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Empirical research

Development of a motivational interviewing/acceptance and commitment therapy model for adolescent substance use treatment

Christian Thurstone[a,b,*], Madelyne Hull[a], Julia Timmerman[a], Chad Emrick[c]

[a] Denver Health and Hospital Authority, United State
[b] University of Colorado Anschutz Medical Campus, United State
[c] Veterans Administration Medical Center, Denver, United State

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ABSTRACT

Introduction: Current adolescent substance treatment models have important limitations. Motivational interviewing (MI) combined with Acceptance and Commitment Therapy (ACT) may be a promising new approach. The purpose of this study is to develop a manual-standardized MI/ACT intervention for evaluation in future controlled trials.

Methods: Participants were 41 adolescents and young adults (ages 12–26 years) consecutively admitted to an urban adolescent substance treatment program and the six therapists who administered the intervention. The intervention was 12 weeks of individual, outpatient, manual-standardized MI and ACT combined with contingency management and psychiatric consultation as needed. The outcome measures were the Outcome Rating Scale (ORS), patient satisfaction questionnaires, proportion of days used non-nicotine substances, qualitative interviews of therapists and the Session Rating Scale (SRS). Wilcoxon signed-rank and paired *t*-tests were used to determine significant change in pre- and post-intervention measures.

Results: A total of 14 of 23 (61%) youth with pre-intervention ORS scores in the clinical range had end of treatment scores in the non-clinical range and a clinically significant increase of over 5 points. The proportion of youth reaching a week of abstinence was 71% by self-report and 68% by urine drug screen. The proportion of days used at pre-intervention (*Mdn* = 1.0; *IQR* 0.4, 1.0) for those with non-zero pre-intervention use (N = 27) was significantly different at post-intervention (*Mdn* 0.1; *IQR* 0, 1.0) (S= 84, p = 0.0014). The average SRS score was 37.9 (SD = 2.2), indicating a high level of satisfaction.

Conclusion: This study demonstrates the initial feasibility of using an MI/ACT model in adolescent substance treatment. A small-scale, randomized controlled trial of MI/ACT is needed to evaluate the feasibility of larger, controlled trials and to determine the sample size that will be needed for an adequately powered study.

1. Introduction

Current adolescent substance treatment models have significant limitations. First, many adolescents drop out of treatment. For example, a national study of 292 adolescents in outpatient treatment found that 76% did not stay in treatment for at least three months (Galaif, Hser, Grella, & Joshi, 2001). In the Cannabis Youth Treatment study, only 52% of those assigned to 12- to 14-week evidence-based treatments, which included cognitive behavioral therapy (CBT) or multidimensional family therapy, stayed in treatment for at least 90 days (Dennis, Funk et al., 2004). Dynamic factors associated with treatment retention include perceived ability to express oneself openly and honestly, involvement with goal setting, and motivation for change (Orlando, Chan, & Morral, 2003; Shroder, Sellman, Frampton, & Deering, 2009).

Second, few adolescents reach and sustain abstinence. A national study of 1167 adolescents undergoing outpatient or residential treatment found that in the year following treatment: 1) 20.3% drank five or more drinks in a day at least weekly; 2) 43.8% used marijuana at least weekly; and 3) 42.2% used other drugs (Hser et al., 2001). For the evidence-based treatments tested in the Cannabis Youth Treatment Study, fewer than 25% of adolescents had a month of abstinence at the end of treatment and 12-month follow-up (Dennis & Godley, 2004). At best, when CBT was combined with contingency management for clean urine drug screens, 53% of youth achieved four weeks of abstinence during the 14 weeks of treatment (Stanger, Ryan, Scherer, Norton, & Budney, 2015). However, at three-month follow-up, the proportion with abstinence in the CBT plus contingency management

* Correspondance to: 723 Delaware Street, MC 1910, Denver, CO 80204, United State.
E-mail address: Christian.Thurstone@dhha.org (C. Thurstone).

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and CBT alone groups did not differ (Stanger et al., 2015).

Third, there are few models that integrate adolescent treatment for both psychiatric and substance use disorders (Hawkins, 2009; Sterling, Weisner, Hinman, & Parthasarathy, 2010). The lack of integrated treatment models is problematic because 64–82% of youth in substance treatment have a co-occurring psychiatric disorder (Greenbaum, Foster-Johnson, & Petrila, 1996; Grella, Hser, Joshi, & Rounds-Bryant, 2001). Furthermore, youth with co-occurring psychiatric disorders, compared to those without, have worse substance treatment outcomes (Grella et al., 2001). Therefore, feasible models to integrate mental health and substance treatment for adolescents are needed.

Finally, current evidence-based treatments are not frequently adapted into real-world settings. One review concluded: "The negative correlation between scientific evidence and treatment-as-usual could hardly be larger if one intentionally constructed treatment programs from those approaches with the least evidence of efficacy (Miller, Sorensen, Selzer, & Brigham, 2006, p. 25)." There are various explanations for this finding. Three relevant explanations include: a) the belief among clinicians that research fails to answer relevant questions, b) the lack of bidirectional collaboration between researchers and clinicians and c) the fact that many substance treatment models were disseminated without proper stage of development testing (Lamb, Greenlick, & McCarty, 1998; Miller et al., 2006).

