Student Mental Health

EDA

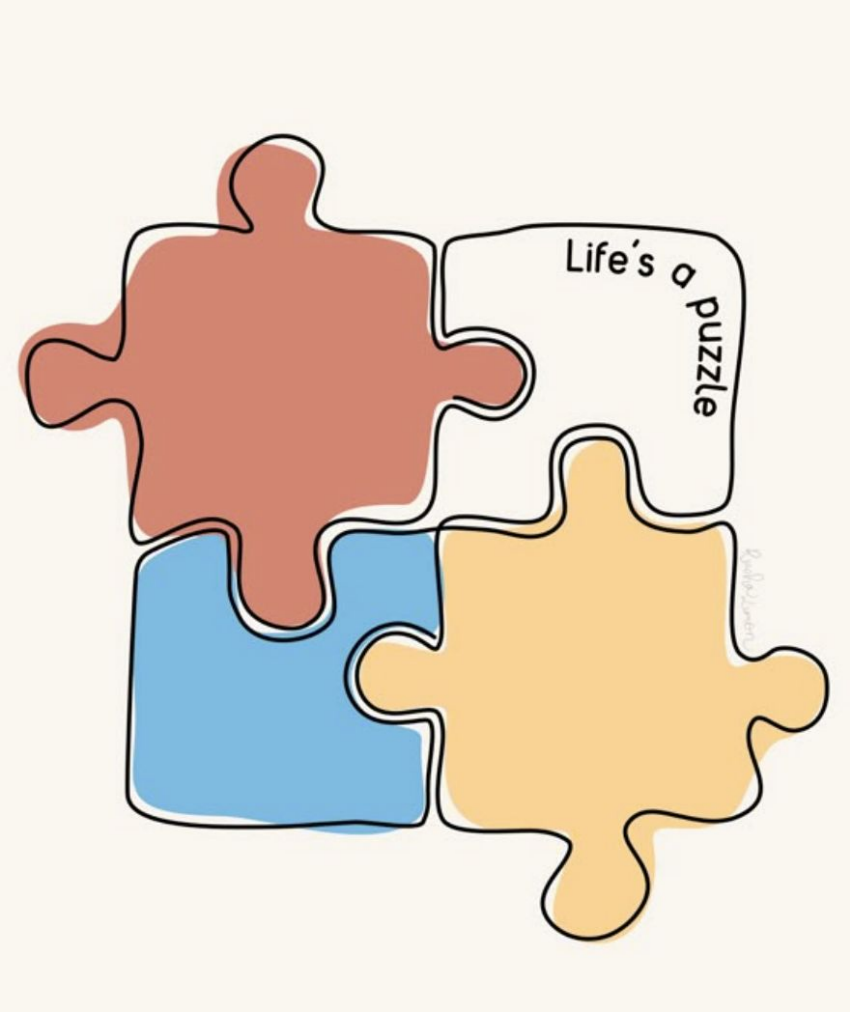
- MENTAL HEALTH INTRODUCTION
- MENTAL HEALTH FACTORS
- IMPORT DATA AND LIBRARIES
- DATA WRANGLING
- DATA VISUALIZATIONS
- CONCLUSION

What is Mental Health ?

- Mental health includes our emotional, psychological, and social well-being.

- It affects how we **think, feel,** and **act** as we cope with life. It also helps determine how we handle stress , relate to others, and make choices.

- Mental health is important at every stage of life, from childhood and adolescence through adulthood and aging .



Why should it be prioritized?

Academic Performance

Social Development

Reduces Risk Behaviors

Improves Attendance & Graduation Rates

Future Success

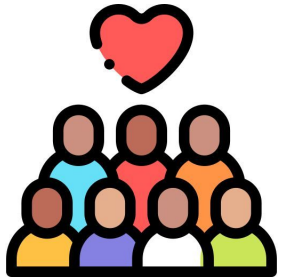
Healthy School Environment

Reduces Stigma

Improved Quality of Life

Chronic Illness

Students with chronic health conditions tend to show high levels of depression and stress.



