

Chapter 4 - Measures of Variability

Intro:

- measures of variability are alternatives to measures of central tendency (mean, median, mode)
 - Using measures of variability allows us to see differences between respondents.
- Measures of variability describe diversity or variability in the distribution
 - Shows variation & diversity within the answers we received.
- Measures of variability:
 - 1- **Index of qualitative variation (IQV)** - Measure of variability for nominal variables. Index can range from 0.00 (if all the cases in the distribution are in the same category, meaning no variation) to 1.00 (if all the cases in the distribution are distributed evenly across the categories, meaning max variation).
 - 2- **Range** - Highest score - lowest score. Can be misleading indicator of variation as it's based on 2 values.
 - 3- **Interquartile range (IQR)** - Measure of variation for ordinal variables. IQR uses the middle scores of the distribution, those at the 50% mark. IQR is based on middle scores, so we don't face the problem of misrepresentation of the distribution as we do w/the range.
 - 4- **Standard Deviation** - Square root of the variance. Measures variability in interval-ratio variables.
 - 5- **Variance** - Average of the squared deviations from the mean of the distribution. Measures how spread out a distribution is. Measures variability in interval-ratio variables.
- For nominal vars:
 - **only** use Index of qualitative variation (IQV)
- For ordinal vars:
 - Both Index of qualitative variation (IQV) & Interquartile range (IQR) can be calculated but Interquartile range (IQR) provides more info about the var
- For interval-ratio vars:
 - You can use all 3 (Index of qualitative variation (IQV), Interquartile range (IQR), or variance/standard deviation). Though, the standard deviation & variance provide the most info.