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The role of Cognitive Behavioral Therapy in treating Substance Use Disorders

by

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### **Abstract**

C is a 31-year-old Hispanic male who has endured the psychological and physiological after-effects of a failed suicide attempt via a self-inflicted gunshot wound to the head. He is civilly committed as mentally ill and chemically dependent, has a state-appointed guardian, and is a resident of a local adult foster care home where staff assist him with completing his activities of daily living. Little is known about C's family of origin as he was born in Colombia and adopted by a family in the United States at 2 months of age. C insists that all his problems stem from his substance use disorder (SUD) and he requested a medication that will make his methamphetamine cravings go away.

An overview of the literature supports the use of cognitive-behavioral therapy-based SUD programming, because most research indicates its superior efficacy. The plan of care developed for the patient described in the case study below reflects the literature's recommendations on how to best mitigate the ramifications of SUDs.

It would behoove mental health clinicians to conduct their own research on the efficacy of different SUD treatments and consider incorporating them into their professional repertoire to better serve the often complicated and difficult to treat cases involving substance abuse.

## **Background**

Substance use disorders (SUDs) are a common occurrence within the population. Experts estimate lifetime rates of dependence on alcohol at 30% and around 10% for other commonly abused drugs. The hallmark characteristics of a SUD is maladaptive use of a mind-altering substance despite the marked distress or detriment its use may cause. SUDs are a chronically relapsing-remitting disease process whereby those afflicted will experience periods of relapse (use of the psychoactive substance) and remission (abstinence from the psychoactive substance) (McHugh, Hearon, & Otto, 2010). This pattern of relapse and remission is continuously repeated throughout one's life, with the goal being sustained remission or sobriety.

The study of addiction dates to the 1930s when scientists first started to investigate addictive behaviors. The initial supposition was that subpar will-power and moral failings were the root cause of addiction and that train of thought has continued to perpetuate the way society currently manages those suffering from SUDs, punitively versus proactively (National Institute on Drug Abuse, 2018). Since then, our advancements in the understanding of human anatomy and physiology has allowed medical professionals to uncover the neurobiological underpinnings of addiction and work towards treating it like a medical condition.

The National Survey on Drug Use and Health in the United States conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA) (2015), revealed that over 21.5 million people aged 12 years and older were diagnosed with a substance use disorder in 2014 with 17 million people reporting alcohol dependence, 7.1 million people abusing illicit drugs, and 2.6 million people admitting addiction to both. Additionally, about 1 in every 10 Americans endorsed having used an illicit drug in the previous 30 days and the Centers for Disease Control and Prevention (2017) reported 115 Americans die every day from an opioid

overdose. Given these current statistics and the fact that substance use and abuse continue to trend upwards, mental health providers need to change how SUDs are treated to better serve our fellow human beings that are impacted by them.

### **Case Report**

C is a 31-year-old Hispanic male who resides at a local adult foster care home due to needing assistance with completing activities of daily living. C is seen in the office for transfer of care as his primary psychiatrist recently retired. C has followed with this organization's psychiatric service since 2014 after he was civilly committed as mentally ill and chemically dependent in the state of Minnesota for a significant suicide attempt and concomitant polysubstance use disorder. He has continued to demonstrate the need for commitment, state-appointed guardianship services, and a rep payee due to sustaining significant cognitive deficits from a self-inflicted gunshot wound to the head. C reportedly took his 38-caliber pistol, placed it underneath his chin and fired, resulting in a failed suicide attempt. C reported that this was done under the context of significant alcohol intoxication and was his "answer" to his girlfriend telling him she was pregnant. C has undergone substantial surgical repair to his mouth and soft palate, including the laceration of his tongue and complete rebuild of his maxillary sinuses. Imaging showed a metal plate covering the exit wound in his skull along with several screws and staples. His oropharyngeal opening was reconstructed, and gastric mucosa was transplanted over the previous soft palate injury. He received services from a Speech Language Pathologist to treat his resultant dysphagia and dysarthria as well as neurotrauma rehabilitation to help ameliorate his residual impulsivity, depressed mood, and difficulties with executive functioning.

C denied any previous psychiatric hospitalizations. He endorsed the current depressive symptoms of anhedonia, amotivation, irritability, and hypersomnolence, which he attributes to a

recent relapse on methamphetamines. He denied withdrawal symptoms. He expressed frustration over being told he is not a candidate for medication assisted treatment because he is addicted to amphetamines, not opiates, and the mechanism of action of methadone and buprenorphine is to target opioid receptors which will do “little to nothing for someone trying to kick meth.” His monthly naltrexone injection has helped with the alcohol cravings (which C described as his drug of choice), but no pharmacological agent has assuaged his urge to use methamphetamines.

