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Narrative review

Psychotherapies Used in the Treatment of Substance use Disorder: A Narrative Review

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Abstract

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Drug addiction is a serious social, economic, and health issue that persists worldwide. However, the efforts and certain measures taken to curb this problem seem to be counterproductive. The high addiction relapse rates and rising number of addiction cases show the requirement for proper treatment. In general, a variety of evidence-based treatment interventions for drug addiction are available. However, the gap between the availability of evidence-based therapies and their limited implementation in practice has yet to be bridged. As recommended by previous studies, psychotherapy ('Talk therapy'), pharmacotherapy (medication-assisted treatment), alone or in combination, can be used to treat drug addiction, with the capability of resolving the high relapse rate. This article provides an overview of the evidence for, and clinical application of, psychotherapeutic approaches used in the treatment of Substance Use Disorders (SUD). Given the scope of the literature, this review will focus on the psychotherapeutic approaches used in the treatment of illicit drug use disorders, including addictive pharmaceuticals, while excluding legal drugs like alcohol and nicotine. Cognitive-Behavioural Therapy (CBT), Contingency Management interventions (CM), Community reinforcement approach, Motivational enhancement therapy, 12-step facilitation therapy, family therapy, and Multisystem Therapy (MST) are some of the most prevalent evidence-based psychotherapeutic approaches currently in practice. Evidence suggests that the combination of different psychotherapies with other treatment interventions is expected to improve treatment outcomes.

Keywords: Drug addiction, Addiction treatment, Psychotherapies, Prevention and treatment

Introduction

Drug addiction is a serious social, economic, and health problem that persists worldwide. According to the world drug report by the United Nations Office of Drugs and Crime (UNODC), nearly 284 million individuals aged 15-64 used drugs globally in 2020, representing a 26% increase over the previous decade. Furthermore, the World Drug Report 2022 indicates that illegal drug markets can have local, community, or individual-level environmental impacts. (United Nations Office on Drugs and Crime, 2022). The high and rising drug addiction and relapse rates prevailing worldwide emphasise the necessity of proper treatment.

Addiction is the habit-forming psychological and physiological dependence on a substance or engagement in behaviour beyond voluntary control (Commonwealth of Australia | Department of Health and Aged Care, 2021). Drug addiction or substance use disorder (SUD), is a chronic disease characterized by compulsive or uncontrollable drug seeking and use, despite the harmful consequences (NIDA, 2018). It may also induce long-lasting changes in the brain (NIDA, 2020). It is a relapsing disorder, which has the potential to resume the habit, after a period of abstinence (NIDA, 2018).

A drug is any chemical that affects the body's function physiologically or psychologically (Commonwealth of Australia | Department of Health and Aged Care, 2021). Psychoactive substances affect the central nervous system and change how people perceive their behaviour (Sanli et al., 2015). Addictive drugs may be classified as legal or illegal. Legal drugs include alcohol, caffeine, and tobacco while; cannabis, ecstasy (3, 4-methylenedioxy-N-methamphetamine), cocaine, ice (methamphetamine), and heroin belong to the group of illegal drugs (Illicit substances). Similarly, addictive pharmaceutical drugs such as opium, and antidepressants are also legalized. However, being legalized does not imply that they are safer than illegal substances (UNODC, 2021). Addictive drugs

can also be classified according to their mode of action, including stimulants, depressants, opioids, hallucinogens, and cannabinoids (Drug Classifications - Addiction Center, 2022). Stimulants are a type of drug that speeds up the transmission of messages between the brain and the body. Cocaine, caffeine, amphetamine, nicotine, betel nut, ice, and synthetic cathinone are examples of stimulants. However, overstimulation can result in anxiety, panic, seizures, migraines, stomach cramps, hostility, and paranoia when taken in large dosages (Alcohol and Drug Foundation, 2021; Drug Classifications - Addiction Center, 2022). A depressant or central depressant is another type of drug that lowers neurotransmission levels by depressing or reducing arousal or stimulation in various areas of the brain. Benzodiazepines, barbiturates, kava, and gamma-hydroxybutyrate are examples of some depressants (Alcohol and Drug Foundation, 2021). Opioids are any natural or synthetic drugs originating from or linked to the *Papaver somniferum*. Opioids are medications that relieve pain other than those used to treat coughs or diarrhoea. Opioids attach to opioid receptors in the central nervous system and slow the transmission of information between the brain and the body. Overdosing with opioids can cause death and other complications. Commonly used opioids are heroin, methadone, naloxone, opium, fentanyl, and oxycodone (Alcohol and Drug Foundation, 2021; American Addiction Centers, 2022; Drug Classifications - Addiction Center, 2022). Hallucinogens are psychoactive agents that can cause hallucinations, perceptual anomalies, and other substantial subjective changes in thoughts, perception, emotion, and consciousness. Commonly used hallucinogens are Ayahuasca, N, N-Dimethyltryptamine (DMT), Psilocybin (magic mushrooms), Lysergic acid diethylamide (LSD), Half Moon, and Ketamine (American Addiction Centers, 2022; Drug Classifications - Addiction Center, 2022). Any chemical molecule that binds to the body's and brain's cannabinoid receptors and produces effects similar in nature to those of the *Cannabis sativa* plant is referred to as a "cannabinoid," regardless of structure or

