Evidence-Based Practices and Single-Subject Research Designs in Counseling

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Abstract

It is widely recognized that evidence-based treatments need to be adopted by practicing counselors. The ACA Code of Ethics states that counselors will use empirically supported treatments, yet there is minimal evidence of this practice despite external pressures from health care providers and government agencies. The ACA Code of Ethics (Section C, Professional Responsibility) also states that “Counselors have a responsibility to the public to engage in counseling practices that are based on rigorous research methodologies.” This manuscript discusses the controversies around evidence-based treatments, effectiveness, and efficacy; presents a set of standards often used to identify evidence-based practices; cites three counseling approaches recognized as meeting this criteria; and recommends that future studies examining counseling effectiveness employ single-subject research designs.

Progress has been made toward defining evidence-based research by the National Institute of Mental Health and other federal agencies, yet there remains a need for greater clarity and flexibility concerning this phenomenon. Despite evidence-based practice (EBP) becoming a major focus during the last two decades, there is still debate as to what constitutes an EBP and whether those practices can be successfully implemented by practitioners.
EBP is often defined by both efficacy and effectiveness, and there are many challenges in determining whether an intervention incorporates both of these aspects. Efficacy reflects the strength of a treatment in a controlled environment (e.g., randomized, controlled trials [RCTs]). In juxtaposition, effectiveness is the potency of the treatment when it is applied in an everyday setting (Bower, 2003). Studies exploring research effectiveness focus on treatment as it would be implemented in natural settings (Flay et al, 2005). Effectiveness can be described as an overarching phenomenon; with efficacy as a part of it. The efficaciousness of an intervention is often proven first via RCTs, followed by studies of effectiveness in actual clinical settings (Flay et al, 2005). Both of these concepts are important when considering EBPs in counseling. Experts posit that practices that have been proven efficacious in RCTs can be difficult to be proven as effective in the community (Haaga & Stiles, 2000).

In actual clinical settings, EBPs may not be implemented correctly, or fully. It can be very difficult to measure clinician competence in the treatment method and verify that the clinician is using the interventions correctly. Research studies show that even though clinicians claim they engage in EBPs, and believe they are using them efficiently, in studies of actual sessions, the frequency that clinicians used them was much less (Miller, Yahne, Moyers, Martinez, & Pirritano, 2004; Riley, Rieckmann, & McCarty, 2008). There is also research indicating that results are more likely to be statistically significant for interventions in which the principal investigator has shown a preference (known as the “allegiance effect”; Luborsky et al., 1999; Miller, 2011). This makes it even more difficult to discern whether the treatment is actually effective. In addition, during efficacy studies, the participants considered for inclusion are often limited, and may not reflect an actual client caseload in community settings (Schloss & Haaga, 2005). For example, in several of the RCTs that have found dialectical behavior therapy (DBT) to be efficacious (e.g., Harned et al., 2008; Linehan et al., 1999), the sample was limited to Caucasian women, with a mean age of approximately 30 years, who had engaged in non-suicidal self-injury or attempted suicide within the past several years. Participants were excluded if they had also been diagnosed with a bipolar disorder or psychotic disorders. Unfortunately, this limited sample criteria may not be representative of a typical clinician case load in a community setting. Finally, though efficacy research results might show improved outcomes for a treatment over treatment-as-usual, there is much less actual research on the mechanisms of clinical intervention that produced improved outcomes (Schloss & Haaga, 2005). To use the example of DBT again, there is uncertainty regarding which aspect is the most influential in effecting positive clinical change. Research has been recommended to assess whether it is the psycho-educational skills groups, the therapeutic stance of the therapist, or the 24-hour phone coaching that makes a difference (Lynch, Chapman, Rosenthal, Kuo, & Linehan, 2006).