Social Support

The level of perceived support from others significantly influences mental health, with those lacking support exhibiting higher stress.

Counseling Service Use

Students who regularly use counseling services report notably different levels of stress, depressing, and anxiety compared to those who never use them.

Diet Quality

A good diet is associated with better mental well-being, with poor diet quality linked to higher depression and stress.

Physical Activity

Activity levels correlate with better mental health; students with higher physical activity tend to report lower mental health issues.

Factors

Import Libraries & Data

Dataset Link: https://www.kaggle.com/datasets/sonia22222/students-mental-health-assessments

Libraries

```
import pandas as pd
import numpy as np
import seaborn as sns
import matplotlib.pyplot as plt
```

Load Data

```
file_path = 'students_mental_health_survey.csv'

df = pd.read_csv ('students_mental_health_survey.csv')
```

Explore the Data

```
df.head ()
df.shape
df.info ()
df.describe ()
df.columns.tolist ()
df.dtypes
```

Missing Values

```
df.isnull ().sum ()
```

Unique Values

```
df.nunique ().sort_values (ascending=True)
```

Duplicate Values

```
df.duplicated ()
```

```python
# Clean the Data

for col in df.select_dtypes(include='object'):
    df[col] = df[col].astype(str).str.strip().str.title()
```

```python
# Drop rows with missing CGPA or Substance_Use (small count)
df = df.dropna(subset=['CGPA', 'Substance_Use'])
```

```python
# Handle outliers (e.g., CGPA capped at 4.0)
df = df[df['CGPA'] <= 4.0]
```