origin (Alcohol and Drug Foundation, 2021). Commonly used cannabinoids are cannabis, medicinal cannabis, butane hash oil, synthetic cannabinoids, marijuana, weed, and hash. Both legal and illegal cannabinoids are commonly smoked, vaporized, or eaten (Alcohol and Drug Foundation, 2021).

Individuals who are addicted to these substances are often reluctant to acknowledge their dependence on the substance. Friends or family members are the first to notice the changes in their behaviour (Micheli et al., 2021). Some common signs and symptoms that can be used to identify a person suffering from drug addiction include; a change of friends (hanging out with friends who use drugs), becoming moody, negative, cranky, or worried all the time, asking to be left alone more often, having trouble concentrating, a lot of sleep, getting into fights, red or puffy eyes, lose or gains weight, coughing and having a runny nose most of the time (Micheli et al., 2021). The effects of drugs vary depending on the type of drug, the person using it, and their circumstances. (Commonwealth of Australia | Department of Health and Aged Care, 2021). Drugs have an impact on their mental health (U.S. Department of Health & Human Services, 2022), finances, relationships, and social lives, and may lead to an involvement with criminal activities (Commonwealth of Australia | Department of Health and Aged Care, 2021). Addicts will feel more awake, aware, and active after taking certain narcotics. Other drugs will make them feel calm and relaxed. Some can produce hallucinations and can change drug addicts' perceptions (Commonwealth of Australia | Department of Health and Aged Care, 2021). Other drugs might cause numbness (Commonwealth of Australia | Department of Health and Aged Care, 2021). Drug addiction usually leads to distress and discomfort in daily life activities. Long-term usage and higher doses have severe consequences that can affect the individual's health conditions, including, risks from sharing needles and lasting damage to important areas of the brain (NIDA, 2020) and organs, and could even lead to death (Commonwealth of Australia | Department of

Health and Aged Care, 2021).

Since drug addiction is a chronic and complex disorder that affects multiple aspects of an individual's life, treatment is not simple, and a single one-time treatment is not possible. Typically, treatment of such a disorder incorporates many components directed to different aspects of the disorder and its consequences (NIDA, 2018). Successful treatment must not only stop the individual from consuming drugs but also, maintain a drug-free lifestyle while being productive as a family member, a colleague at work, or an individual in society (NIDA, 2018). There are several modalities of successful treatment for individuals with substance use disorder. The primary step however begins with detoxification (the process by which the body rids itself of a drug). Since detoxification involves severe medical consequences associated with drug withdrawal, this stage is often medically managed in a clinical setting (NIDA, 2018). Other treatment programs are provided thereafter to produce lasting recovery. As recommended by previous studies, psychotherapy, can be useful in increasing the effectivity of other drug addiction treatment measures when used collectively. (Jayamaha et al., 2021; National Institute of Mental Health, 2021).

Psychotherapy, is a treatment method which involves communication between an addict and a professional psychotherapist, and pharmacotherapy (medication-assisted treatment) alone or in combination, may be used to treat addiction disorders. (Jayamaha et al., 2021; National Institute of Mental Health, 2021) This sort of treatment or combination of treatments used will depend on the patient's specific needs and, in many cases, depends on the drugs they use (NIDA, 2018).

This review elaborates on the different psychotherapies used to treat individuals addicted to illicit drugs.

Psychotherapy, also known as "Talk therapy" and refers to a variety of treatment techniques that

aim to assist a person in identifying and changing troubling emotions, thoughts, and behaviours. Most of the psychotherapy is done one-on-one or in groups by a licensed, trained mental health professional (National Institute of Mental Health, 2021). Different psychotherapeutic approaches may be used to treat individuals suffering from drug addiction. A few of the most prevalent addiction therapies include Cognitive-Behavioural Therapy (CBT), contingency management interventions, community reinforcement approach plus vouchers, motivational enhancement therapy, 12-step facilitation therapy, Multisystem Therapy (MST), family therapy, and counselling interventions. A summary of these psychotherapies used in treating drug addiction is summarized in Table 1. Table 1 indicates psychotherapies used to treat drug addicts, practitioners involved in the treatment delivery, treatment method, research outcomes, and target addict population.

