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Exploratory Factor Analysis

DEVELOP A THEORY

- Based on research/existing work
- Identify hypotheses testable by EFA

SELECT YOUR VARIABLES

- Max. Info. From Min No. of Vars
- Aim is to test hypothesis that these can be reduced to a smaller set

INSPECT AND DESCRIBE

- Descriptive statistics + graphs
- Correlation (looking for > 0.3, < 0.8)
- Eliminate variables of concern and repeat if needed

CHECK REQUIREMENTS

- Determinant >0.00001 (something to reduce)
- Bartletts Test of Sphericity (difference from identity matrix) - must be significant
- KMO (amount of variance that could be underlying factors) > .6
- Reliability of scale - Cronbach's alpha > .6

CONDUCT THE REDUCTION

- Choose correct extraction method
  - Normal distribution = Maximum Likelihood
  - Non-normal = Principal Axis Factoring
- Choose Rotation

ASSESS OUTCOMES

- Variance explained by factors - Eigenvalues >1, Scree Plot point of inflexion
- Look at factor loadings - how manifest vars correlate with uncovered factors. Want at least three variables loading onto each factor you intend to extract at level >= 0.3
- Look at loadings before and after rotation
- Look at communalities - how much variance in a manifest variable is explained by a factor
- Look at Total Variance Explained by the factors you want to extract.
- You can eliminate manifest variables that don't suit at this point and repeat

Report on outcomes