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Designing, implementing, and analyzing EMA (Diary) research: Research and clinical applications

This workshop provides practical guidelines for conducting EMA/diary research across all phases, organized into the topics of design, implementation, and analysis. The design section introduces the merits of EMA/diary approaches, provides an overview of contemporary EMA/diary literature, and discusses how to optimally design an EMA/diary research study under a variety of conditions (e.g. student vs. clinic samples, paper/smartphone/website diary methods, etc.). The implementation section provides a step-by-step guide on issues related to participant recruitment, retention, data compliance, participant compensation, and many other topics. Attendants will become familiar with a ready-made access database they can use to track all aspects of EMA/diary study implementation, designed to improve efficiency, reduce errors, and provide analytics to better understand their sample in real time. The analysis section provides a conceptual and statistical overview of multi-level modeling with EMA/diary data, and then gives step-by-step instructions on how to prepare data, conduct analyses, and translate output into a journal article report (including best practices for tables/figures and method/result write up). I finish this section by demonstrating how these approaches can be applied to a single clinical case and I provide a program that clinicians can use to implement a daily diary for an individual patient to with applications for patient assessment in their daily life and treatment progress.

By the end of this workshop, attendants will be well versed in conceptualizing, implementing, and analyzing EMA/diary research. This workshop is valuable for a beginner interested in implementing EMA/diary approaches, an established EMA/diary researcher looking for increased efficiencies in study implementation, a journal reviewer wanting to become knowledgeable about the current trends and issues in MLM or EMA/diary research, and/or a clinician interested in using a daily diary design to track patient progress.

Hour 1 Objectives: To describe the strengths/limitations of EMA/diary research. To discuss the design considerations (who, what, where, when) when implementing an EMA/diary design across different populations and diary collection methods.

Hour 2 Objectives: To discuss implementation strategies and use a comprehensive access database to automatize the implementation process across recruitment, data compliance, retention, and compensation of participants.

Hour 3 Objectives: To analyze EMA/diary data using multi-level models, with hands-on learning approaches and comprehensive data scripts.

Course Outline

- Design
  - Introducing EMA/diary and why it is important
  - Discussion of what questions EMA/diary designs can answer well
  - Limitations of EMA/diary designs
  - Practical guidelines on what to measure: focus on length of survey, reliability analyses of scales in multi-level designs, response scale considerations, references for published measures (for attendants to consider using, or reading to understand how to validate new measures with EMA/diary designs).
  - When to measure: discussion of event/beep/non contingent designs, equal time spacing and implications for analytic models.
  - Overview of the samples (college, community, clinical, adolescents, etc.) appropriate for diary studies.
- Implementation
  - Recruiting and retaining participants: different sample types and special considerations.
  - Online vs. paper diary methods
  - Training participants: including sample training powerpoint slides and core discussion points.
  - Data management and compliance: using a ready-made access database that can be used by attendants to manage their study protocols including patient contact, data compliance, compensation, etc.
- Analysis
  - Overview of multi-level modeling (conceptually, statistically, data syntax)
  - Step by step guide of how to format data, test assumptions, translate output into tables and write-up of method and result section.
  - Clinical application using person-specific data analytic methods to capture the dynamics of a specific client in their daily life (and discussion of how to implement this approach with their participants).