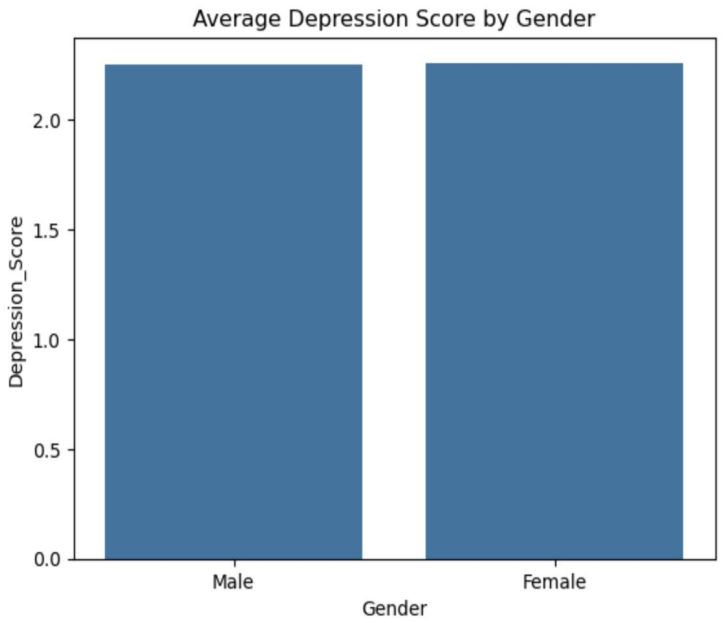
```python
df.drop_duplicates()
```

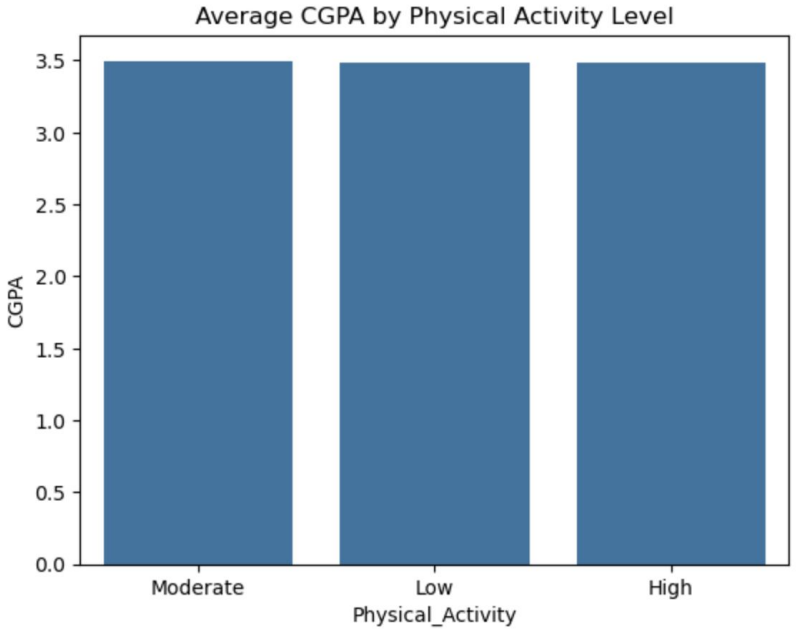
Data Wrangling

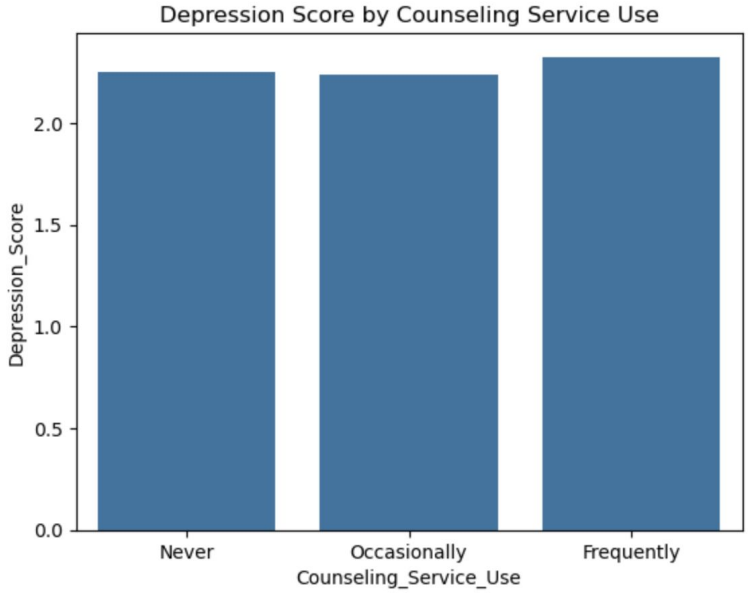
Data Visualizations

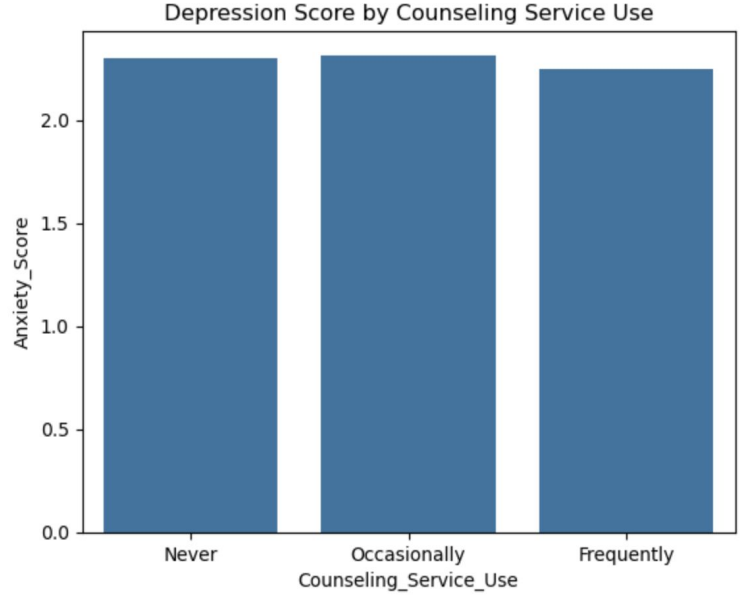
- Data visualizations play a crucial role in transforming complex information into clear, accessible insights.
- Allows us to detect patterns, spot outliers, and communicate findings in a way that's more impactful than raw numbers alone,
- Visualizations help bridge the gap between individual experiences and broader trends.

