Roadmap to Data Analysis

III. Choosing the Right Statistical Test - A Primer

Learning Objectives

This module was designed for agency staff who track data and may need to do basic analyses, or understand enough to work effectively with statistical experts

1. Understand basics of typically used statistics for reporting

2. Understand the relationship between types of measurement and statistical tests

Important Caveat

For those without statistical training, it's very important to consult with a statistical expert

- Setting up measurement and data collection system
- Confirming the choice of statistical test
- Interpreting results
- Identifying best ways to display and report results
- Using more advanced statistical tests (such as multi-variate analyses)

Comparing Averages of Continuous Variables

- *T* tests
  - "Dependent" or paired *t* test: analyzing differences in average scores for the same group of people, with measurements pre- and post-intervention
  - "Independent" *t* test: analyzing differences in average scores between two groups of people (such as male vs. female; or treatment group vs. comparison group)
- Analysis of Variance (ANOVA)
  - Comparing averages between more than two groups of people (such as ethnicity groups)

Correlation

- Analyses the relationship between *two continuous variables,* such as
  - Relationship between age and total PTSD Scale score
  - Relationship between total scores of two different outcome instruments (i.e. total depression score and total PTSD score)
  - Relationship between income and a total score of an outcome measure
  - Relationship between number of services received and a total score of an outcome measure

Chi Square Test of Association

- Analyzes the relationship between two or more different categorical variables, such as
  - Whether there is a relationship between gender and employment status (employed vs. not employed)
  - Seeing if there are differences in types of reported torture among an agency's five client ethnicity groups
  - Clients in a socialization group (compared to those not in the group), reported "I have become more involved in my community (Yes vs. No)"

Choosing the right statistic—"cheat sheet"

Independent variable	Dependent variable	Statistical test
Continuous	Continuous	Correlation
Categorical, two independent groups	Continuous	Independent *t* test
Categorical, two group	Continuous	Dependent (or paired) *t* test
Categorical, *more* than two groups	Continuous	ANOVA*
Categorical	Categorical	Chi Square Test of Association
More than one independent variable	Either categorical or continuous	Multi-variate analysis (such as linear or logistic regression)*

*Seek consultation for these!