The Association Between BMI and Stress Levels

Report and Analysis

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The dataset focuses on examining the relationship between BMI (Body Mass Index) and stress levels. It includes a large number of participants categorized into normal and high BMI groups. The goal is to determine whether there is a significant difference in stress levels between people with normal BMI and those with high BMI. This analysis is relevant for understanding how body weight might influence mental well-being.

The analysis began with descriptive statistics to summarize the range and distribution of BMI and stress levels. Then, a scatter plot with a trend line was used to visually assess the relationship between the two variables. To test if the difference in stress levels between the two BMI groups was significant, an independent t-test was performed. The test compared the mean stress levels of individuals in the normal weight category versus those in the overweight category.

Hypothesis:
Null Hypothesis (H_0):
There is no significant difference in stress levels between the high BMI and normal BMI groups.

Alternative Hypothesis (H_1):
There is a significant difference in stress levels between the high BMI and normal BMI groups.

In the dataset titled "Dataset even" we have found that:
- Average stress level is 5.34 out of 10
- Most participants scored between 4 and 7.
- Average BMI is 27.29 which falls in the overweight range.
- This suggests that many participants may be overweight and experience moderate stress.

Statistic	Stress Level	BMI
Minimum	1.00	18.52
1st Quartile	4.00	23.24
Median	5.00	26.67
Mean	5.34	27.29
3rd Quartile	7.00	30.81
Maximum	10.00	44.87

Scatter Plot for Relationship of Stress Levels with BMI

- The trend line suggests a slight upward trend in stress levels as BMI increases. This indicates that on average individuals with higher BMI might report slightly higher stress levels.
- There is considerable variability in stress levels at any given BMI value as indicated by the spread of the scatter points. This suggests that while there may be a general trend individual stress levels can still vary widely.
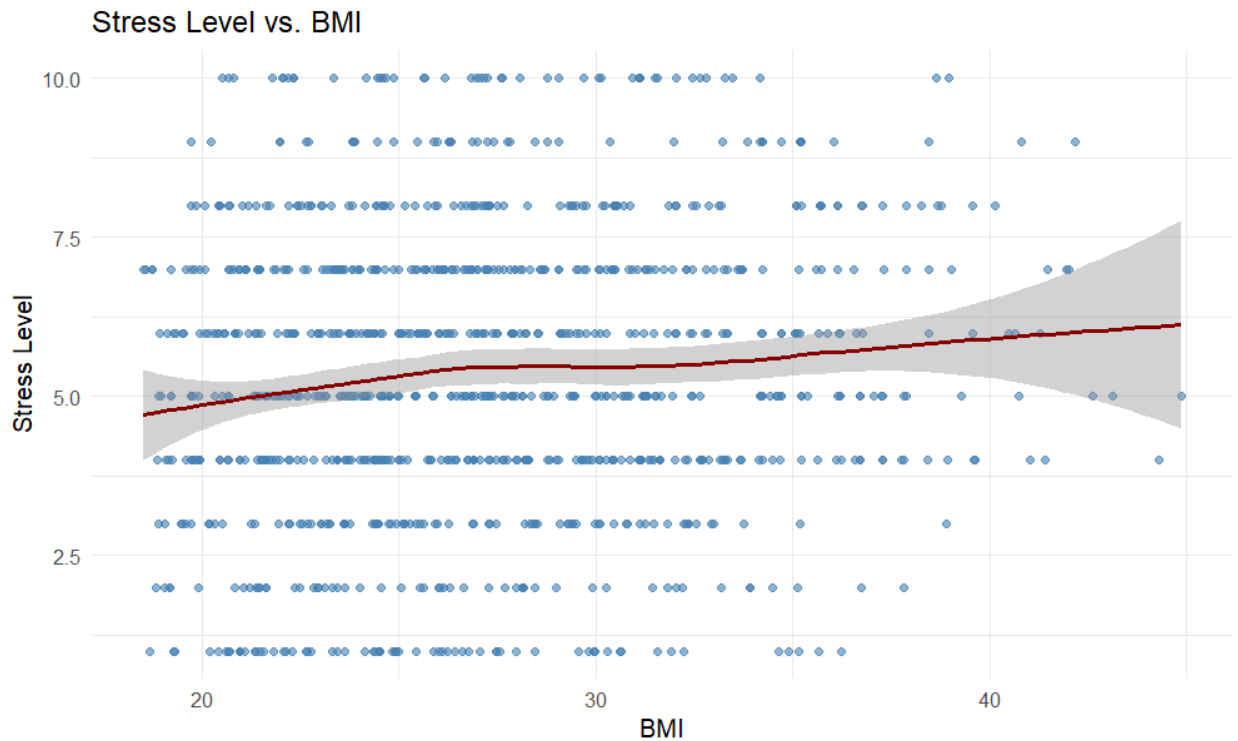
Stress Level vs. BMI

T-test

- There is a statistically significant difference in stress levels between individuals with normal weight and those who are overweight (p = 0.0027).
- On average, the overweight group reports higher stress levels than the normal weight group.
- BMI classification is associated with differences in stress levels.

Statistic	Value
t-value	-3.0071
Degrees of Freedom (df)	811.64
p-value	0.0027

95% Confidence Interval (CI)	-0.765 to -0.161
Mean (Normal Weight)	5.06
Mean (Overweight)	5.53

There is a significant difference in stress levels between normal and overweight individuals, with higher BMI linked to increased stress. This supports the idea that body weight may play a role in mental health, but it's not the only factor. The null hypothesis is rejected and further research could include lifestyle, diet, or sleep habits for a more complete picture.

As a recommendation, stress should be viewed as a multifactorial issue and not solely dependent on body weight. Health professionals should assess patients' stress using broader indicators such as life events, mental health status, and social support. BMI is still important for physical health but may not accurately reflect a person's psychological well-being.