Cognitive Behavioural Therapy (CBT) is a type of psychotherapy that is effective in curing a wide range of mental health problems including anxiety, depression, and substance use disorder (American Psychological Association, 2017). It is an individualized therapy that may vary from individual to individual. CBT's primary goals include raising awareness of and correcting maladaptive behavioural patterns, increasing motivation for change, and developing healthy coping skills, which are useful in substance abuse treatment (McHugh et al., 2010b).

The efficacy of employing CBT for alcohol and drug users is supported by evidence from large-scale trials and reviews (Dutra et al., 2008; Magill & Ray, 2009; McHugh et al., 2010b). According to results obtained through a meta-analytic review on the use of CBT for drug abuse treatment, cannabis treatment had the largest treatment effect sizes, followed by cocaine, and opioids, while polysubstance dependence treatment, had the smallest effect sizes (McHugh et al., 2010b). Comparable results were found in another meta-analytic review of CBT trials for alcohol and illicit drugs (Magill & Ray, 2009). CBT was seen as most effective in the treatment of marijuana

users (Magill & Ray, 2009). In another study performed involving individuals with cocaine dependence, 60% had clean toxicology reports at 52-week follow-up (Rawson et al., 2006).

Contingency management is a behavioural intervention whereby positive, quantifiable behaviours are rewarded with meaningful reinforcement (Byrne & Petry, 2013). Reinforcements may include vouchers that can be worth goods or any service or draws for winning prizes (Byrne & Petry, 2013). It helps substance abusers get into treatment, stay in treatment for longer (enhanced retention in treatment) (Byrne & Petry, 2013, Petry et al., 2005), and achieve long-term abstinence from substances (Petry et al., 2005; Rawson et al., 2006). The contingency management (CM) approach has been successful in treating individuals addicted to alcohol (NIDA, 2018; Petry et al., 2000), nicotine (Hunt et al., 2010; NIDA, 2018; Roll et al., 1996, 2000; Stitzer et al., 1986), stimulants (NIDA, 2018), opioids and opiates, (Higgins et al., 1986; Preston et al., 1999; Robles et al., 2002), marijuana (Budney et al., 2000; Kadden et al., 2007; NIDA, 2018; Sigmon et al., 2000), Benzodiazepines (Maciej Serda et al., 1979), Cocaine (Higgins S. T. et al., 1994), and Methamphetamine (Roll et al., 2006). CM procedures are ideal to be implemented in community-based settings (Petry et al., 2004).

Community reinforcement approach or CRA is defined as "a broad-spectrum behavioral treatment approach for substance abuse problems that utilizes social, recreational, familial, and vocational reinforcers to aid clients in the recovery process" (Roozen et al., 2013). This 24-week CRA treatment has been applied to treat substance use disorders resulting from the use of alcohol, cocaine (Abbott, 2009; Garcia-Rodriguez et al., 2009; Secades-Villa et al., 2008), heroin and opioids (Roozen et al., 2004), in outpatient settings. The use of CRA treatment for cocaine addicts has shown better treatment retention (Higgins et al., 2003), and continued abstinence (Secades-Villa et al., 2008). Combining the usual CRA with vouchers has shown to be more effective than the usual

CRA treatment alone (Garcia-Rodriguez et al., 2009). The currently practiced CRA treatment has two variants. One approach targets adolescents addicted to substance use along with their caregivers; (Adolescent Community Reinforcement Approach - ACRA), while other works through family members to engage individuals who refuse treatment (Community Reinforcement and Family Training - CRAFT) (Roozen et al., 2013).

Motivational Enhancement Therapy (MET) was originally created as an adaptation of Motivational interviewing (MI) principles and behavioural planning to promote alcohol abstinence ("Project MATCH: Rationale and Methods for a Multisite Clinical Trial Matching Patients to Alcoholism Treatment," 1993), but have also been used to treat other drug addicts of marijuana and cocaine (Rajita Sinha et al., 2003; Rohsenow et al., 2004). Evidence suggests that MET treatment together with other forms of psychological treatment approaches like CM, and vouchers could improve treatment retention and completion (Rajita Sinha et al., 2003) and that it is ideal for individuals showing low initial motivation for treatment (Rohsenow et al., 2004). MET is applied to understand the rationale for and against change, as well as to build motivation for taking steps in the positive direction. It is helpful to both adolescents and adults, develops a perspective about one's behaviour, and emphasizes personal strengths, empathy, and autonomy (Lenz et al., 2016).