Bar Graphs

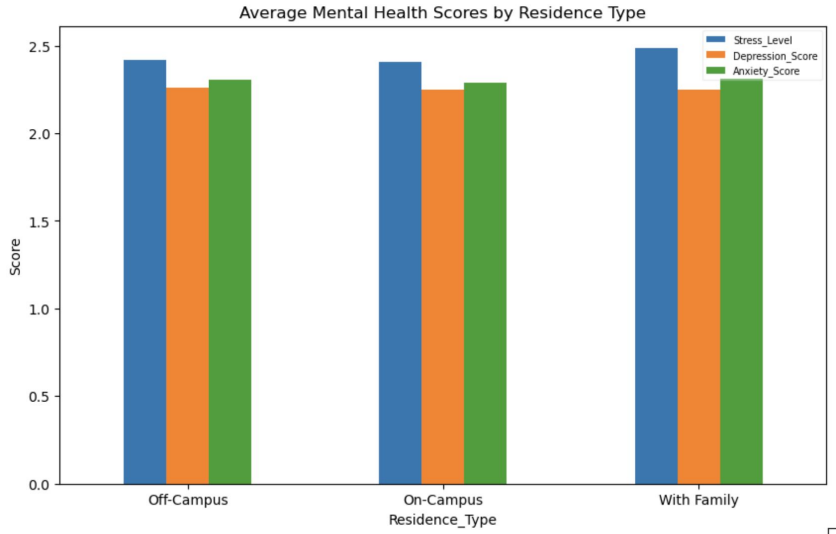

Average Depression Score by Gender
Depression_Score
0.0
0.5
1.0
1.5
2.0
Male
Female
Gender

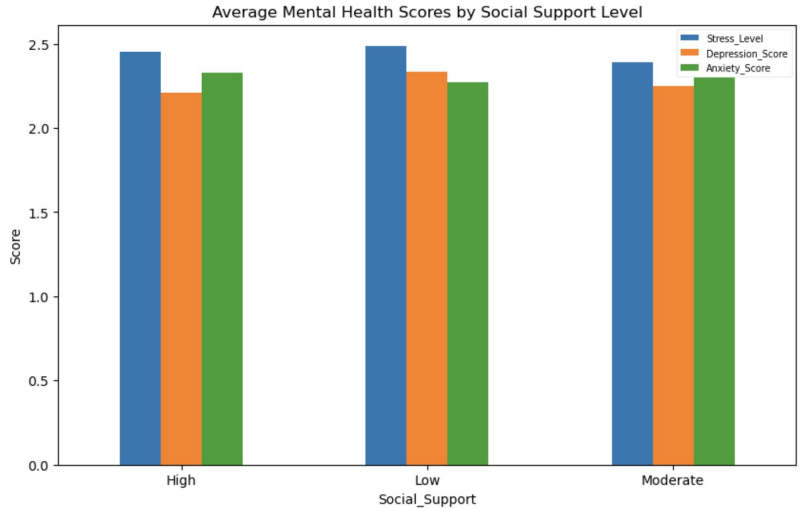

Average CGPA by Physical Activity Level
CGPA
0.0
0.5
1.0
1.5
2.0
2.5
3.0
3.5
Moderate
Low
High
Physical_Activity

