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The promise of third-wave behavioral therapies in the treatment of substance use disorders

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Substance use disorders (SUDs) are common and frequently complex, with overlapping medical, legal, social and psychiatric problems. Innovative treatment models to address the full range of problems in new ways using common principles are needed. Third wave behavior therapies such as Acceptance and Commitment Therapy (ACT) and Dialectical Behavior Therapy (DBT) comprise novel approaches and methods that have great potential to address complex substance abuse cases. These treatment models derive from contextual and behavioral science and have a common emphasis on developing empirical, principle-driven methods for approaching unwanted or distressing psychological and physical experiences common to substance use and other disorders. RCTs targeting substance use with ACT and DBT have been conducted across varying populations, including various target substances (opiates, methamphetamine, polysubstance) and settings (prisons, methadone clinics, residential treatment, and outpatient). Despite methodological heterogeneity, ACT and DBT have compared favorably to passive and active control conditions. Further research is needed, however, with larger samples and active control conditions, along with studies of treatment mechanisms, to inform and shape theoretical models and substance abuse treatment protocols for enhanced efficacy.

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SUDs are highly prevalent. The 2012 Substance Abuse and Mental Health Services Administration (SAMSHA) survey estimated that 22.2 million persons aged 12 or older (8.5%) were classified with substance dependence or abuse in the past year based on criteria specified in the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition [1]. Co-morbid conditions, particularly psychiatric disorders and social problems (e.g., poverty, homelessness), commonly co-occur with SUDs and increase the complexity of the disorder and the treatment. Innovative treatment models to address the myriad problems facing individuals with alcohol, drug and other addictions are sorely needed.

Third wave contextual behavior therapies and SUDs

Third wave behavior therapies such as ACT and DBT hold great promise for addressing complex SUDs. These 'contextual cognitive behavioral therapies' have a common emphasis on developing empirical, principle-driven methods for approaching unwanted or distressing psychological and physical experiences [2–4]. The primary difference from previous cognitive behavioral therapies (CBTs) is the emphasis placed on the context and function of these unpleasant internal events and not on the content itself. In these models thoughts are not presumed to be causal. Thus, rather than changing verbal content, the context in which thoughts, feelings and physical sensations occur is manipulated to change the function of these unwanted experiences. Processes common to contextual CBTs include acceptance, mindfulness, and values, briefly described below as they apply to SUDs.

Individuals abusing substances experience numerous unpleasant thoughts (e.g., I'm a failure, I need a drink), feelings (e.g., depression, anxiety), and physical sensations (e.g., drug withdrawal) that are both precipitants and consequences of substance use. Substance use and other addictive behaviors often serve to avoid or control these internal experiences and the discomfort associated with them. Distressing precipitants and the inevitable negative consequences of drug use often lead to a continuous cycle of experiential avoidance [5], that is, repeated attempts to alter the form, frequency, or intensity of private experiences such as thoughts, feelings, physical sensations, and memories, even when doing so is costly or ineffective [4,6]. Thus, an overarching goal of contextual CBTs is to identify and experience alternative ways in which to relate to these unpleasant private events (e.g., acceptance, emotion regulation), which will disrupt the seemingly causal link between psychological/physical distress and drinking/drug use behavior. For example, acceptance skills are used to facilitate increased willingness to live with distressing events and persist in distressing tasks, and emotion regulation strategies can be used

to increase emotional awareness and reduce vulnerability to overwhelming emotions [4,7]. Acceptance and emotion regulation strategies are introduced via experiential exercises and metaphors in which conscious attention is directed to the psychological distress in a non-judgmental, compassionate, or sometimes silly or absurd manner. Such change in the context alters the function of distressing thoughts and feelings, allowing for alternative behaviors to drug use.

