



## Clinician attitudes, social norms and intentions to use a computer-assisted intervention

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### ABSTRACT

The National Drug Abuse Treatment Clinical Trials Network (CTN) works to bridge the gap between research and practice and tested a Web-delivered psychosocial intervention (the Therapeutic Education System, TES) in 10 community treatment centers. Computer-assisted therapies, such as Web-delivered interventions, may improve the consistency and efficiency of treatment for alcohol and drug use disorders. Prior to the start of the study, we surveyed counselors ( $N=96$ ) in participating treatment centers and assessed counselor attitudes, perceived social norms and intentions to use a Web-delivered intervention. Analysis of the intention to adopt a Web-delivered intervention assessed the influence of attitudes and perceived social norms. Perceived social norms were a significant contributor to clinician intention to adopt Web-based interventions while attitude was not. To promote successful implementation, it may be helpful to create social norms supportive of computer-assisted therapies.

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### 1. Introduction

Computer-assisted treatments are promising adjuncts to clinician-delivered therapy for alcohol and drug use disorders (Budney et al., 2011; Bickel, Marsch, Buchhalter, & Badger, 2008; Carroll et al., 2008; Brooks, Ryder, Carise, & Kirby, 2010). They have potential to improve the efficiency and fidelity of treatment and to reach people who would otherwise not seek care.

The Therapeutic Education System (TES), for example, is a well developed Web-based intervention designed as a counselor support system. Based on the Community Reinforcement Approach (CRA) to behavioral therapy, 65 interactive multimedia modules teach cognitive behavioral strategies (i.e., drug refusal skills and self-management), and educate clients on sexually transmitted diseases including HIV and hepatitis, and an array of psychosocial interventions. Voucher-based contingency management reinforces skill development (see the Web site for detail: <http://www.c4tbh.org/technology-in-action/program-reviews/substance-use-disorders/tes.html>). TES provides basic patient education and frees counselor time to address other patient needs.

Study results are promising. An initial test randomized opioid dependent individuals ( $n=135$ ) receiving buprenorphine medication to three therapy conditions: (1) standard methadone counseling ( $n=$

45), (2) therapist delivered CRA with vouchers, and (3) computer delivered CRA with vouchers (Bickel et al., 2008). Patient outcomes in the therapist CRA with vouchers group and the computer therapy group were both superior to the standard counseling—the CRA groups (therapist and computer therapy) achieved more weeks of continuous abstinence (therapist = 8.0 weeks; computer = 7.8 weeks) than standard counseling (4.7 weeks). Total therapist time per patient declined substantially within the computer-assisted therapy group suggesting that computer-assisted therapy can be more cost-effective and efficient with equivalent effectiveness (Bickel et al., 2008).

Similarly, using a different computer-assisted therapy, investigators randomized individuals who met criteria for an alcohol or drug use disorder either to treatment as usual ( $n=38$ ) or to computer-based training for cognitive-behavioral therapy (CBT4CBT) ( $n=35$ ) (Carroll et al., 2008). Study participants receiving computer-assisted therapy had fewer positive urine tests and longer continuous periods of abstinence. Treatment involvement and completion of homework, moreover, improved outcomes within the CBT4CBT group (Carroll et al., 2008).

These studies illustrate the potential value of computer-assisted treatment. While computer-assisted SA treatment appears to be a cost-effective therapeutic adjunct that standardizes treatment delivery and offers greater confidentiality and accessibility (Bickel, Christensen, & Marsch, 2011; Moore, Fazzino, Garnet, Cutter, & Barry, 2011), counselor adoption and routine use of computer-assisted treatment are uncertain. A pilot study randomized 28 cocaine-using individuals either to TES ( $n=14$ ) or to treatment as usual ( $n=14$ ) (Brooks et al., 2010). Study participants in the TES

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group improved CRA learning and, at the conclusion of treatment, were less likely to select poor coping strategies (Brooks et al., 2010). However, when offered the opportunity, counselors appeared to be reluctant to incorporate TES into routine care (Brooks et al., 2010).

Adoption and widespread implementation of computerized therapeutic assistance are unlikely without more information on counselor attitudes and beliefs about using computer-assisted therapy. Identifying counselor characteristics and cognitive variables that influence adoption of computer-assisted SA treatment may allow programs to introduce the approach in ways that maximize counselor endorsement and adoption.

### 1.1. Theory of reasoned action

Effective education and persuasion campaigns toward adoption and use of clinical innovations like computer-assisted therapy need an empirical basis. Systematic investigation of the cognitive influences (attitudes, beliefs, norms, and intentions) on adoption and use may support adoption. The theory of reasoned action (Ajzen, 1991; Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) has guided development of health promotion interventions for more than three decades (Armitage & Conner, 2001) and provides a strong functional framework to identify and influence the attitudes, beliefs, and norms that support the use of a novel treatment delivery system in drug abuse treatment.