The 12-step facilitation therapy used to treat drug addiction offers structure and support for people in all stages of addiction recovery. They are commonly offered at treatment facilities alongside counselling and other drug treatments. This treatment is used to treat some behavioural addictions and some drug addictions like cocaine and opioid (12-Step Facilitation Therapies for Substance Abuse - Addiction Resource, n.d.). Since the 12-step approach is not a medical or comprehensive treatment followed by several self-help groups (e.g., Alcoholics Anonymous, Narcotics Anonymous, Cocaine Anonymous) or drug-specific (e.g., Crystal Meth

Anonymous), they need to be implemented alongside professional drug treatment ventures. It can complement and extend the effects of professional treatment (NIDA, 2018).

Multisystemic therapy (MST) is a home-based treatment supported by evidence, that was initially designed for youth with serious anti-social behaviour who are at significant risk of out-of-home placement and their families and has since been adapted to address other difficult clinical problems faced by youth and their families including drug addiction (Sheidow & Henggeler, 2008; Henggeler & Schaeffer, 2016). Extensive research-based evidence shows the effectiveness of MST as a treatment for youth who abuse violent substances (Randall & Cunningham, 2003).

Despite the success of the treatment strategies elaborated previously, there is much work to be done to improve the rate of treatment response. Several novel approaches are being studied to enhance behavioral treatments for treating drug addiction. The use of computer-assisted delivery of treatment is one such approach (McHugh et al., 2010a).

Furthermore, some psychotherapies have not yet been researched and have not received much attention from researchers. Eye Movement Desensitization and Reprocessing (EMDR) and Seeking Safety are two such approaches that are less frequently used (Leah Miller, 2022). EMDR aids individuals in recovering from traumatic events. Seeking Safety is a therapy that emphasizes values to combat the loss of ideals experienced in trauma and drug abuse (Leah Miller, 2022). However, other reports show that EMDR was officially endorsed by the American Psychological Association, and Seeking Safety & Other Trauma-Focused Therapies are developed under a grant from the National Institute on Drug Abuse (NIDA). Further research on the above interventions will facilitate successful incorporation into addiction treatment.

According to the American Addiction Centre the report by Miller (2022) stated that, in addition to the most standard psychotherapy treatments mentioned in Table 1, there are other types of novel therapies that can be used to support drug addiction recovery (Miller, 2022). These other types of holistic and alternative therapies can aid in the promotion of recovery through stress management and general well-being, even though they do function as adequate replacements for substance use treatment programs themselves (Leah Miller, 2022). Medication, yoga, massage, and equine & animal-assisted therapy are the most upcoming useful complementary alternative therapies (Leah Miller, 2022).

According to research findings, mindfulness meditation is one of the easy alternative therapy techniques that may be practiced after treatment is fully completed. The above technique can help individuals to benefit more from their psychotherapy treatments. Meditation is yet another method that can be used in addiction treatment owing to its positive impact on depression, anxiety, and overall well-being (NIDA, 2020). Yoga is a gentle alternative therapy practice that emphasizes relaxation and deep breathing in addition to other more strenuous methods (NIDA, 2020). In addition, yoga provides numerous advantages for drug addicts including a decrease in stress or physical tension as well as a sense of increased strength or physical fitness, serenity, and self-aware (NIDA, 2020). The massage technique is another alternative therapy that can help people to relax without the use of drugs and to feel less physically tense. An individual's self-care routine can include massage, and they may even utilize as a kind of self-rewarding for tiny victories along the way to recovery (NIDA, 2020).