There are other limitations related to the implementation of EBPs. Despite overwhelming research on the efficacy of EBPs in community settings, a disconnect remains regarding whether EBPs are actually used in clinical practice. In fact, a number of studies have indicated that EBPs are underutilized by clinicians (Tobin, Banker, Weisberg, & Bowers, 2007; Wallace & von Ransom, 2012). There are several factors considered relevant to the lack of using EBPs in clinical practice. These include clinician and administrator perceptions of EBPs, lack of training, a dearth of resources available in practice settings, high staff turnover, and a lack of funding (Ganju, 2003).
The clinicians’ perception of EBPs seems to be a major factor in whether or not EBPs are implemented in real world settings. According to Rogers (2003), diffusion of innovation clinicians will review their current treatment approaches, review the EBP treatment, and then decide if they believe the treatment will be compatible and increase positive outcomes in practice. This process can be subjective and lead to problems, especially since all EBPs have limitations with clinicians being more likely to focus on those limitations (Simon & Perlis, 2010). Many clinicians still have concerns that even though an approach might work in an experimental setting, they may not work in real life settings (Schloss & Haaga, 2005). The structural and funding limitations affect the implementation of EBPs. In addition many treatment centers do not offer training in EBPs or require their clinicians to be knowledgeable of EBPs.

Behavioral science researchers have questioned the criteria used to define evidence-based treatments, its emphasis on manualized treatments, and the research designs employed to study counseling outcomes. Hansen (2010, as cited by Shallcross, 2012) further questioned whether studies looking at counseling outcome are actually focusing on the right target, considering theory or the specific counseling approach utilized, accounts for only a small part of outcomes in counseling. Research findings on counseling outcomes indicate that 30% of the counseling outcome is due to the relationship, 15% is due to the counseling approach, 15% is due to placebo, and 40% is due to extratherapeutic factors (Horvath & Symonds, 1991; Lambert & Barley, 2001). Hansen asserted that meta-analytic research studies have consistently found that specific counseling techniques account for less than 1% of the variance in client outcomes, thus supporting a counseling research agenda that focuses on factors other than theory or technique. Hansen has suggested that we have a lot to learn about factors instrumental to the counseling relationship, and as such, the relationship should be the focus of research in counseling, perhaps using single-subject designs (as cited in Shallcross, 2012). Fundamental questions remain concerning the definition of and the criteria used to determine whether a treatment or practice reaches the threshold of being evidence-based. Despite these issues, counselors should be familiar with the criteria that have been used to determine whether a counseling approach or practice is evidence-based.

**Criteria for Evidence-Based Practices**

A number of factors need to be explored when determining what constitutes an evidence-based practice in counseling. Factors to consider include: defining the evidence, determining how much evidence is needed, examining conditions necessary for the evidence to be valid, and assessing real life issues. Change needs to be a major focus when determining whether a counseling practice is evidence-based. Does a particular practice or intervention change a client’s problem in a positive direction? Is the method used to produce change studied under varied conditions and settings? Have studies been replicated with diverse populations? Is the phenomenon being investigated relevant, and are the measures used to determine change valid?

The following seven criteria are suggested to determine whether a protocol or treatment has reached the threshold of being evidence-based (Smith, 2011).
1. **Randomized clinical trials of the practice or intervention.** Has the research used randomized clinical trials demonstrating effectiveness? Several studies are often necessary that incorporate random sampling procedures with participants assigned to treatment.

2. **Demonstrated effectiveness using different samples.** Have studies been replicated with samples taken from a number of settings?

3. **Dependent and independent variables clearly defined.** Are dependent, outcome variables, and treatment interventions clearly defined?

4. **Feasibility of the practice or intervention.** Has the intervention been administered according to procedures and standards which can be used by others?

5. **Assurances of fidelity.** Have interventions been implemented according to standard ethical practices and are the procedures transparent?

6. **Theoretical foundation.** Is the intervention supported by theory? Is the intervention theoretically grounded?

7. **The practice addresses diversity.** Have the practices or interventions been used with diverse populations?

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**Criteria for Evidence-Based Practices Using Single-Subject Research Designs**

Single-subject research designs are recommended to investigate the efficacy of counseling approaches. Single-subject research studies examining counseling approaches should address the following seven standards.

1. **A Complete Description of the Participants and Setting**
   - Descriptions of participants should be thorough, allowing others to use practices under similar conditions.
   - The selection process of participants is described in detail.
   - The setting is described in detail.