C’s family medical and psychiatric history is unknown. He was born in Bogota, Colombia and adopted at 2 months of age by a family in Minneapolis, Minnesota. He described his home life with his adoptive family as “happy” and reportedly played hockey in Edina, Minnesota as a young boy, before the issues with impulse control, distractibility, aggression, property destruction, elopements, and drug and alcohol use surfaced. He did receive special education services while in school and reported that prior to his suicide attempt, he worked the night shift as a baker. He lived in California, Washington, and Arizona after high school before coming back to Minnesota to live in 2014.

Previous psychiatric diagnoses include: Attention deficit disorder, major depressive disorder, impulsive control disorder, alcohol use disorder, amphetamine dependence, intravenous drug use, chronic tobacco abuse (up to 2ppd when he is not using other drugs), and over 10 “failed stints” in chemical dependency treatment. Pertinent medical history includes: Fetal alcohol syndrome, traumatic brain injury with behavioral disturbances, loss of sense of smell and taste, scarred tongue, scalp laceration with flap reconstruction, palatal and nasal floor fistulas, chronic bronchitis, dysphagia, dysarthria, degenerative disk disease, lumbar spinal stenosis with right-sided radiculopathy, L3-S1 microdiscectomy with subsequent re-herniation, history of

spinal corticosteroid injections, and participation in physical therapy. C reports struggling with chronic pain issues which further complicates his quest for sobriety.

Visit diagnoses include: Alcohol dependence, in remission; other stimulant dependence, uncomplicated; unspecified intracranial injury with loss of consciousness of unspecified duration, subsequent encounter; intentional self-harm by handgun discharge, sequela; fetal alcohol syndrome (dysmorphic); and major depressive disorder, recurrent, moderate. Per the patient's request, the current medication regimen of clonidine 0.2 mg once daily, diphenhydramine 25-50 mg every 4-6 hours as needed, naltrexone 380 mg intramuscular injection every 30 days, aripiprazole 15 mg once daily, escitalopram 10 mg once daily, and mirtazapine 15 mg at bedtime will continue unchanged. Despite several referrals and encouragement from many providers, the patient has not attended psychotherapy, nor does he express any interest in it today. This case study will review over treatment options in the literature that could help mitigate methamphetamine cravings for this case study patient. Recommendations for treatment in the meantime include a referral to a licensed alcohol and drug counselor for a chemical use assessment and determination of funding eligibility for admission to a cognitive-based SUD program.

### **Literature Review**

Many scientists have researched the efficacy of cognitive-based therapy in the treatment of psychopathological disorders. The most commonly researched cognitive-based approach to helping prevent relapse and maintain remission in those with SUDs is cognitive-behavioral therapy (CBT) (Magill & Ray, 2009).



CBT is a type of intervention that aims to restructure the way in which one views or perceives themselves, the world, or a specific situation or problem. The supporting tenet of CBT is that dysfunctional cognitive patterns lead to persistent distress, so selective manipulation of the maladaptive cognition should result in the reduction of one's emotional, behavioral, physiological, and psychological suffering (Hofmann, Asnaani, Vonk, Sawyer, & Fang, 2012).

A meta-analysis of randomized controlled trials conducted by Magill and Ray (2009), revealed that most CBT-based programs focus on recognizing triggers that precipitate drug use or cravings to use, teaching coping skills that one can employ in place of relapse, drug and alcohol refusal skills training, comprehensive assessment of one's substance use and functional impairment, and expanding non-use related activities and social support networks. Additionally, CBT techniques have been tested in Stage III research and have shown promising results for their utility, efficacy, and sustainability using a "real world" framework (Magill & Ray, 2009).

In order to best evaluate the efficacy of CBT interventions in treating substance abuse, one must compare it to standard SUD programming or what the literature dubs treatment as usual (TAU). Interestingly, Santa Ana et al., (2008) found that there is no broad or overarching acceptance of what is considered TAU, so instead, the team scoured the National Institute on Drug Abuse Clinical Trials Network to identify the most frequently utilized techniques. The typical therapeutic approaches of TAU consist of accurately assessing the severity and impact of one's substance use on social and vocational functioning, engaging in open-ended dialogue and posing thought-provoking questions, discussing life problems and offering individualized feedback, and providing guidance, advice, and direction on one's treatment planning and outcome realization. Furthermore, Santa Ana et al., (2008) discovered a lack in the use of empirically supported therapies (ESTs) during the early phases of SUD programming and report

that including even the smallest component of ESTs into the beginning stages of TAU yielded a higher retention rate and better patient outcomes in terms of treatment fidelity.

McHugh, Hearon, and Otto's (2010) meta-analysis review of the efficacy of CBT interventions used to treat drug abuse and dependence also found that CBT-based programming resulted in longer periods of sobriety and sustained remission over time when compared to treatment as usual (TAU).