An innovative approach may be needed to improve adolescent substance treatment outcomes. Acceptance and commitment therapy (ACT) represents a paradigm shift in its unique reliance or emphasis on the following (Hayes, Strosahl, & Wilson, 2011). First, it is philosophically influenced by functional contextualism and pragmatism. Second, ACT is based on much research concerning verbal behavior that led to the development and analysis of relational frame theory (Hayes et al., 2011). Finally, instead of targeting symptom reduction, ACT uniquely emphasizes psychological flexibility in the service of one's values as the goal of treatment (Hayes et al., 2011).

ACT's innovative focus may address the limitations of current models in the following ways. First, ACT's use of hands-on experiential exercises may engage youth in treatment and reduce premature drop-out (Hayes et al., 2011). Second, a recent meta-analysis of ACT compared to active controls for adult substance use disorders shows a small to medium effect size favoring ACT, especially at post-treatment follow-up (Lee, An, Levin, & Twohig, 2015). Third, controlled trials of ACT show promise in the treatment of common co-occurring psychiatric disorders such as anxiety, depression, psychosis and trauma (A-Tjak et al., 2015; Strauss, Thomas, & Hayward, 2015; Woidneck, Morrison, & Twohig, 2014). Finally, collaborative approaches such as ACT and motivational interviewing may incorporate factors described above that are positively associated with treatment retention such as ability to express oneself openly, involvement in goal setting and motivation for change (Orlando et al., 2003; Shroder et al., 2009).

This current study explores ACT combined with MI. Few models exist for combining these two approaches although a recent review concludes: "…there is a great opportunity to develop and empirically test a conceptually-coherent combination of MI with ACT (Bricker & Tollison, 2011, p. 14)…" MI is frequently combined with other treatments as a way to engage clients and enhance their readiness for change and has been widely used as a treatment for addiction (Miller W.R, 2012). Common features of both approaches include: a) an attitude of partnership and collaboration, b) acceptance of the clients' autonomy and c) an emphasis on connecting with client values (Bricker & Tollison, 2011; Miller & Rollnick, 2012). On a clinical level, there are several differences including: a) MI's emphasis on language content compared to ACT's emphasis on language process; b) MI's emphasis on open-ended questions, affirmations, reflections and summaries compared to ACT's emphasis on metaphors and experiential exercises; d) philosophical differences on acceptance and willingness, and e) ACT's emphasis on helpful self-disclosure (Bricker & Tollison, 2011). As a result, therapists combining these interventions may face choice points about which modality to emphasize. These choice points are described in more detail in the Methods section below.

This current study uses two approaches that may maximize the treatment model's dissemination into community settings. First, the guidelines for the Stage Model of behavior therapy development were used to pilot-test and refine the manual (Rounsaville, Carroll, & Oaken, 2001). Second, this treatment is the result of a bidirectional partnership between clinicians, consumers, and researchers. Such partnerships are thought to enhance the adaptability of evidence-based treatments for clinical settings (Tai et al., 2010).

Therefore, to create a novel adolescent substance treatment model that might improve care, the current study had the following specific aims: a) to evaluate the feasibility of implementing a manual-standardized MI/ACT intervention for adolescent substance use disorders; b) to evaluate the preliminary outcomes of this intervention; and c) to revise the treatment manual, including session content, outcome measures, fidelity monitoring and training procedures in view of the study findings.

2. Material and methods

Participants were 41 adolescents and young adults (ages 12–26 years) consecutively enrolled in an adolescent substance treatment program in Denver, Colorado, U.S.A., from May 2016 to September 2016. Participants also included six therapists who delivered the substance treatment intervention. This study was approved by the Colorado Multiple Institutional Review Board.

Outcome measures included the following. A clinical interview was used to obtain baseline demographic information and diagnoses using the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (American Psychiatric Association, 2013). Baseline and weekly measures included the following.

a. The Outcome Rating Scale (ORS) measures emotional wellness on a scale of 0 (minimal wellness) to 40 (maximum wellness). Previous research supports the reliability and validity of this measure (Bringhurst, Watson, Miller, & Duncan, 2006; Seidel & Miller, 2012; Seidel, Andrews, Owen, Miller, & Buccino, 2017). For example, in a study of young adults, the ORS demonstrated high internal consistency (Chronbach's alpha = 0.97) and correlation to longer, more comprehensive instruments (Bringhurst et al., 2006). For 12–17 year olds scores below 28 are considered to be in the clinical range, and scores greater than or equal to 28 are considered non-clinical (Seidel & Miller, 2012). For youth 18 years and over, scores below 25 are considered clinical, and those 25 and above are non-clinical (Seidel & Miller, 2012). For the ORS, the Reliable Change Index is considered to be a change of five or more points (Jacobson & Truax, 1991; Seidel & Miller, 2012). That is, an increase from clinical to non-clinical range that includes at least a 5-point difference is considered clinically significant.
b. The Timeline Follow Back Interview (TLFB) measures the number of days substances were used. The TLFB uses anchor points to help youth remember which substances they used and on which day. This approach has been shown to be a reliable and valid way to quantify frequency of substance use for up to 90 days in adolescents (Dennis & Godley, 2004). In this study, only the past seven days were assessed to optimize speed and accuracy of data collection.
c. The Session Rating Scale (SRS) allows youth to provide feedback on treatment (Owen, Miller, Seidel, & Chow, 2016). Scores range from 0 (minimal client satisfaction with the session) to 40 (maximum client satisfaction with the session). Scores less than 36 may be cause for concern (Miller, 2012). Therapists discuss the client's feedback using the SRS to improve technique and address discord early. Such feedback has been shown to reduce treatment drop-out among adolescents (Owen et al., 2016).
d. Point-of-care qualitative urine drug screen (screening for