2. **A Comprehensive Definition of Dependent Variables**
   - Dependent variables should be operationally defined.
   - Dependent variables should be measured with valid instruments.
   - Dependent variables should be measured repeatedly over time.
   - Reliable data collection procedures should be used and validated.

3. **A Complete Description of the Independent, Treatment, Variable**
   - Independent variable is fully described and systematically administered.
   - Fidelity of the implementation of the treatment is emphasized.

4. **A Baseline Phase is utilized**
   - Conditions of the Baseline Phase are fully described.
   - Baseline data are used to establish existing conditions or a normal pattern.

5. **Internal Validity is experimentally controlled**
   - The effects of the independent variable is demonstrated during at least three different points in time.
   - Threats to internal validity are controlled.
6. External Validity
   - Treatment is replicated under similar circumstances, producing similar effects.

7. Social Validity
   - The dependent variable being studied is of practical significance.
   - Change in the dependent variable is of practical significance.
   - The overall intervention is cost effective and beneficial to society.

**Recognized Evidence-Based Counseling Approaches**

Government sponsored health agencies have emphasized, and often required, the use of treatment interventions that have proven to be evidence-based. Behavioral science professionals using evidence-based practices are more likely to receive funding from state and federal agencies. It therefore behooves counselors to be familiar with evidence-based counseling practices when appropriate. Three approaches that are viable for many of the problems facing clients are presented. First, cognitive behavioral therapy (CBT) is presented. CBT is supported by extant research as an evidence-based treatment for a wide range of client issues. It is important that practicing counselors have the knowledge base and skills needed to effectively address client problems using CBT. Second, Person-centered counseling (PCC), although not as extensively researched as CBT, is recognized as an evidence-based practice. PCC emphasizes the significance of the counselor-client relationship in successful counseling outcomes. Finally, dialectical behavior therapy (DBT) is presented as a more recent evidence-based approach. DBT is one of few evidence-based approaches suggested for borderline personality disorders (BPD) and shows promise with several other presenting problems, including suicide, substance use disorders, and binge-eating disorders. By combining components of CBT, behaviorism dialectics, and mindfulness meditation, DBT offers an effective approach for counselors who work with clients diagnosed with the above issues (Dimeff, Koerner, & Linehan, 2007).

**Cognitive Behavioral Therapy (CBT)**

Cognitive behavioral therapy is the most widely recognized and researched evidence-based counseling approach. CBT addresses relationship issues, depression, anxiety, self-defeating behavior, cognitive issues, and a number of other problems facing individuals, couples, and families. Its title demonstrates the use of both cognitive and behavioral principles. Research focusing on client issues such as eating disorders and substance abuse has also supported CBT as an evidence-based treatment that is often recommended over other approaches, (Beck, Rush, Shaw, & Emery, 1979; Lambert, Bergin, & Garfield, 2004; McHugh, Hearon, & Otto, 2010; Murphy, Straebler, Cooper, & Fairburn, 2010; Otte, 2011).

Cognitive therapy (CT), originally developed by Aaron Beck and closely aligned with rational emotive therapy (RET), founded by Albert Ellis, evolved into CBT by integrating several behavioral principles including goal setting, contingency management, behavioral rehearsal, and modeling. The approach allows clients to gain an awareness of the interrelatedness of cognition and behavior. As an evidence-based practice, CBT emphasizes protocol and structure and is often presented in a manual format. CBT practices include: stress inoculation, relaxation training, behavioral rehearsal, positive
confrontation, restructuring, contingency management, and reframing (Hofmann, 2011; Hofmann, Sawyer, & Fang, 2010). Although different protocols are used to deliver cognitive behavioral therapy, there are several common elements. The CBT protocol often includes: an examination of self-talk, relaxation exercises, biofeedback, teaching coping strategies, confronting negative or self-defeating thoughts, addressing maladaptive beliefs, and setting goals. Treatment is structured and often outlined in a manual.