Clients with SUDs are often *unaware* of the precipitants or triggers of drug use, as well as fail to notice negative consequences of their addiction and related behaviors [8]. It is challenging to change often impulsive substance use behavior without this awareness, and thus most third wave, contextual CBTs introduce mindfulness-based practices (attending to the here-and-now). Mindfulness interventions increase awareness of natural environmental contingencies and assist substance abusers in noticing triggers and consequences in a flexible and non-reactive manner. Ideally, in this new and mindful context clients are able to make decisions and choices based on important personal goals and values rather than on avoidance or control through substance use. For example, mindfully and flexibly observing the urge to use in a social situation may allow for the identification and implementation of alternative behaviors to substance use. Broadening response repertoires in the face of distressing experiences is paramount.

Finally, rather than exclusively focusing on the reduction/elimination of addictive behaviors, contextual CBTs place significant emphasis on living a valued and meaningful life. This juxtaposition of avoidance behavior and values creates dissonance from which motivation can build and valued action can take hold. Identifying values dignifies the inevitable suffering involved in abandoning a well-established behavior that served as an escape from distress and the consequences of addiction [8]. Many SUD clients have long forsaken family, social relationships, and careers, making the re-establishment of valued directions a challenging yet highly important step in the process of change.

RCTs of ACT and DBT for SUDs will be reviewed, representing two of the primary third wave CBTs. Each contains common identified elements (i.e., acceptance, mindfulness, values) to varying degrees while also possessing additional elements unique to each treatment model. Table 1 provides supplementary details regarding the primary RCTs targeting SUDs with ACT and DBT.

ACT for SUDs

Traditional CBT, including Relapse Prevention and Contingency Management, has been the dominant empirically based treatment approach to addiction for 30+ years. ACT has been evolving over that time and is emerging as an alternative, having been recently listed as an evidence-based treatment by the SAMSHA [9]. The first substance abuse treatment study was conducted by Hayes and colleagues [10] with polysubstance-abusing opioid addicts enrolled in a methadone clinic. ACT was compared to a time-matched active treatment, Intensive Twelve Step Facilitation (ITSF), and care-as-usual in the methadone clinic (methadone maintenance only: MMO). At the follow-up assessment both ACT and ITSF were associated with less objectively verified drug use relative to MMO, and 23% fewer ACT group participants reported drug use relative to the ITSF. A similar randomized, controlled trial (RCT) with methamphetamine users failed to find differences between ACT and CBT ($N = 104$), however, only a third of the sample was available at the post-treatment assessment [11].

Two smaller RCTs, targeting drug abuse in incarcerated women and opioid use in patients seeking outpatient methadone detoxification favored ACT [12,13]. Specifically, drug-using, incarcerated women who received 16 weekly ACT group sessions demonstrated significant reductions in drug use from pre-treatment to post-treatment and across the 18-month follow-up period [12,14•]. Similarly, opioid dependent patients who underwent a 24-week dose reduction program with 24 weekly individual ACT sessions were nearly twice as likely to be opioid free (36.7%) at the end-of-treatment (EOT) relative to an equally intensive, active drug counseling treatment (19.2%) [13].

Finally, the strongest evidence to date in a more general substance abusing population yields from a trial using ACT to target shame and stigma among clients in a residential treatment facility [15•], compared to a treatment-as-usual (TAU) control condition. The treatment was less intensive relative to previous ACT research treatments, consisting of three 2-h groups in a one-week period. In the 13 weeks following discharge from the facility, ACT participants were more than twice as likely to be abstinent during any week, utilized drug/alcohol treatment services at higher rates, and reported less internalized shame at follow-up relative to participants who received TAU. Shame related to the stigma of substance abuse is a common experience and based on Luoma *et al.* [15•] is an important treatment target for ACT approaches with these populations.

Based on the RCTs described and additional studies involving single subject designs [16], case studies [17,18], studies targeting comorbid populations [19], professional burnout in substance abuse counselors [20], and smoking cessation (addressed elsewhere in this special edition), ACT as a treatment for substance abuse is highly promising. As shown in Table 1, effect size estimates generally favored ACT for drug abstinence at the EOT, and persisted at later follow-up visits. The largest effects