Evidence-Based Practice using a Single-Subject Experimental Design

Introduction

Research studies involving single-subject experimental designs (SSED) have an important role in the pursuit of evidence-based practice and are an important resource in clinical practice. Although randomized controlled trials (RCTs) may hold the ‘gold standard’, they may not be feasible, available, or timely. Unlike large-scale studies that may exclude patient conditions, SSED can be individualized and include patients with multiple issues. Thus research using SSEDs can be found in many disciplines such as psychology, speech-language pathology, physical therapy, nursing and occupational therapy.

Objectives:
- To familiarize clinicians with single-subject experimental designs (SSEDs).
- To provide a research example to demonstrate how SSEDs can be conducted in a clinical setting to contribute towards evidence-based practice.

What is SSED?

There are two approaches to experimental research:
- Group Designs
- Single-Subject Experimental Design

Group Designs
- Ideally n = >12 participants per group
- Two groups - control group and experimental group; such as RCT
- A group with a random selection of participants from a larger population

Single-Subject Experimental Design
- n = 1 participant to 6+ participants
- Single-Subject Experimental Design (SSD)
- The research participant serves as own control
- Variables are manipulated and the effect of the independent variable (IV) on the dependent variable (DV) is measured.

What SSED is Not

Is not one of the following single-subject descriptive designs:
- Diary study (only has A phase = baseline)
- Treatment-only Case study (has B phase)
- Case study with baseline and treatment, but no control (A – B phases)
- Pre-experimental design (A – B phases)

Advantages of SSED

- Experimental design to identify the effectiveness of specific treatments or the viability of treatments in real-life settings
- Can be individualized and include patients with multiple issues making them ideal for clinical applications
- Can be easily incorporated into clinical practice
- Can be conducted during scheduled therapy sessions in the clinic
- Does not need a large number of participants to conduct.

Discussion and Conclusions

Evidence-based research should drive clinical practice. However, research is not commonly being conducted in the clinical settings, despite the fact that research studies can benefit from the participation of clinicians and draw from their clinical experiences and insight. With clinical research support and the use of single-subject experimental designs (SSEDs), clinicians in non-research or non-academic settings can participate and conduct research.

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