Implementation Science and Evaluation #26:

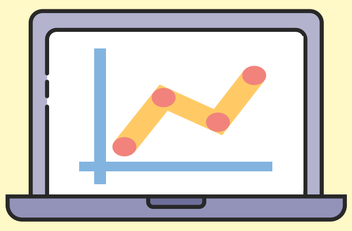
QUANTITATIVE DATA ANALYSIS (II)

HOW to conduct quantitative data analysis?

Use data analytical tools to conduct analysis to gain insights.

Some popular statistical tools used in social science fields include:

- Excel
- SPSS
- STATA
- R
- Python



What is the difference between quantitative and qualitative data?

Quantitative data is numbers-based, countable, or measurable.

Qualitative data is descriptive-based, relating to language.

DESCRIPTIVE ANALYSIS

↳ **Describe** numerical data (i.e. data expressed in numbers)

Mean

Numerical **average** of a set of values

For example:
The mean rating for the exercise class was 2.8 out of 5

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14÷5=2.8

Median

Midpoint of a set of ascending / ranked values listed out **in order**

For example:
The median rating for the exercise class was 3 out of 5

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Mode

Most common value among a set of values

For example:
The mode rating for the exercise class was 3

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Range

Highest and **lowest** value in a set of values

For example:
The ratings for the exercise class had a range of 1 to 4

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Frequency

Number of times a value is found

For example:
30 participants rated the exercise class a 3 out of 5

3 3 3 3 3

Percentage

How a value or group of respondents within the data **relates** to a larger group of respondents

For example:
60% of participants rated the exercise class a 3 out of 5

%

INFERENTIAL ANALYSIS

↳ Involves using a **small set of data to find patterns** about the entire group that the data represents.

Correlation

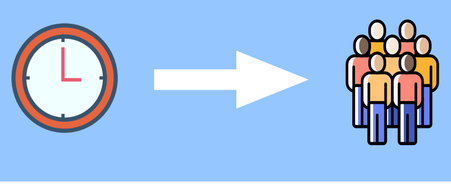
Describes relationships between 2 or more variables

For example:
The **more affordable** the exercise class, the **greater** the number of participants.

Regression

Shows or predicts the relationship between 2 or more variables

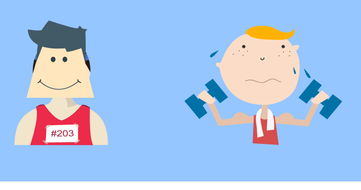
For example:
Timing of exercise class **affects** the motivation to participate (i.e. Classes held before 9am were attended by fewer participants).



Analysis of Variance

Tests the extent to which 2 groups or more **differ**

For example:
Participants who attended exercise classes 3 times a week **lost more weight** as compared to those who did not.



References:

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Prybutok, V. R. (1989). An introduction to statistical methods and data analysis.

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