Project Title:

Student Mental Health Analysis Using SQL

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Introduction

In today's highly competitive and fast-paced academic environment, students face immense pressure — academically, emotionally, and socially. Despite this, mental health is still a topic often overlooked in data discussions. Through this project, I aimed to explore student well-being using SQL alone, and understand how stress, sleep, lifestyle, and emotional conditions interact with academic performance.

This is not just a technical exercise — it's an effort to bring empathy into data.

🎯 Project Objective

The core objective of this project is to analyze and understand patterns in student mental health using structured SQL queries only — no BI tools, no Python — just logic and data.

Specifically, the project aims to:

- Discover how mental health indicators like depression, anxiety, and panic attacks relate to academics.

- Study lifestyle habits such as sleep, social time, and physical activity.

- Use SQL techniques like joins, CTEs, and window functions to extract deep insights.

- Build awareness around hidden signals that may need intervention or policy support.

The Datasets

1. student_mental_health

Columns : Student ID, gender, age, course, CGPA, marital status, year of study, and responses to questions about depression, anxiety, panic attacks, and specialist consultation.
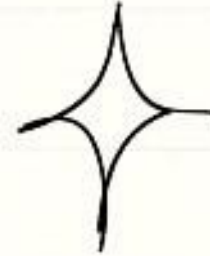
2. student_lifestyle_dataset

Includes lifestyle behavior metrics like study hours, extracurriculars hours, sleep hours, social time, physical activity hours, and stress level (high, moderate, low).

Questions Solved

1 What is the average CGPA based on stress level?

2 How many students report depression & anxiety in each course?

3 Which students sleep <1 hour and report high stress?

4 Top 5 students with lowest sleep but highest CGPA?
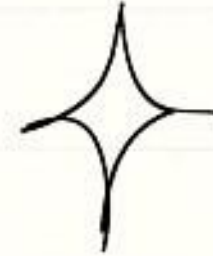
5 Distribution of panic attacks by year of study?

6 Which gender reports more stress on average?

Questions Solved

7 CTE: Find Students with both depression & high stress?

8 What % of students report depression?

9 Correlation Physical activity vs stress?

10 Married vs unmarried: Who seeks treatment more?

11 Who spends the most time socially (ranking)?

12 Avg social time: Panic vs no panic?

1. Students under high stress scored the lowest CGPA. Academic pressure affects performance silently.

2. 35% of students — that's more than 1 in 3. The issue is more common than assumed.

3. Engineering and BIT students are more prone — workloads may be triggering mental health issues.

4. 31 such students surfaced. (out of 100) Less Sleep + high stress = warning signs for support systems.

5. High performers may sacrifice sleep — suggesting burnout behind the grades.

6. First-years faced the most panic attacks. The initial transition appears mentally overwhelming.

7. Females tend to report higher stress on average — showing differing emotional exposure.

8. 17 students out of 100, have both depression & anxiety— early intervention could be crucial for them.

