

Egypt University of Informatics

Computer and Information Systems

Data Analysis Course

**The correlation between morning breakfast and GPA of students.**

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# Introduction

Understanding the impact of morning breakfast habits on students' academic performance is a topic of increasing interest in educational research. This study aims to explore the correlation between breakfast consumption and Grade Point Average (GPA) among students. By investigating this relationship, this report aims to focus on the potential influence of morning breakfast on academic achievement.

# Research Question

# "What is the correlation between morning breakfast consumption habits and Grade Point Average (GPA) among students?"

# Hypothesis

There is a positive correlation between regular morning breakfast consumption habits and higher-Grade Point Average (GPA) among students. Students who consume breakfast regularly are expected to have higher GPAs compared to those who skip breakfast or have irregular breakfast habits."

# Population of Interest:

# The population of interest is students in educational institutions like colleges and universities.

# Sampling Method:

An online survey was set up and simple random was the method of the sampling.

Participants are randomly selected from the population. The advantages of this method are that each student gets an equal chance of being selected in this study which augments its chance of being a representative sample. It also expunges the risk of bias.

# Bias Identification:

# In designing the survey, I took steps to avoid bias by ensuring questions were neutral and not suggestive in any way. I included diverse questions to cover various aspects of breakfast habits and GPA, aiming for a comprehensive understanding.

# To minimize response bias, clear instructions were provided, emphasizing honesty and confidentiality. These measures aimed to reduce personal biases in survey design and data collection.

# Survey Questions:

[On average, how many days per week do you have breakfast in the morning (number)]

[CGPA:]

[Do you feel more alert and focused on days when you have breakfast?]

[Have you ever skipped breakfast before a significant academic event (e.g., exam, presentation)]

[If yes, what factors influence your decision to have or skip breakfast?]

[On days when you have breakfast, do you notice any difference in your energy levels throughout the morning?]

Online survey link: <https://forms.gle/ynsCL7kWeQzFEhdM7>

Number of samples collected: 31

# Analysis:

Calculating descriptive statistics measures of central tendency: mean, mode,etc:

A screenshot of a graph

Description automatically generated

We will also create visual representations of the data using charts and graphs to help identify any trends or patterns.

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| This scatter plot represents the relationship between 2 quantitative variables which are the CGPA and the breakfast days per week of students. This plot has a correlation of 0.536 which is a moderate positive correlation. |

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| A green rectangular bar graph |
| This bar chart illustrates the number of students who skipped their morning breakfast before a significant event such as exam, presentation, etc.  This bar chart illustrates a categorical variable. |
|  |
| * This pie chart shows that the students who skipped morning breakfast noticed significant difference in their energy level prior to an important event. * This is a categorical variable in which I used a pie chart to illustrate it. |

# Conclusion

From the graphs above, the conclusion is that by using correlation method of Pearsons’ r it has a value of r = 0.536 which is a moderate positive correlation between morning breakfast and students’ CGPA.

# Any potential issues

1. Confounding Variables: Factors such as mental health or access to resources may influence both breakfast habits and GPA, potentially confounding the relationship between the two quantitative variables.
2. Self-Reporting Bias: Responses may be influenced by social desirability bias leading to overestimation or underestimation of breakfast habits and GPA.
3. Social Influence: Peer pressure or social norms may influence participants' responses, particularly regarding sensitive topics such as eating habits or academic performance.