The beginning stage of CBT is known as functional analysis, consisting of teaching clients how thoughts, feelings, and circumstances contribute to self-defeating behaviors. The counselor works with the client to disrupt destructive thoughts and behaviors by addressing the client’s underlying belief system. When using cognitive behavior therapy, counselors teach alternative behavioral strategies and effective coping skills that can be practiced within and outside of the counselor’s office. The emphasis of CBT is to effectively change or modify one’s thoughts as well as behavior patterns. In summary, CBT examines self-destructive patterns of thinking, ineffective behavior patterns, and the client’s overall belief system. A number of methodological issues have been raised with clinical studies that have supported CBT as an evidence-based practice, (Grant, 2009). These criticisms are discussed later.

**Person-Centered Counseling (PCC)**

Person-centered counseling, considered to be a nondirective theoretical approach, stresses the importance of the therapeutic relationship as a growth experience (Rogers, 1942, p. 30). The core conditions of a therapeutic relationship in PCC are ‘congruence,’” “unconditional positive regard,” and “empathic understanding” (Rogers, 1957, p. 96; Rogers, 1959, p. 213). These conditions are instrumental to positive therapeutic outcomes, (Murphy, Cramer, & Joseph, 2012). Person-centered theorists have described this approach as a process of psychotherapy that engages people and considers their values and opinions in a respectful manner (Cooper, 2007). This approach has been described as an effort by the therapist to understand clients as a whole, and accept their uniqueness in every situation (Brodley, 2005).

Person-centered counseling has established a record as an evidence-based practice. Studies have reported significant improvement in clients with depression, schizophrenia, and in adolescent and family counseling (Hewitt & Coffey, 2005; Karver, Handelsman, Fields, & Bickman, 2006; Watson & Geller, 2005; Zuroff & Blatt, 2006). The results of a 5 year Meta analysis indicated that person-centered counseling was effective for clients with common mental health problems, such as anxiety and depression (Gibbard & Hanley, 2008). Effectiveness was not limited to individuals with mild to moderate symptoms, but extended to people with moderate to severe symptoms of long duration.

Components associated with person-centered counseling include active listening, genuineness, paraphrasing, empathic understanding, creating a safe environment, developing trust, reflecting feelings, encouragement, hope, and bringing out the client’s awareness and personal choice (www.person-centered-counseling.com). Person-centered counseling components have been integrated with cognitive behavior therapies, creativity and expression practices, and mindfulness (Bazzano, 2011; Hughes & Kendall, 2007; Leahy, 2008; Rogers, Tudor, Tudor, & Keemar, 2012).
Dialectical Behavior Therapy (DBT)

Dialectical behavior therapy, (DBT) introduced by Marsha Linehan in 1993, is one of few empirically supported treatments for BPD. DBT, utilizing dialectical theory, cognitive behavioral therapy, and Zen practice, focuses on helping clients to change their thoughts and behaviors while accepting themselves and their situations. DBT is based in the biosocial model of BPD, which states that BPD is the result of an invalidating environment and pervasive emotion dysregulation. DBT includes rigorous skills training groups, homework activities, between session phone coaching, and individual therapy. Weekly skills groups are divided into four different modules, Mindfulness, Interpersonal Effectiveness, Emotion Regulation, and Distress Tolerance. Each module focuses on building skills to replace dysfunctional thoughts and behaviors used to regulate emotions. Individual sessions are focused on targeting life threatening, therapy intervening, and quality of life interfering behaviors. Phone coaching is offered 24 hours a day and is focused only on behavioral skills coaching. (Linehan, 1993). The efficacy of this treatment with clients diagnosed with BPD has been supported in several RCTs comparing DBT with treatment-as-usual (Bedics, Atkins, Comtois, & Linehan, 2012; Linehan, Armstrong, Suarez, Allmon, & Heard, 1991; Linehan et al., 1999). These RCTs have included a comparison control group of treatment by therapists considered experts in treating personality disorders and patients struggling with diagnoses in addition to BPD (Chen, Matthews, Allen, Kuo, & Lineham, 2008; Linehan et al., 2006).