9. Lower activity hours correlated with higher stress — movement helps mental clarity.

10. Married students were more likely to seek specialist help — possibly due to better awareness.

11. Social time varied drastically — some spend less than an hour, others up to 6.

12. Students with panic attacks spend less socially — isolation may worsen symptoms.

Sample SQL code snippets

```sql
SELECT M.STUDENT_ID, L.SOCIAL_HOURS_PER_DAY, M.`DO YOU HAVE PANIC ATTACK?`,
ROUND(AVG(L.SOCIAL_HOURS_PER_DAY) OVER(PARTITION BY M.`DO YOU HAVE PANIC ATTACK?`),2) AS AVG_SOCIAL_BY_GROUP
FROM STUDENT_MENTAL_HEALTH M JOIN STUDENT_LIFESTYLE_DATASET L ON M.STUDENT_ID = L.STUDENT_ID
ORDER BY L.SOCIAL_HOURS_PER_DAY DESC;
```

```sql
SELECT `WHAT IS YOUR COURSE?`,
COUNT(CASE WHEN `DO YOU HAVE DEPRESSION?` ="YES" THEN 1 END) AS DEPRESSION_COUNT,
COUNT(CASE WHEN `DO YOU HAVE ANXIETY?` ="YES" THEN 1 END) AS ANXIETY_COUNT
FROM STUDENT_MENTAL_HEALTH
GROUP BY `WHAT IS YOUR COURSE?`
ORDER BY DEPRESSION_COUNT DESC , ANXIETY_COUNT DESC;
```

```sql
SELECT L.STUDENT_ID, L.SLEEP_HOURS_PER_DAY, M.`WHAT IS YOUR CGPA?`
FROM STUDENT_LIFESTYLE_DATASET L JOIN STUDENT_MENTAL_HEALTH M ON L.STUDENT_ID = M.STUDENT_ID
ORDER BY L.SLEEP_HOURS_PER_DAY ASC , M.`WHAT IS YOUR CGPA?` DESC
LIMIT 5;
```

```sql
SELECT M.`CHOOSE YOUR GENDER`,
AVG(CASE
 WHEN L.STRESS_LEVEL = "HIGH" THEN 1
WHEN L.STRESS_LEVEL = "MODERATE" THEN 0.5
ELSE 0 END) AS AVG_STRESS_SCORE
FROM STUDENT_MENTAL_HEALTH M JOIN STUDENT_LIFESTYLE_DATASET L ON M.STUDENT_ID = L.STUDENT_ID
GROUP BY M.`CHOOSE YOUR GENDER`;
```

```sql
WITH DEPRESSED_STRESSED AS (
    SELECT M.STUDENT_ID, M.`WHAT IS YOUR COURSE?`, M.`DO YOU HAVE DEPRESSION?`, L.STRESS_LEVEL
    FROM STUDENT_MENTAL_HEALTH M JOIN STUDENT_LIFESTYLE_DATASET L ON M.STUDENT_ID = L.STUDENT_ID
    WHERE M.`DO YOU HAVE DEPRESSION?` = "YES" AND L.STRESS_LEVEL ="HIGH"
)
SELECT * FROM DEPRESSED_STRESSED;
```
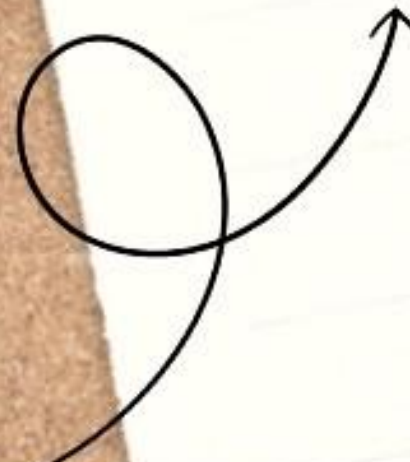
Final Thoughts

Behind every row in this dataset is a real student. Some are performing well but silently struggling. Others may be disengaged from studies and showing signs of high stress — and these patterns often go unnoticed. Through this project, I learned that data can tell stories — if we ask the right questions. It also reminded me that mental health deserves as much analytical attention as academics or finance. Even with no fancy tools, just SQL can bring those stories forward.

Solutions

1 🎓 **Prioritize Mental Health in Academic Programs**

Colleges should provide tailored support for first-year and engineering students, as they're most vulnerable to early stress and panic symptoms.

2 🧘 **Promote Healthy Lifestyle Habits**

Physical activity and social engagement must be encouraged through structured programs — both are clearly linked with lower stress levels in this dataset.

3 🗣 **Normalize Treatment and Counseling**

There's a significant gap in students seeking specialist help. Institutions must work to destigmatize therapy and offer confidential, accessible resources.

📌 Conclusion

This project proves that SQL isn't just for numbers — it's a tool that can uncover powerful social insights. By connecting CGPA with sleep, or panic attacks with social time, we begin to see the invisible weight students carry. The goal here wasn't just to query data — it was to understand people. And that's what makes this project meaningful.

Tool Used: MySQL Workbench (for querying, analysis, and data exploration)

Key Skills Demonstrated: SQL (Joins, CTEs, Window Functions, Group By, CASE, WHERE, Order By, Aggregations)