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Single case and idiographic research: Introduction to the special issue

Our goal in organizing this special issue focused on single case and idiographic research is to highlight the important scientific contributions that the study of the single case and the use of idiographic methods can make to our field. Single case investigations hold an important place in the history of behavior research and therapy, as described in the paper by Onghena et al. in this series, but have been largely supplanted by group designs. However, the pendulum appears to be swinging back toward the study of the single case. It is unlikely to be a coincidence that the increased interest in the single case comes at a time when the National Institutes of Health (NIH) have called for an increased emphasis on personalized health care (Hamburg & Collins, 2010), and strategy 3.2 of the National Institute of Mental Health's (NIMH) Strategic Plan calls for mental health researchers to expand and deepen the focus on personalized intervention research. We welcome this increased focus on idiographic methods and approaches to treatment, and we aim to support it with the collection of articles we have gathered here.

A carefully-designed single case study can test causal hypotheses about the relationship between interventions and outcomes. The design features needed to provide this quality of evidence are clearly described by Alan Kazdin, one of the masters of the field, in his article for this series. Of course, replication is needed to show that the effect generalizes to other cases. But as Kazdin (2011) points out, this is also true of large-sample randomized controlled trials (RCTs), and as Fisher, Medaglia, and Jeronimus (2018) point out, group-to-individual generalizability is also a threat to our research. The Kazdin paper in this series provides a thoughtful primer of methods that can guide readers who were not trained in single case methods, and that we hope will encourage them to consider conducting these studies themselves and training their graduate students to do so.

One of the other papers in the series makes methodological contributions. Onghena and colleagues provide an introduction to changing criterion single case experimental designs, and they describe statistical tests that can be used in this less widely used single case experimental design (SCED). The article offers a very clear exposition that is easy for even non-methodologically-sophisticated readers to understand. As an added bonus, the paper begins with a gorgeous and thoughtful account of the history of single case methodology in psychology.

A particularly beautiful and elegant feature of the single case study is that its design can match up very closely with high-quality routine clinical practice, as Hayes (1981) showed in his classic paper. In the present series, the paper by Caneiro, Smith, Lingon, Moseley and O'Sullivan effectively illustrates the way that single case study design and high-quality clinical practice can overlap. Caneiro et al. study four individuals who suffer from persistent low back pain. The study design consists simply of intensive data collection assessing multiple variables, including pain, pain controllability, fear, distress, sleep, and disability collected during an 8-week baseline period, weekly during treatment, and 12 weeks later. Although clinicians may assert that an 8-week baseline assessment period during which no treatment is provided is not tenable, an argument can also be made that for many patients with chronic illnesses that have not responded to many interventions, an 8-week baseline assessment that will allow the provider to clearly identify whether the treatment provided is helpful or not, is a worthwhile investment. All of the features of the design (long baseline, intensive data collection during the intervention, follow up assessment) can be built into routine clinical practice, and will both increase the quality of care and, with patient informed consent, allow clinicians to make a contribution to knowledge. We hope that this article, and indeed all of the articles in the special series, will encourage practitioners to consider collecting data from their patients and publishing studies that can make a contribution to the field and to shrinking the science-practice gap.

The paper by Hayes, Hofmann, and colleagues presents a model of Process-Based Therapy (PBT), in which interventions target processes, in contrast to the prevailing model of treatment described in protocols that target disorders. Several of the key elements of PBT overlap with typical elements of single case studies, such as the idiographic focus of treatment, and the focus on mechanisms underpinning change process. PBT's focus on process change allows for a tighter link between research and practice, as it describes exactly the type of thinking that the clinician carries out in the process of doing clinical work that is guided by collecting data to develop and test hypotheses about the psychological mechanisms that maintain and support the patient's symptoms (Persons, 2007). We can hope the process-focused thinking in the Hayes et al. paper, and indeed all of the articles in this special issue, will encourage investigators who are doing larger-scaled studies, including RCTs, to collect fine-grained process data that will allow them to learn not just about outcome, but also about the process of change of the treatments they study.

The single case study is also an excellent medium for the development of new treatments, as the paper by Boswell and colleagues illustrates. They flesh out the details and provide some initial information about the feasibility and acceptability of a novel transdiagnostic strategy for eating disorders that is based on the hypotheses that these patients' symptoms are maintained in part by anxiety sensitivity (beliefs about the dangers posed by somatic sensations and experiences of anxiety), and by interoceptive deficits, including, for example, perceived sensations of fullness that trigger beliefs that the person is fat and intense disgust emotions. The paper examines, in 4 cases, some very creative intervention ideas that are drawn from conceptualization and treatment of panic disorder and applied in this study to the treatment of eating disorders, which are some of the most serious, sometimes life-threatening disorders, and among the most refractory to change of the

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psychiatric disorders.

The paper by Boettcher and Barlow also focuses on interoceptive exposure, yet for panic and claustrophobia symptoms. Boettcher and Barlow adopt a flexible single case design to examine the unique impact of interoceptive exposure alone, as well as combined interoceptive and situational exposure, on panic and claustrophobia symptoms. The article raises a clinically relevant and interesting subject (i.e., the unique and additive effects of different forms of exposure), and the results highlight important clinical implications for adapting a treatment component to give the most effective care to a specific patient. In a similar fashion to Boswell et al. and Boettcher and Barlow, Sauer-Zavala et al.'s study focuses on a particular intervention component – opposite or inconsistent action in response to urges associated with an intense emotional state. The researchers adopted a core SCED, the alternating treatment design (ATD), to explore the effects of an opposite action intervention in a sample of individuals with borderline personality disorder, with clear clinical practice implications.

A hallmark of single case and idiographic research is the reliance on intensive measurement of key variables over the course of the interventions(s), as well as the baseline period. The paper in this series by Bentley et al. highlights this characteristic. For example, Bentley et al. discuss the methodology and implications of real time monitoring technologies and ecological momentary assessment for single case research. They offer a useful review of the real-time monitoring literature and provide examples of ways to translate the data gathered from real-time monitoring approaches to conceptualization and treatment planning.

The articles in this special issue provide encouragement and assistance to readers who wish to incorporate intensive data collection and other features of single case design into their research methodology and their clinical practice, so that important learning about change processes in individual cases can contribute to clinical practice, knowledge in our field, and the narrowing of the science-practice gap.

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