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Evaluating Measures of Fidelity for Substance Abuse Group Treatment With Incarcerated Adolescents

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ABSTRACT

The evaluation of treatment fidelity has become increasingly important as the demand for evidence-based practice grows. The purpose of the present study is to describe the psychometric properties of two measures of treatment fidelity that can be used by therapists and supervisors - one for group-based cognitive–behavioral therapy (CBT) and one for combined Substance Education and Twelve-Step Introduction (SET) for adolescent substance use. At the end of group sessions (CBT $n = 307$; SET $n = 279$), therapists and supervisors completed an evaluation measure assessing adherence to certain core components of the intervention. The supervisor version of the fidelity measure also included items for rating the level of competency the therapist demonstrated when providing each component of the intervention. Results from split-half cross-validation analyses provide strong support for an 11-item, three-factor CBT fidelity measure. Somewhat less consistent but adequate support for a nine-item, two-factor SET fidelity measure was found. Internal consistencies ranged from acceptable to good for both the CBT and SET adherence scales and from acceptable to good for the CBT and SET competency scales, with the exception of the CBT practices competency scale. Preliminary validation of the measures suggests that both measures have adequate to strong factor structure, reliability, and concurrent and discriminant validity. The results of this study have implications for research and clinical settings, including the supervision process.

1. Introduction

The evaluation of treatment fidelity has become increasingly important as the demand for evidence-based practice grows. Fidelity monitoring has become a requirement within efficacy research on treatment interventions and has quickly become a principle focus of treatment dissemination. One of the best ways to replicate the success of interventions obtained in research settings is to maintain high implementation fidelity when transporting to community settings (Carroll et al., 2007). Fidelity to empirically based treatments is positively linked to more optimal outcomes for clients in community-based settings (Barber et al., 2006; Hogue et al., 2008).

Treatment fidelity, also referred to as treatment integrity, is defined as the extent to which an intervention is delivered as intended by the protocol. Three components of treatment delivery that should be monitored to assess treatment fidelity include adherence, competence, and treatment differentiation (Waltz, Addis, Koerner, & Jacobsen, 1993). Treatment adherence refers to the degree to which the therapist employs procedures prescribed by the intervention and avoids proscribed procedures (Breitenstein et al., 2010; Hogue, Henderson, et al., 2008; Perepletchikova, Treat, & Kazdin, 2007). Treatment competence encompasses the level of skill the therapist demonstrates in implementing the prescribed procedures. Competence is concerned with *how well* the protocol is implemented (Breitenstein et al., 2010). Lastly, treatment differentiation determines whether treatments differ from each other along critical dimensions (Perepletchikova & Kazdin, 2005; Perepletchikova et al., 2007).

In spite of recommendations to develop rigorous tools that allow for reliable and valid data on treatment fidelity to be collected (Carroll et al., 2000; Perepletchikova & Kazdin, 2005), surprisingly few studies sufficiently assess for it. According to results from a review conducted by Perepletchikova et al. (2007), only 3.5% of studies investigating psychosocial interventions adequately assessed treatment fidelity. Furthermore, most fidelity rating instruments have yet to establish psychometric soundness (Baer et al., 2007).

Relatively few measures have been developed to assess the treatment fidelity of evidence-based interventions for adolescent substance use (e.g., Hogue et al., 2008; Resko, Walton, Chermack, Blow, & Cunningham, 2012). Therefore, additional evaluation tools for assessing fidelity to treatments that are both feasible and cost-effective are needed (Carroll et al., 2000; Perepletchikova et al., 2007).

Which method should be used to evaluate therapist adherence and competence in clinical practice remains in question. Reasonable

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agreement has been found between therapist self-ratings and independent ratings of skill acquisition following training in motivational interviewing (MI; Hartzler, Baer, Dunn, Rosengren, & Wells, 2007). Martino, Ball, Nich, Frankforter, and Carroll (2009) also found that therapists and supervisors generally agreed on whether strategies fundamental to motivational enhancement therapy occurred during sessions. This led the authors to suggest that the use of therapists' self-report may be a reasonable and cost-effective way to determine therapists' use of basic counseling techniques. However, poor correspondence was found between supervisor and therapist ratings for more complex counseling techniques. Moreover, therapists have been found to overestimate their level of adherence to evidence-based interventions compared to supervisor ratings (Carroll, Martino, & Rounsaville, 2010; Carroll et al., 2000; Martino et al., 2009). As a result, therapist self-report should not be relied on alone to monitor treatment fidelity to empirically based treatments (Carroll et al., 2010); however, it may act as a cue to therapists regarding important aspects of intervention. For example, Hartzler et al. (2007) found that therapist self-ratings were associated with more effective use of MI and increased therapist self-awareness.

Treatment fidelity measures also play an important role in clinical supervision. Using a session rating form, supervisors are able to review sessions and provide therapists with valuable feedback regarding their relative strengths and weakness (Sampl & Kadden, 2001). Furthermore, if both the therapist and the supervisor complete a fidelity measure at the end of a treatment session, the two measures can be compared, allowing for any notable differences in the interpretation of the session to be discussed.