DBT subsequently has been an effective treatment for adult suicidal females, adults and adolescents with psychiatric disorders and substance abuse, eating disorders (binge eating, anorexia and bulimia), depression, bipolar disorders, trichotillomania, attention deficit disorders, and victims of abuse. A number of studies have supported DBT as an evidence-based treatment for the above disorders (Kliem, Kröger, & Kosfelder, 2010; Linehan, 1987; Lynch, Morse, Mendelson, & Robins, 2003; Rathus, & Miller, 2002; Telch, Agras, & Linehan, 2001).

Review of Evidence-Based Treatments

Cognitive behavior, person-centered, and dialectical behavioral therapies have not escaped a critical review of the research supporting their approach as evidence-based. First, the studies supporting these approaches have been unable to use double-blind research designs. In most cases the client and therapist are well aware of the treatment being studied. The client as a participant in the change process is often hoping and expecting to get better. This situation remains a challenge to researchers, particularly with informed consent standards that introduce a greater awareness by clients of treatment protocols, while at the same time protecting their welfare. Second, there exists a concern regarding the structure and manualization of treatment in evidence-based studies that devalue the importance of the counseling relationship and spontaneity during counseling. Critical components of counseling (e.g., empathy, genuineness, warmth, respect, and immediacy) are ignored despite their significance in determining successful counseling outcomes.

A significant amount of the research supporting evidence-based counseling approaches has relied on experimental designs using treatment and control groups. It is argued that the traditional treatment-control group experimental designs are an insensitive
paradigm to assess individual counseling efficacy (Lundervold & Belwood, 2000). Treatment in group experimental design studies requires large samples in order to test measures of significance and effect size. However, practicing counselors mainly work with individuals, couples, or families rather than in a group or classroom setting. Large sample sizes are difficult to obtain since most counseling takes place on a one to one relationship. Research paradigms used to study the effects of counseling need to be consistent with the every day practices of counselors (McLeod & Elliott, 2011). Single-subject research designs, considered the best kept secret in counseling, are therefore recommended to examine counseling effectiveness (Barlow & Hersen, 1984; Bloom, Fischer, & Orme, 1995; Lundervold & Belwood, 2000).

Future Research in Counseling: In Support of Single-Subject Studies

Evidence-based studies in counseling have lagged behind other disciplines including special education, school psychology, and social work. Several reasons have been cited for the slower pace of published research findings on the efficacy of counseling. A frequently cited explanation has been the failure to adequately train counselors in appropriate research methodology, specifically practice-relevant methods (Lundervold & Belwood, 2000). Counselor education programs have been cited as; inadequately preparing counselors to conduct research, teaching research methods that are irrelevant to practice settings, employing non-counselor research professors to teach in counselor education programs, and providing minimal opportunities for counselors in training to conduct research. Of main concern has been a lack of counselor education programs teaching a research methodology appropriate to practice settings. Perhaps the failure to use single-case research design methods is due to traditional views, as well as, training in research methods often equated with group experimental designs. An N = 1 design methodology may seem strange to the traditionally trained researcher.

Single-subject research can play an important role in the development of evidence-based practice in counseling. Single-subject studies are recommended as a methodology for research in counseling due to their systematic and detailed analysis of individuals. The experimental nature of single-subject research is that it documents causal relationships between independent (counseling treatment) and dependent (client change) variables. The individual participant or client is the unit of analysis in single-subject research. However, multiple participants are often included in a study, with each individual serving as their own control. Baselines are used in single-subject research to gauge the dependent variable, often the client’s behavior, before applying an intervention. As with most research designs, when employing single-subject research it is important to provide operational descriptions of the independent and dependent variables.

There is a history of single-case (N = 1) designs being used in special education, school psychology, marriage and family therapy, and by behavioral counseling practitioners (Greene, 1988; Jacobson, 1979; Kolko & Milan, 1983). For example, single-case designs have been used to evaluate the effects of levels of counselor empathy on client behavior and group functioning (Edelson, Miller, Stone, & Chapman, 1985; Nugent, 1992). Instructing students and practitioners in the use of single-case research designs and allied statistical tests will elevate the value and demonstrate the efficacy and validity of counseling. Perhaps counseling can eventually lead the way in using single-
case designs in the application of practice-based research. In summary, if the counseling profession is to catch up in the race to demonstrate its value as evidence-based, the use of single-case designs is a good place to start.

References


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