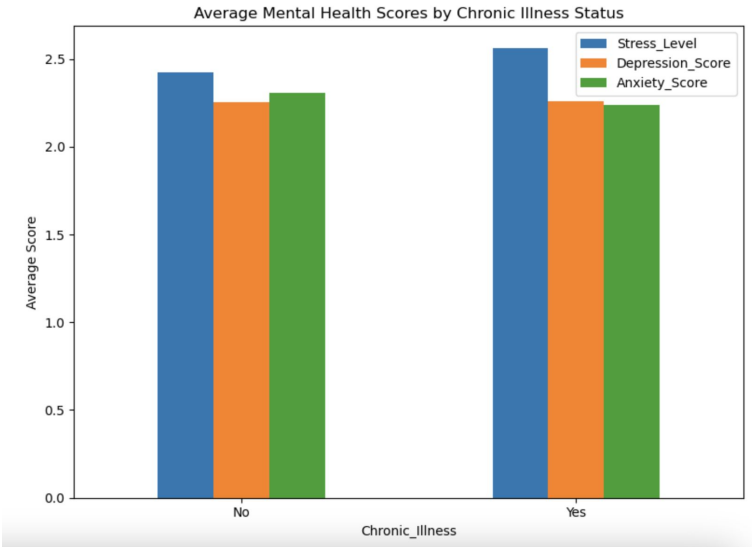

Depression Score by Counseling Service Use
Depression_Score
0.0
0.5
1.0
1.5
2.0
Never
Occasionally
Frequently
Counseling_Service_Use

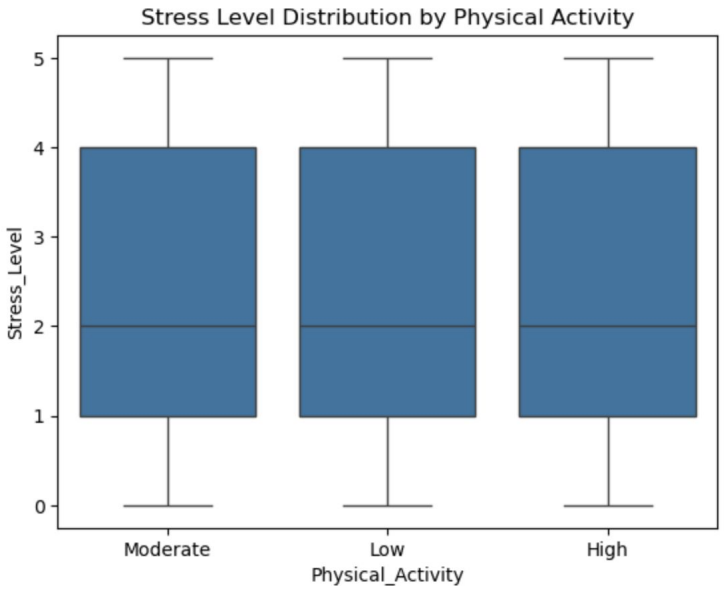

Depression Score by Counseling Service Use
Anxiety_Score
0.0
0.5
1.0
1.5
2.0
Never
Occasionally
Frequently
Counseling_Service_Use

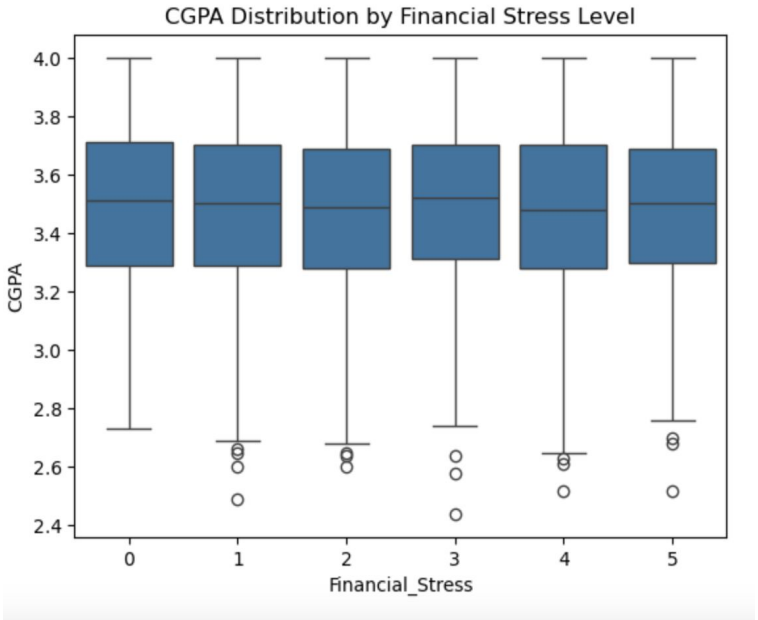
Bar Graphs (groupby)

