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Statistic in research - data exploration techniques - methods designed to help us make sense of large amounts of data.
A tool to help turn data into information

Inferential statistics

Can knowledge be inferred from a small sample to a large population? (The result from the ~~sample to a large~~ sampling technique.)

- Population N sample n

- Random ~~sampling~~ sampling doesn't always lead to a representative sample.

- Representative or Bias?

Inferential statistics & Statistical Significance.

- How sure? 100%? 95%? 90%?

- If p represents chance, error, confounding variable.

- If p is less than 0.05, then there's a 95% chance that the study's result are not due to randomness, bias or confounding variable. (never be a p -value of 0 because nothing can be 100%.)

- The smaller the p -value, the more significant the result.

- p -value is the opposite of statistical significance.

*p go down.
~~significant value go up.~~
significant value go up.*

- Negative correlation.

Null hypothesis - predicts there will not be significant relationship.

• Scientists are skeptical (assume nothing until seeing the numbers).

• ~~The~~ The goal is to disprove the null hypothesis. Which, in inferential statistics, predicts the results cannot be applied to a larger population.

	Result are actually significant.	Result are not significant.
Experimenter think the results are significant	Reject Null (Accept alternative study work).	Type I error / False alarm error.
Experimenter think the result are not significant	Type II error / False negative.	<i>Isn't bad, just proving that something didn't work.</i> Accept Null Reject alternative study didn't show anything.

Inferential Errors - anything that allows us or encourages us to link a small group to a larger group where a link shouldn't exist. (Numerically didn't disprove Null, Type I error).

• The relates to the cognitive psychology unit

Heuristics.

Cognitive Biases

• This relates to the social psychology unit.

Outgroup homogeneity.

Descriptive Statistics - ~~des~~ describe the population or sample that is being studied.

studying the small group that's in front of us.

Three types of central tendency.

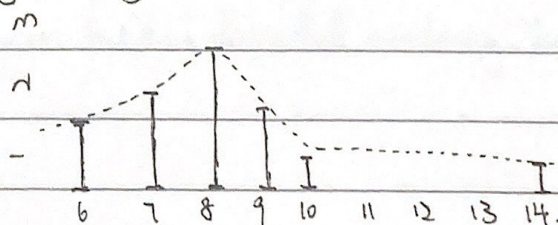
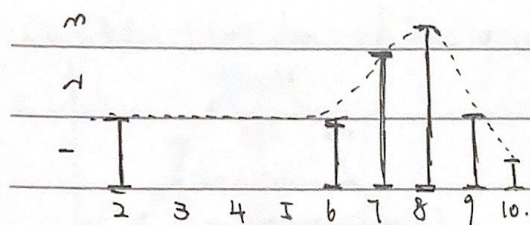
1. Mean - "the average" all of scores summed and divided.

2. Median - the score that appears exactly in the middle of the whole set.

3. Mode - most frequently occurring score.

The median and the mode are relatively unaffected by the presence of a few extreme score (outlier) but one extreme score can throw off the mean.

Skewed data: an outlier is disproportionately affecting the mean.



Skewed Negatively.

The mean has changed = 7.4.

Mean and median are the same = 8.0.

Skewed Positively.

Mean and median are the same = 8.0.

The mean has changed = 9.0.

Graphic Representative.

Bar Chart: 1. categorical data.

2. columns don't touch.

3. nominal - name only, no value.

Histogram: 1. ordinal - data can be put in order

2. columns touch.

3. numerical - continuous data.

Dispersion of scores - a set of score with small range, is going to have a small standard deviation.

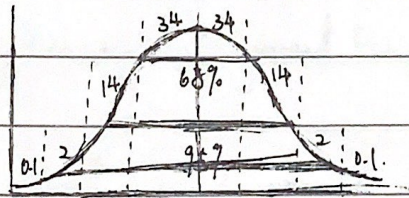
Dispersion or measures of variability how far the scores differ from the mean.

- Low Variability - all scores are close together.

- High Variability - scores are spread out.

- Range - ~~the~~ the highest ~~was~~ subtracting the lowest.

Deviation - Score don't all line up on the mean, but they don't fall randomly. They fall in pattern.



Z-scores - (same thing as standard deviation) assess a score's distance from the mean.

- Useful because it helps researchers compare scores from different studies with different standard deviations.

- Scores below the mean have a negative Z-score.