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### Abstract Information

**Abstract Title:**
Calculating Effect Sizes for Single-Subject Experimental Designs

**Format:**
Poster

**Themes:**
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**Abstract:**
This poster will compare a variety of procedures to compute an effect size estimate for data from single-subject experimental designs (SSEDs). SSEDs are typically examining pre-treatment versus post-treatment performance within a small sample of participants, or treatment versus no treatment conditions across individuals. The adoption of evidence-based practice (EBP) demands greater accountability and more reliable, objective results which has led to increased scrutiny of how SSED research is analyzed. EBP emphasizes the importance of objective outcome measures, especially “magnitude of effect” indices or “effect sizes” (ES). Including ES in published research displays the relative strength of various treatments. ES are also needed to summarize outcomes from SSEDs for inclusion in meta-analyses and systematic reviews. Controversy exists as to which techniques are most appropriate to analyze between-phase differences in SSEDs and derive meaningful effect size estimates for synthesizing studies. Two general types of statistical-summary strategies have been proposed for assessing magnitude of effect in SSEDs, non-regression and regression approaches. Regression approaches determine efficacy of SSEDs by using linear-regression techniques to model repeated observations. The resulting R2 regression ES easily can be converted to Cohen’s d, a popular ES in group designs. Non-regression approaches use the amount of non-overlapping data as an indicator of performance differences, i.e., the extent to which data in baseline versus intervention phases do not overlap is an accepted indicator of the magnitude of effect. This poster will focus on the applicability of non-regression based techniques including Improvement Rate Difference (IRD)(Parker, Vannest, & Brown, 2009), Pairwise Data Overlap (PDO)(Parker & Vannest, in press), Percentage of All Non-Overlapping Data (PAND) (Parker et al., 2007), Percentage of Data Points Exceeding the Median (PEM) (Ma, 2006), and Percentage of Non-Overlapping Data (PND)(Scruggs, Mastropieri, & Casto, 1987). These metrics will be compared relative to their performance in detecting treatment effect in single-subject studies targeting behavior increase. Data sets from recent meta-analyses of single-subject research related to augmentative and alternative communication and behavior modification will be used to illustrate performance differences, advantages and disadvantages of each technique and the relationship among the different metrics. Patterns will be highlighted of instances where the different metrics yield discrepancies in effect size scores as well as perfect agreement. This field test will reveal if any metrics are superior to others in estimating treatment effect and recommendations will be derived for researchers planning to conduct a systematic review or meta-analysis of SSEDs.