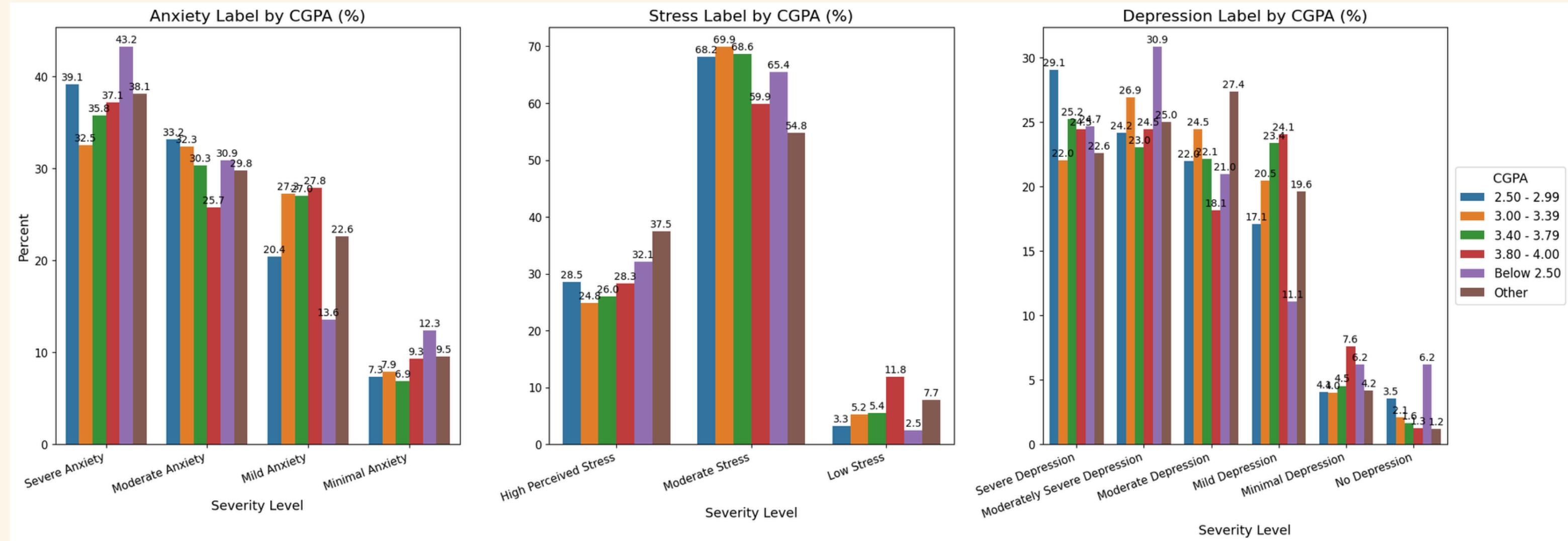
Stress:

- For high perceived stress, Year 2 students had a higher rate than other groups and showed a statistically significant difference ($p = 0.012$); other year groups showed no significant difference.
- No significant differences were found at other stress levels.

Depression:

- For severe depression, Year 2 and Year 3 students had higher rates than other groups and showed a statistically significant difference ($p = 0.000, 0.002$); other year groups showed no significant difference.
- No significant differences were found at other depression levels.

Results for the 'Graduated' group are unreliable, likely due to very few responses in this category, which leads to unstable estimates in the analysis



Anxiety:

- Not significant

Stress:

- For moderate stress, the CGPA group 3.80–4.00 showed a statistically significant difference ($p = 0.001$); other CGPA groups showed no significant difference.
- No significant differences were found at other stress levels.

Depression:

- For severe depression, the CGPA groups 3.00–3.39, 3.40–3.79, and 3.80–4.00 had significantly lower rates than the 2.50–2.99 group ($p = 0.025$, 0.023 , and 0.036 , respectively).
- No significant differences were found at other depression levels.

Results for the ‘Below 2.5’ group are unreliable, likely due to very few responses in this category, which leads to unstable estimates in the analysis

Scholarship



Anxiety:

- Not significant

Stress:

- Not significant

Depression:

- Not significant

Key Symptoms Vs Anxiety

Anxiety Label (Scale 1-5)	
Anxiety - Overthinking	2.503865
Anxiety - Fearful	2.488157
Anxiety - Irritated	2.384037
Anxiety - Restless	2.348243
Anxiety - NervousOnEdge	2.311155
Anxiety - TroubleRelaxing	2.179289
Anxiety - UnstoppableWorry	2.107453

- Overthinking, fearfulness, and irritability are the strongest contributors to student anxiety, indicating that both cognitive overload and emotional sensitivity play a key role in high anxiety levels.
- Focusing support and interventions on these specific symptoms could help address the core drivers of anxiety among students, making mental health strategies more effective.

Key Symptoms Vs Stress

Stress Label (Scale 1-5)	
Stress - OverwhelmedByTasks	2.800701
Stress - LossOfControl	2.689903
Stress - UpsetAcademic	2.625816
Stress - NervousStressed	2.587992
Stress - DifficultiesPileUp	2.515592
Stress - AngeredByGrades	2.178229
Stress - Performance	1.75512
Stress - OnTrack	1.730849
Stress - ConfidentHandling	1.231693
Stress - ControlIrritation	1.207565

- Feeling overwhelmed by tasks, loss of control, and academic upsets are the most impactful symptoms contributing to high stress among students, as shown by their top average scores.
- These findings highlight that academic pressure and struggles with control are central to student stress, suggesting that support efforts should focus on helping students manage workload and regain a sense of control.

