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SPHSC 569
Single Subject Design

Reliability

Slide 2

Reliability-Quantitative and Qualitative Data

Procedures
Measures

Slide 3

Procedural Reliability

- Treatment-**Procedures** for implementing treatment-Treatment Fidelity
- Dependent Measures-**Procedures** for collecting probe data-Measurement Procedure Fidelity

Slide 4

Fidelity of Treatment Delivery: Why Bother?

- Improve treatment
- Insure treatment integrity
- Enhance clinical science

Slide 5

Treatment Integrity

The degree to which treatment is delivered as intended

- Development of a treatment manual/protocol
- Monitoring delivery of treatment as indicated in the manual
  - adherence-degree to which protocol is followed
  - competence-level of skill in which protocol is implemented

Slide 6

Fidelity of Measurement Procedures: Why Bother?

- Insure integrity of measurement procedures
- Enhance clinical science
- How far do you go? Standardized tests?

Slide 7

Fidelity of Measurement Procedures

The degree to which probe procedures are delivered as intended

- Development of a protocol
- Monitoring delivery of protocol as indicated
  - adherence-degree to which protocol is followed
  - competence-level of skill in which protocol is implemented

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Procedural Reliability

(Billingsley, White, & Munson, 1980)

- Identify highlights/critical elements of delivery of procedures (create a template)
  - Deciding the critical elements
    - Instructions
    - Implementation
- Have observer document the implementation of these critical elements
- Examples

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Measurement Reliability

Evaluation of agreement in recording/scoring data

- Intra-observer agreement
  - What's the purpose?
  - What's the level of analysis?
- Inter-observer agreement
  - What's the purpose?
  - What's the level of analysis?
- Approaches – Issues (consider distribution of data and chance)
  - Overall agreement
  - Point - by - point
  - Correlation
  - Kappa
  - Alternatives

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Occurrence/Correct Nonoccurrence/Incorrect Data

- General Agreement and Point-by-point comparison
- Each opportunity for a response can be scored as correct or incorrect (e.g., phoneme production)
- Formula (Handout)

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Categorical Data

- Cohen's Kappa (Cohen, 1960)
- For data that are categorical. An opportunity for a response can be scored as two or more categories (not correct or incorrect) (e.g., semantic relations)
- Formula (Handout)
- Paradox – solutions (See references)

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Measurement Reliability Alternative Approaches

- Visual Inspection - Plot data
  - Enough to see trends
- Collection and agreement analysis different

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Training Observers

Keep track of procedures, sessions, hours at each step:

- Practice coding together-work out bugs in the taxonomy, develop coding skills
  - video
  - on-line
- Practice coding individually
  - compare/discuss
- Practice/test coding individually
- Final competency test (report % agreement)

(Handout)

Slide 14

Qualitative Data-
(Lincoln & Guba, 1985)

- Trustworthiness—"reality" is a multiple set of mental constructions
- Truth Value—Demonstration that the multiple constructions have been represented adequately

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Qualitative Data-
Trustworthiness

- Credibility
- Dependability
- Confirmability

Slide 16

Credibility

- Prolonged engagement
- Persistent observation
- Triangulation
- Peer debriefing
- Negative case analysis
- Referential adequacy (verifying against archived “raw data)
- Member Checking

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Dependability

- Establish credibility (credibility leads to dependability)
- Overlap methods (form of triangulation)
- Stepwise replication--analogous to split-half mode of testing reliability--two inquiry teams as sources of data, conducting inquiries independently (daily or milestone points)
- Inquiry audit--auditor of the process--protecting the stakeholders

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Confirmability

- Inquiry audit--auditor of the product
  - triangulation
- See Lincoln and Guba for a complete description of auditing