Mental Health & Stress Prediction Dashboard

📊 Dataset Overview

2000	**51.4%**	**3.12**	**7.5h**
Total Students	High Stress	Average GPA	Avg Study Hours

🎯 Why Student Mental Health Matters

Key Mental Health Statistics

- **Over 51%** of students in this dataset report high levels of stress
- **Approximately 85%** of students experience moderate to high levels of stress
- **Only 1 in 7** students (around 15%) feel their stress level is low

📋 Sample Data

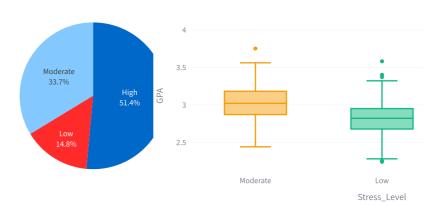|	Student_ID	Study_Hours_Per_Day	Extracurricular_Hours_Per_Day	Sleep_Hours_Per_Day
0	1	6.9	3.8	8.7
1	2	5.3	3.5	8
2	3	5.1	3.9	9.2
3	4	6.5	2.1	7.2
4	5	8.1	0.6	6.5
5	6	6	2.1	8
6	7	8	0.7	5.3
7	8	8.4	1.8	5.6
8	9	5.2	3.6	6.3
9	10	7.7	0.7	9.8

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📈 Data Analysis & Insights

Distribution of Stress Levels Among Students
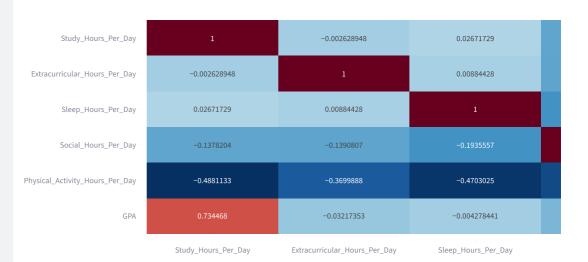
GPA Distribution by Stress Level

🔍 Key Insights from GPA Analysis

- **Low Stress Students:** Majority achieve 2.5-3.0 GPA (75.1%), suggesting insufficient academic pressure may reduce motivation
- **Moderate Stress Students:** Most balanced GPA distribution with 52.2% achieving 3.0-3.5, indicating optimal stress levels
- **High Stress Students:** 63.9% achieve 3.0-3.5 GPA with 19.2% reaching 3.5-4.0, but risk of overwhelm exists

🔗 Lifestyle Factors Correlation

Correlation Matrix of Lifestyle Factors

	Study_Hours_Per_Day	Extracurricular_Hours_Per_Day	Sleep_Hours_Per_Day
Study_Hours_Per_Day	1	−0.002628948	0.02671729
Extracurricular_Hours_Per_Day	−0.002628948	1	0.00884428
Sleep_Hours_Per_Day	0.02671729	0.00884428	1
Social_Hours_Per_Day	−0.1378204	−0.1390807	−0.1935557
Physical_Activity_Hours_Per_Day	−0.4881133	−0.3699888	−0.4703025
GPA	0.734468	−0.03217353	−0.004278441

🎯 How to Read the Correlation Heatmap

Color Guide:

- **Red colors (positive values):** Variables increase together
- **Blue colors (negative values):** One variable increases while the other decreases
- **White/neutral colors (near 0):** Little to no relationship between variables

📊 Key Correlation Insights

- **Study Hours ↔ GPA (0.73):** Strong positive correlation - more study time significantly improves academic performance
- **Physical Activity ↔ Study Hours (-0.49):** Moderate negative correlation - students who study more tend to exercise less
- **Physical Activity ↔ GPA (-0.34):** Moderate negative correlation - higher GPA students tend to have less physical activity time
- **Sleep ↔ Social Hours (-0.19):** Weak negative correlation - more social time slightly reduces sleep
- **Study ↔ Social Hours (-0.14):** Weak negative correlation - academic focus slightly reduces social time

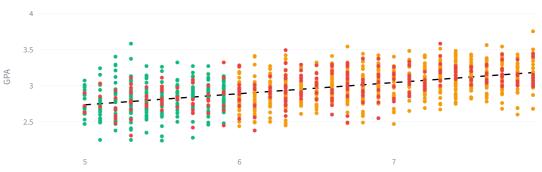## ⚖️ The Academic-Wellness Trade-off

The heatmap reveals a critical insight: **academic success often comes at the cost of physical wellness**. Students who achieve higher GPAs through increased study hours tend to sacrifice physical activity time. This creates a challenging balance between academic achievement and physical health, which may contribute to stress levels.

Recommendation: Students should aim for structured time management that includes dedicated slots for both academic work and physical activity to maintain optimal mental health.

📊 Study Hours vs Academic Performance

Relationship Between Study Hours and GPA

📊 Study Hours Analysis

The scatter plot shows a clear upward trend: students who allocate more hours to studying tend to achieve higher GPAs. The distribution becomes tighter at higher study hours, indicating that dedicated study time not only improves GPA but also reduces inconsistency in academic outcomes.

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🎯 Stress Level Prediction Tool

📝 How to Use This Tool

Enter your daily lifestyle information below to get a personalized stress level prediction. This tool uses machine learning to analyze patterns in student data and provide insights about your stress level.

Study Hours Per Day

6.00

Social Hours Per Day

3.00

Extracurricular Hours Per Day

2.00

Physical Activity Hours Per Day

1.00

Sleep Hours Per Day

7.00

Current GPA

3.00

Predict My Stress Level

Your Predicted Stress Level: Low

Based on your lifestyle patterns, our model predicts you have **low** stress levels.

📊 Your Lifestyle Summary

	Factor	Your Value
0	Study Hours	6.0h
1	Sleep Hours	7.0h
2	Physical Activity	1.0h
3	Social Hours	3.0h
4	Extracurricular	2.0h
5	GPA	3.0

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💡 Personalized Recommendations

🟢 For Low Stress Level Students

Academic Enhancement:

- Set more challenging academic goals to increase motivation
- Join study groups or academic competitions
- Consider taking additional courses or advanced subjects
- Seek research opportunities or internships

Personal Development:

- Develop time management and organizational skills
- Explore new extracurricular activities
- Build leadership skills through student organizations
- Create structured daily routines

🟠 For Moderate Stress Level Students

Maintain Balance:

- Continue current study habits - you're in the optimal zone!
- Regular stress monitoring to prevent escalation
- Maintain consistent sleep schedule (7-8 hours)
- Keep physical activity routine (1-2 hours daily)

Optimization Strategies:

- Practice mindfulness and meditation techniques
- Use productivity techniques like Pomodoro method
- Build strong social support networks
- Regular self-assessment and adjustment

🔴 For High Stress Level Students

Immediate Actions:

- Prioritize sleep - aim for 7-9 hours nightly
- Reduce study hours if exceeding 8 hours daily
- Increase physical activity to 30+ minutes daily
- Practice stress-reduction techniques (deep breathing, yoga)

Long-term Strategies:

- Consider counseling or mental health support
- Learn to say no to excessive commitments
- Develop healthy coping mechanisms

- Regular check-ins with academic advisors

Warning Signs to Watch:

- Persistent fatigue or insomnia
- Declining academic performance despite high effort
- Social withdrawal or isolation
- Physical symptoms (headaches, stomach issues)