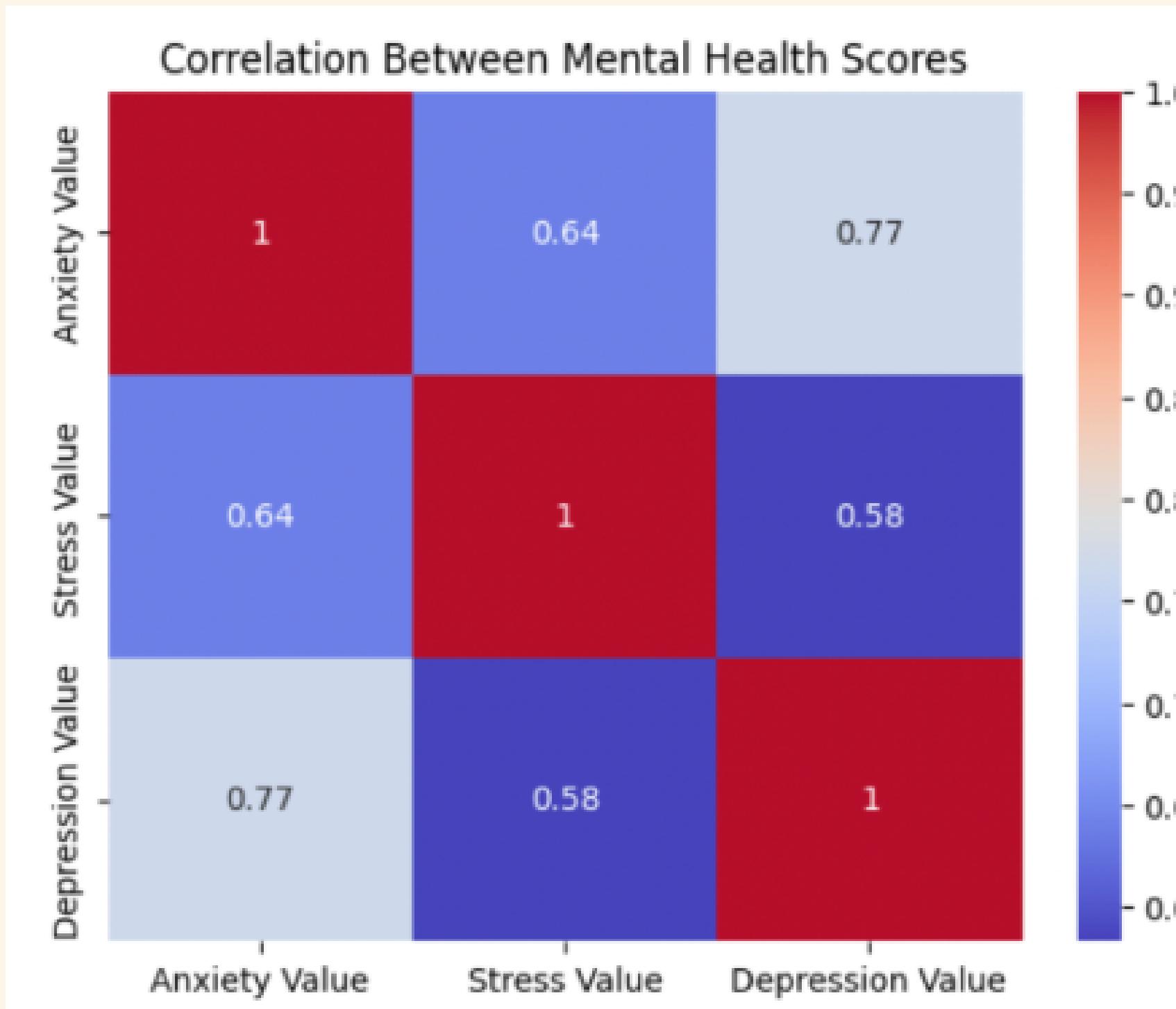
Key Symptoms Vs Depression

Depression Label (Scale 1-5)	
Depression - SelfWorth	2.854508
Depression - LowEnergy	2.846311
Depression - Hopeless	2.829918
Depression - Concentration	2.64959
Depression - SleepIssues	2.645492
Depression - AppetiteChange	2.485656
Depression - MovementChanges	2.428279
Depression - SuicidalThoughts	2.35041
Depression - LowInterest	1.942623

- Low self-worth, low energy, and hopelessness are the strongest symptoms linked to higher depression among students, as reflected by their top average scores.
- These results highlight that emotional exhaustion and a loss of hope or self-esteem are central features of student depression, suggesting that mental health support should prioritize boosting self-worth and addressing fatigue and hopelessness.

Correlation

This heatmap shows how anxiety, stress, and depression scores are related to each other among students.



- All three mental health conditions are **interconnected**.
 - Anxiety and depression are most strongly linked
 - Anxiety and stress are also closely related
 - Stress and depression have a moderate positive relationship
- **Anxiety appears to be the central link** which it is strongly related to both depression and stress, suggesting that interventions for anxiety might have positive effects on both other conditions.

WEBSITE & DASHBOARD

The website dashboard features a navigation bar with 'DASHBOARD', 'PREDICT', and 'ABOUT US' options. Below the navigation is a section titled 'Meet SynapSense' with a sub-section 'We're a team on a mission to help universities detect and support students facing depression, anxiety, and stress, using the power of AI, analytics, and real human empathy.' Four data cards are displayed: '29% of students experience depression', '42.4% face anxiety (18.9% severe)', '16.4% report stress-related symptoms', and '7-8% 12-month suicidality rates'. A note at the bottom states 'Data source: Dessauvage et al., Asia Pacific Journal of Public Health, 2021'. At the bottom left is a 'Our Mission' section with a heart icon and a brief description.





THANK
YOU