Training in the Clinical Use of Single Subject Designs: An Important Strategy for Building an Evidence Base for Clinical Practice

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BACKGROUND

- The majority of doctoral programs in clinical and counseling psychology are based on training models that emphasize using empirical evidence to guide practice
  - Increasing emphasis on use of empirically validated treatments and "evidence based practice"
- "Evidence based practice" involves using evidence from research and clinical experience to guide practice
  - While relying on clinical experience is important, observational and reporting biases and placebo effects can affect conclusions drawn from clinical experience
  - Using methods to document change with patients can be useful
- Most research designs do not lend themselves to use in clinical practice
  - One exception to this is single subject designs (SSD)
- Levels of research
  - **Level 1**
    - Continuous data collection and documentation of change
  - **Level 2**
    - Semi-experimental; systematic application of DV, continuous monitoring of IV
  - **Level 3**
    - Level 2 + replication and generalizability
- SSD can be used to produce any level of research
  - Thus appropriate for explicit research practices ***and*** for documenting change with individual patients
- The purpose of this poster is to:
  - Demonstrate how SSD can be used during clinical practice to document change in patient behavior
  - Highlight ways to incorporate training regarding integrating SSD into clinical practice

SSD: DEFINING FEATURES

- Track target over time
  - Clinician or patient data collection
- Compare performance within patient
  - Track behavior before and after start treatment
  - Track behavior as different treatment components are added
- Replication of experimental effect
  - Most important for Level 3 research
- Visually plot data to determine whether change is occurring
  - Level: mean performance within phase
  - Trend: "best fit" line
  - Variability: amount data vary around mean or slope
  - Latency: length before IV demonstrates impact on DV

EXAMPLES OF DATA COLLECTION SYSTEMS

- Frequency
  - Best with discrete behavior & trying to change how often a behavioral event occurs
- Duration
  - Best with behavioral events that tend to last for several moments & goal is to change how long events last
- Product/outcome
  - Measuring the outcome of targeted behavior
- Latency
  - Time between prompt/cue and behavioral event
- Standardized ratings
  - Questionnaires
  - SUDS

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USING PRINCIPLES OF SSD IN CLINICAL PRACTICE

- Emphasizing Levels 1 and 2
  - Typically "simply" trying to determine if change is occurring
  - Less interested in demonstrating empirically that IV is responsible for change in DV
- Collaboratively define behavioral event(s) to use as marker of change with patient
- Develop and implement data collection system
  - Trade quality of data for quantity of data
  - Determine what is manageable for patient
- Be prepared to alter data collection system
  - Initial system not feasible or not capturing what is of interest
  - Goals change during course of treatment
- Graph data and share with patient
  - Use graphs to review progress
  - Collaboratively decide whether sufficient progress is occurring based on available data

DESIGN OPTIONS FOR CLINICAL PRACTICE

THE A-B DESIGN

- Quasi-experimental SSD (Level 1 or 2 research)
- "A" Phase
  - Pre-treatment phase (baseline)
  - Obtain several data points
    - Days, blocks of days, weeks, etc
- "B" Phase
  - Treatment phase

THE A-B-C+ DESIGN

- Quasi-experimental SSD (Level 1 or 2 research)
- Sequentially adding additional treatment components; example
  - A = pre-treatment
  - B = relaxation training
  - C = imaginal exposure
  - D = in vivo exposure

MORE RIGOROUS DESIGNS

- Appropriate to use Level 3 research designs in clinical practice
  - A-B-A-B withdrawal design
  - Multiple Baseline Designs

TRAINING THE USE OF SSD IN CLINICAL PRACTICE

- Identify faculty/mentor versed in SSD
  - Look beyond clinical faculty as appropriate
- Emphasize prospective data collection
  - Individual & group supervision
  - Brainstorm strategies for monitoring progress
- Expect data-based case presentations
  - Informally during supervision
  - Formally during case presentations
- As a supervisor, ask for the evidence
  - Teach trainees to be prepared to demonstrate change is occurring
- Read studies using SSD (e.g., journal clubs)
- Encourage submission of data-based case presentations to journals

RESOURCES

Freeman, K. A., & Mash, E. (2008). Single case research designs. In M. Hersen and A. Gross (Eds.) In M. Hersen & A. Gross (Eds.), *Handbook of Clinical Psychology, Volume II: Children and Adolescents* (pp. 322-350). Hoboken, NJ: Wiley & Sons.

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