The theory of reasoned action (TRA) holds that a person's behavior is directly influenced by the intention to perform the behavior (Fishbein & Ajzen, 1975; Ajzen & Fishbein, 1980). Behavioral intention is, in turn, dependent upon the person's attitude about the behavior and his or her perceived social norms surrounding the behavior. Analyses of studies using the theory of reasoned action find moderate predictive value of the attitude and perceived social norms; between 40 and 50% of the variance in behavioral intentions can be explained by these model constructs (Armitage & Conner, 2001; Sutton, 1998). The results of these meta-analyses suggest that the theory of reasoned action is useful for studies investigating adoption of new practices and innovations and facilitates understanding the influence of attitudes and perceived social norms on adoption.

Prior work using the theory of reasoned action surveyed counselors ( $n=376$ ) and clients ( $n=1083$ ) from outpatient, methadone, and residential treatment and examined the attitudes, beliefs, and perceived social norms associated with the use of medication for the treatment of opioid dependence (Rieckmann et al., 2007). As expected, patients and practitioners in methadone treatment had more positive attitudes toward the use of methadone than their peers in outpatient and residential settings. Attitudes toward buprenorphine were relatively neutral; outpatient clients and counselors had the most positive attitudes. Interestingly, perceived social norms ("what I thought colleagues thought I should do") were the dominant influence on intentions to use medication for treating opioid dependence (Rieckmann et al., 2007). Initiatives to promote the use of medication in treatment plans for opioid dependence, therefore, must change the perceived social norms that inhibit the use of medication. We anticipate similar findings when we examine the attitudes, beliefs and perceived social norms related to the use of computer-assisted therapy for alcohol and drug use disorders—counselors who perceive that their colleagues think they should support and adopt computer-assisted therapy will have stronger adoption intentions.

### 1.2. Clinical Trials Network

The National Drug Abuse Treatment Clinical Trials Network (CTN) tested TES versus treatment as usual in 10 addiction treatment centers. Within the CTN, investigators and community-based treatment providers collaborate to develop, test, and implement new

intervention options for patients in alcohol and drug treatment programs (Tai et al., 2010). As part of a multi-trial analysis to study the influence of organizational and workforce characteristics on study outcomes, we assessed attitudes, perceived social norms, and intentions to use Web-delivered psychosocial interventions prior to counselor experience with the study intervention. The baseline data enable subsequent analyses assessing the influence of baseline staff attitudes, perceived social norms and adoption intentions on study outcomes and help to clarify results if study outcomes vary by site. The analysis used the theory of reasoned action to investigate the relationship between counselor attitudes toward the TES intervention, perceived social norms surrounding the use of TES in substance abuse treatment, and intention to use the TES intervention. Data collection occurred during site visits completed prior to the initiation of the clinical trial. Collection of similar data post-trial completion is anticipated.

## 2. Methods

The Clinical Trials Network protocol CTN-0044 (Web Delivery of Evidence-based Treatment for Substance Use Disorders) tested 12 weeks of outpatient counseling (treatment as usual) versus 12 weeks of outpatient counseling plus the Therapeutic Education System. In conjunction with the CTN-0044 trial and prior to randomizing study participants, pre-implementation site visits surveyed counselors and program directors to record workforce characteristics, treatment staff attitude toward the intervention, perceived social norms, and intention to use the intervention (CTN-0044-A-1). The institutional review board at Oregon Health & Science University reviewed and approved the study protocol. Participants read and signed an informed consent and received \$25.00 after completing the survey (in some cases, the treatment program received the payments).

### 2.1. Study participants

Counselors, research staff, agency directors, and administrative staff ( $N=143$ ) in the 10 community treatment centers participating in the multi-site trial completed surveys and participated in interviews. We limited the analytic sample to counselors with complete data ( $N=96$ ) because clinicians were the primary group of interest.

### 2.2. Workforce surveys

Surveys assessed counselor characteristics, organizational characteristics, and attitudes, perceived social norms and intentions to use TES following study completion.

#### 2.2.1. Participant and organizational characteristics

Director surveys included items on clinic characteristics (e.g. annual admissions, accreditation, counselor caseloads, availability of computers). Workforce surveys collected data on demographic characteristics (e.g. gender, race, education) and experience (e.g. years of substance abuse counseling experience, years working for the agency, recovery status). Additional items assessed attitudes toward the use of computers, the Internet, and the attitudes, social norms and intentions used in the theory of reasoned action.

#### 2.2.2. Attitudes, perceived social norms, and intentions

Behavioral intention, attitude, and perceived social norms were assessed using seven-point scales scored  $-3$  to  $+3$  (Fishbein & Ajzen, 1975, Rieckmann, Daley, Fuller, Thomas, & McCarty, 2007). We assessed attitudes toward Web-delivered interventions with three semantic differential items assessing affect (Web delivered interventions for substance abuse are: good/bad; useful/useless; and happy/sad). The three items were summed for an attitude score that could

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