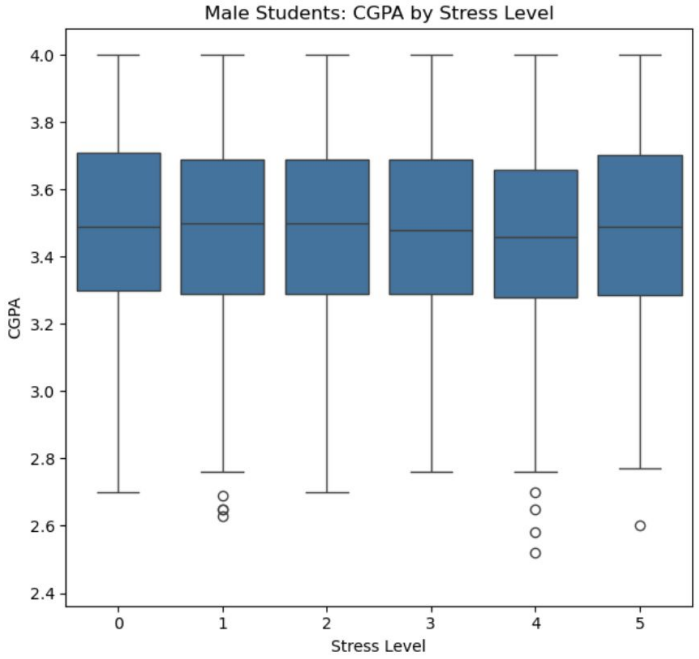


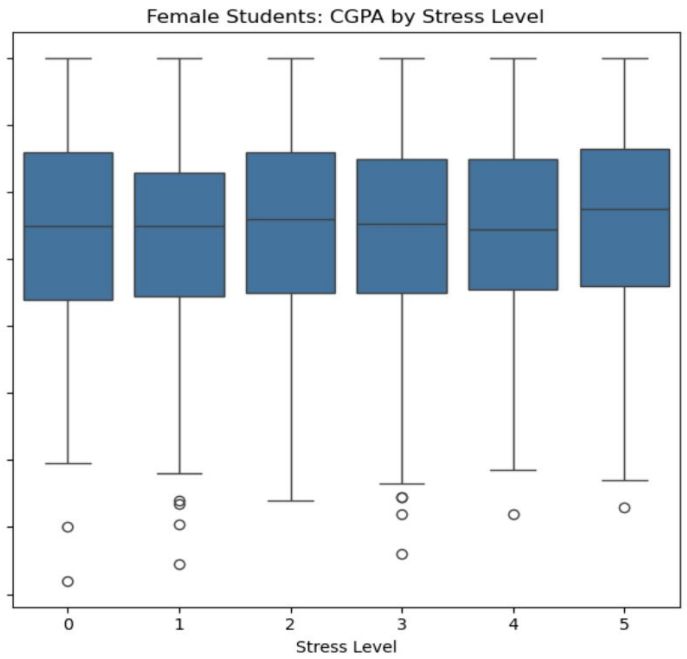




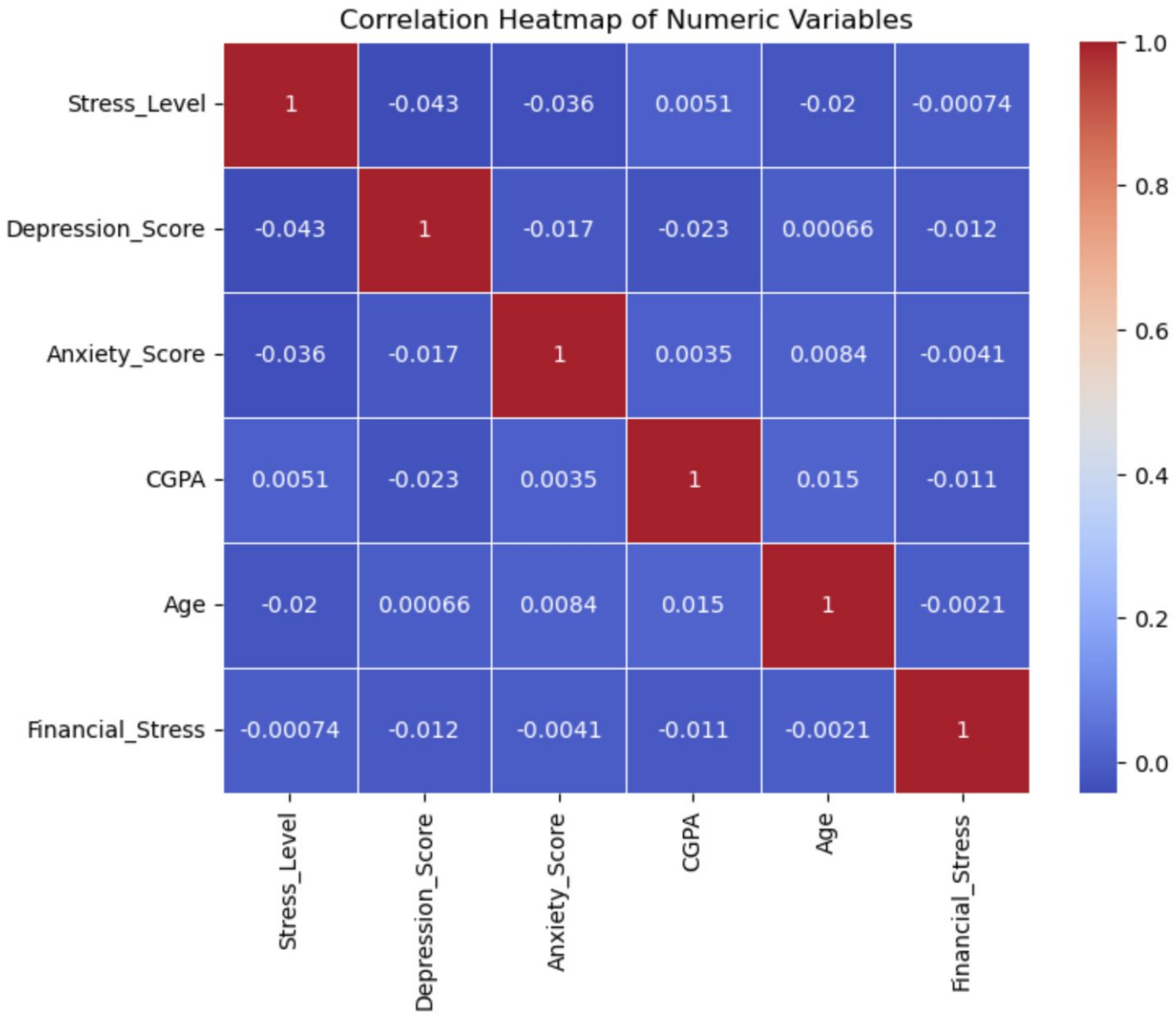

Stress Level Distribution by Physical Activity
Stress_Level
Moderate
Low
High
Physical_Activity


CGPA Distribution by Financial Stress Level
CGPA
Financial_Stress


Male Students: CGPA by Stress Level
CGPA
Stress Level


Female Students: CGPA by Stress Level
Stress Level

Box Plots



Correlation Heatmap

Conclusion:

Student Mental Health EDA

- Students with chronic illness, low social support, or who don't use counseling services report high levels of stress, anxiety, and depression.
- Physical activity and healthy diet are linked to better mental health outcomes.
- Financial stress and academic pressure negatively impact both GPA and emotional well-being.
- Differences in mental health are also observed across gender and residence type.
- The correlation heatmap revealed subtle relationship between CGPA, financial stress, and mental health scores.
- Findings highlight the need for holistic student support systems that address both mental and academic challenges. .