Substance use treatments in correctional facilities are frequently provided in group format and often include components of cognitive–behavioral therapy (CBT) and twelve-step approaches (The Correctional Association of New York, 2011). Twelve-step facilitation was found to be used at least sometimes by 74% of facilities (Substance Abuse and Mental Health Services Administration [SAMHSA], 2013). A national survey of substance use treatment for juvenile offenders found that 51% of juvenile correctional facilities offered cognitive and behavioral interventions, 89% provided substance education, and 93% provided treatment in group format (Young, Dembo, & Henderson, 2007). Group-based CBT for adolescent substance use, based on the Cannabis Youth Treatment (CYT) Study (Dennis et al., 2004), has been widely disseminated with the treatment manuals freely available from SAMHSA (e.g., http://store.samhsa.gov/shin/content//SMA08-3954/SMA08-3954.pdf). Although quality control procedures were provided for CBT in the CYT Study, the fidelity rating form used in the project and included in the treatment manual was never formally validated.

As noted above, group-based substance education and twelve-step approaches are also widely utilized for adolescents and at relatively low cost (Center for Substance Abuse Treatment, 1999). A treatment manual for group-based Substance Education and Twelve-Step Introduction (SET) for adolescent substance use was created for a randomized clinical trial described in Section 2.1; however, the fidelity rating form included in this treatment manual has yet to be formally validated. Having validated fidelity measures for these treatment approaches (i.e., CBT and SET) would be of great assistance to professionals working with substance-involved youth, particularly given how frequently these interventions are available, and is consistent with the movement toward disseminating evidence-based interventions. Importantly, such measures would also facilitate the supervision process.

The purpose of the present study is to describe the psychometric properties of two measures of treatment fidelity for adolescent substance use that can be used by therapists and supervisors - one for group-based cognitive–behavioral therapy (CBT) and one for group-based Substance Education and Twelve-Step Introduction (SET). This description focuses on measure composition, reliability, and concurrent and discriminant validity.

2. Material and methods

2.1. Overview of the Clinical Trial

These data were collected as part of a randomized clinical trial comparing two group treatments for substance abusing incarcerated adolescents (R01 DA-13375; PI-Stein). Participants were recruited at a state juvenile correctional facility in the northeast. Immediately after adjudication, adolescents were identified as potential candidates for the study if they were between the ages of 14 and 19 years, inclusive, and sentenced to the facility for between 4 and 12 months, inclusive. Consent was obtained from legal guardians, and assent was obtained from adolescents (adolescents 18 years or older provided consent). Adolescents were included in the study if they met any of the following substance use criteria: (a) they used marijuana or drank at least monthly, or binge drank (≥5 standard drinks for boys, ≥4 for girls) at least once in the year before incarceration; (b) they used marijuana or drank in the 4 weeks before the offense for which they were incarcerated; or (c) they used marijuana or drank in the 4 weeks before they were incarcerated. Enrollment in substance use programming did not require for the study, nor for the juvenile correctional facility, that youth have a substance use disorder.

Of the 1,280 adolescents screened for the study, 205 met screening criteria and completed the consent procedure. Of the baseline sample, 38.8% were of Hispanic ethnicity and racial groups were as follows: 36.8% African American, 30.9% White, 7.9% Native American, 5.3% Pacific Islander, 4.6% Asian American, and 14.5% self-identified as other. Most were boys (88.2%), average age was 16.9 years (SD = 1.09), and the average number of previous times detained or incarcerated was 2.54 (SD = 2.41). Percent using any alcohol or marijuana in the 3 months before incarceration was 81.0% and 90.7%, respectively. Percent binge-drinking in the 3 months before incarceration was 67.8%. In the year prior to incarceration, 27.7% and 59.9% qualified for alcohol and marijuana dependence, respectively. All procedures that were utilized received institutional review board approval.

Following baseline assessment, adolescents were randomized to two sessions of individually delivered motivational interviewing (MI; Stein & Clair, 2010a) or two sessions of combined meditation–relaxation training (RT; Stein & Clair, 2010b). Following MI, adolescents received 10 group-based sessions of CBT (see Stein, 2005) modeled after the CYT manuals (Sampl & Kadden, 2001; Webb, Scudder, Kaminer, & Kadden, 2002). Similarly, following RT, adolescents received 10 group-based sessions of SET (see Rose, Klein, Stein, Lebeau-Craven, & Justus, 2005) which were created based on the standard content used by the juvenile correctional facility. As individual treatments are not relevant to the current study, they will not be further discussed. Both group interventions were manualized, including fidelity procedures. MI and RT strategies could be utilized during group CBT and SET sessions, respectively, although they were not a focus of the group interventions. Group sessions lasted approximately 75 minutes each and occurred 1–3 times per week with about 3 participants per group session. On average, adolescents received 8 group sessions over 6.5 weeks. Of the 586 total groups conducted over the course of the study, 307 were CBT and 279 were SET. Groups were gender-segregated and rolling admissions was used.

2.2. Development of Fidelity Measures

2.2.1. CBT Measure - Therapist/Supervisor

The 31-item CBT fidelity measure was adapted from the Supervisor Group Session Rating form used in the CYT Study (Sampl & Kadden, 2001; Webb et al., 2002). Items from the original measure were retained. A few items were modified to be more applicable to incarcerated versus community youth (e.g., "To what extent did the therapist assess clients' *desire to use* marijuana, alcohol, or other substances since the last session," vs. "To what extent did the therapist assess