Marlatt (2011), recently reformulated his decades old model of relapse prevention to place greater emphasis on dynamic and contextual cognitive-behavioral relapse antecedents like levels of self-efficacy, severity of urges and cravings, recognizing high-risk situations, acknowledging negative affect, evaluating one's outcome expectancies, and employing healthy coping strategies. He also spoke to the efficacy of adjunct mindfulness-based relapse prevention techniques to help extend periods of abstinence and subsist behavior change. His previous model portrayed the relapse process more like a terminal event instead of a complicated reciprocal relationship between tonic (stable) factors and phasic (transient) responses and because of this, his initial empirical findings were not as robust as what is commonly seen in practice. Analysis of his research based on his revamped model depicts that 58% of individuals who received CBT-based interventions experienced a dramatic decrease in relapse severity, enhanced durability of treatment gains, and had better long-term outcomes than those who engaged in TAU (Hendershot, Witkiewitz, George, & Marlatt, 2011).

Garland, Roberts-Lewis, Kelley, Tronnier, and Hanley (2014), substantiate Marlatt's (2011) suggestion to incorporate mindfulness techniques into CBT-based relapse prevention efforts as their research findings support the notion that individuals in recovery from SUDs who report high levels of trait mindfulness expressed decreased cravings and urges to use by virtue of

their enhanced ability to regulate emotional disquietude and reappraise the meaning of challenges they face in battling their substance use.

The measurement and monitoring of outcome expectancies (the perceived consequences of participating in a certain act) and self-efficacy expectancies (confidence in one's personal capacity to regulate behavior) successfully predicted which participants would complete SUD treatment, and in those that did, these factors accurately forecasted the outcome of participant's drug use once in the community. Including CBT-based techniques on how to regain control of these factors is shown to have a positive impact on length of time to first use and maintaining a sober state (Young, Connor, & Feeney, 2011).

Moos and Moos' (2006) research on predictors of relapse in chronic alcoholism echo Marlatt's (2011) claim about the role unmodifiable (tonic) risk factors and fluid (phasic) contextual circumstances such as dealing with triggering situations or intense cravings to use have in prognosticating one's short and long-term abstinence rates. Better educated, older, married, females who report less severe drinking patterns and problems, high levels of self-efficacy, and approach (instead of avoidance) coping strategies were more likely to experience favorable abstinence rates than participants who did not report similar backgrounds.

A novel approach to the delivery of CBT to those with SUDs was executed by Sugarman, Nich, and Carroll (2010), who experimented with using a computer-based program to teach CBT skills. Their findings indicate that utilization of coping skills increased, and instances of participants' drug use decreased when exposed to the computerized CBT program versus those assigned to the TAU group. Sugarman, Nich, and Carroll's (2010) research also emphasized the importance of one's ability to accept the assumption that they are in control of their behavior and

have the power to influence their SUD by learning and implementing adaptive coping mechanisms when presented with high-risk situations that could potentially trigger a relapse.

In a flagship study using fMRI to observe the neurobiological and neurophysiological changes in the brain, DeVito et al., (2012), discovered decreases in fMRI brain activity from pre- to post CBT-based SUD treatment in brain regions that are purported to influence cognitive control, response impulsivity, motivation and attention, and other thought processes assumed to contribute to addictive behaviors. These preliminary imaging studies found that CBT based SUD treatment can actually restructure the neurological pathways of the brain.

### **Implications**

Further implications for SUD treatment research include exploring the role pharmacogenetics play in the efficacy of one's response to SUD interventions, use of medical imaging to monitor changes within the brain pre and post SUD treatment, developing technologically-based interventions using computer and mobile platforms, incorporating CBT, motivational enhancement therapy (MET), and mindfulness-based interventions into SUD treatment programming, encouraging the fusion of the mental health and substance abuse systems to better serve clients who are suffering from co-occurring psychiatric and substance use disorders, and continuing to advance the research of pharmacotherapeutics as adjunctive supports to psychotherapy driven treatment plans.

It is imperative for current and future psychiatric mental health nurse practitioners (PMHNPs) to remain up-to-date on the most novel and cutting-edge treatment options available to those battling SUDs and other mental health issues. Moving forward in one's practice, PMHNPs need to consider referring patients to reputable psychotherapists and provide education

on the impact psychotherapy has on one's ability to learn, retain, and utilize the coping skills needed to successfully navigate life stressors. PMHNPs should be willing to order laboratory testing to explore possible genetic barriers or imaging scans to assess for neurological impediments that influence one's response to treatment. PMHNPs ought to stay privy to the technological advancements made in the field of psychotherapy (like apps and programs that can be downloaded on a smart phone) and encourage patients to explore available options. PMHNPs can incorporate CBT, MET, and mindfulness techniques into their interview process to help expose patients to therapeutic skills that they can practice on their own time. Lastly, PMHNPs can act as patient advocates by lobbying for specialized funding and legislature in the sociopolitical sphere.

### **Conclusion**

The etiology behind the development of a SUD is not well understood and hypotheses attempting to explain it range from deficits in neurotransmission and physiological brain structure, to the complex relationship between environmental factors and gene expression or inhibition. Whatever the case may be, the nursing model PMHNPs are trained in provide a unique opportunity to introduce an integrated and innovative approach to the care and treatment of the SUD population.

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