Some early research suggests that massage therapy may be useful in treating a range of withdrawal substances and various symptoms that can occur during withdrawal (NIDA, 2020). Equine & animal-assisted therapy is another important therapy technique. Horse-assisted therapy has shown promising results in treating

drug addiction according to some studies (Burzinski & Zgierska, 2016). Integration of different animals assisted therapies into substance abuse treatment is gaining popularity at present (Burzinski C. A. & Zgierska A., 2016). These programs encourage extended treatment stays and increase the likelihood that patients will complete their care (Burzinski C.A. & Zgierska A., 2016). Substance abusers experience acceptance, worthiness, competence, and emotional support because of these animal-assisted therapies (Burzinski C.A. & Zgierska A., 2016). There are programs that offer pet-friendly rehab services (Burzinski C.A. & Zgierska A., 2016). Even though psychotherapies may have some disadvantages which include longer time periods to reach treatment benefits and not being able to address actual crisis situations promptly, the benefits of psychotherapies when used in combination with other treatment measures outweigh the disadvantages. (APSense Ltd, 2021)

Conclusion

Psychotherapies, especially when combined with pharmacotherapy, are an important and effective component of substance abuse treatment. In the treatment of illicit drug addiction, behavioral and cognitive therapy have been found to be effective psychotherapeutics. According to the evidence presented in this review, psychological approaches could be used effectively to treat illicit drug addiction, but measures such as community reinforcement and contingency management are rarely used. When combined with pharmacological treatments, the above approaches provide better treatment outcomes than either form of treatment alone.

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Table 1- Psychotherapies used in drug addiction

Psychotherapy	Practitioner involved	Treatment method	Research outcomes	Target addict population	References
Cognitive-Behavioural Therapy (CBT)	Psychotherapist Clinical psychologist	<ul style="list-style-type: none"> - CBT is to improve patient self-control by anticipating potential problems and helping to develop effective coping strategies. - CBT Specialized treatment techniques include, exploring the positive and negative consequences of continued drug use, early detection of cravings, and identifying potential risk factors for one's use and successfully coping with cravings and developing strategies to avoid those high-risk situations. 	<ul style="list-style-type: none"> - Change substance usage habits. - Helping people learn how to identify and challenge the negative, irrational thought patterns that lead to substance use. - Teaches new coping skills to help people deal with stress, cravings, and relapses. 	Alcohol Marijuana Cocaine Methamphetamine Nicotine	6,9
Contingency Management Interventions	Psychotherapist Counsellor	<ul style="list-style-type: none"> - Giving patients direct rewards to strengthen positive behaviours such as avoidance. - At Voucher-Based Strengthening (VBR), the patient receives a voucher for each drug-free urine sample provided. (The voucher has a cash value that can be exchanged for food items, movie passes or other goods or services that conform to a drug-free lifestyle.) 	<ul style="list-style-type: none"> - Highly effective in increasing treatment retention and promoting drug avoidance and supportive for healthy drug-free life. - Voucher-Based Strengthening (VBR) Enhances Other Community Based Therapies for Adults Who uses opioids (especially heroin) or stimulants (especially cocaine) or both casually. 	Alcohol Stimulants Opioids Marijuana Nicotine	6,9,10
Community Reinforcement Approach Plus Vouchers	Psychotherapist Counsellor	<ul style="list-style-type: none"> - Intensive 24-week outpatient therapy. - Patients attend one or two individual counselling sessions every week. - The focus is on improving family functioning, learning a variety of skills to minimize drug use, receiving vocational counselling, and developing new recreational activities and social networks. - Patients provide urine samples two or three times each week and receive vouchers when they test negative for cocaine. - The value of the vouchers increases with consecutive clean samples. Patients may exchange vouchers for retail goods that are consistent with a cocaine-free lifestyle. 	<ul style="list-style-type: none"> - Reduce alcohol consumption for patients whose drinking is associated with cocaine use. - Therapy helps patients engage in treatment, learn new life skills and assists them in going long periods of time without cocaine use. 	Alcohol Cocaine	6,11

Psychotherapy	Practitioner involved	Treatment method	Research outcomes	Target addict population	References
Motivational Enhancement Therapy (MET)	Psychotherapist Substance abuse counsellor	<ul style="list-style-type: none"> - MET is a patient centred counselling approach for initiating behaviour change by helping individuals resolve ambivalence about engaging in treatment and stopping drug use. - Increase internal motivation to change in a short amount of time. - MET includes an initial assessment battery session, followed by 2-4 individual treatment sessions with a therapist. 	<ul style="list-style-type: none"> - Used successfully with alcoholics to improve both treatment engagement and treatment outcomes (e.g., reductions in problem drinking). - Used successfully with adult marijuana-dependent individuals in combination with cognitive-behavioural therapy, comprising a more comprehensive treatment approach. - More effective for engaging patients in therapy than for changing actual drug use. 	Alcohol Marijuana Nicotine	6,12,13
12-Step Facilitation Therapy	Psychotherapist Substance abuse counsellor	<ul style="list-style-type: none"> - This is an active engagement method that aims to increase the possibility of a substance abuser joining and actively participating in 12-step self-help groups, hence promoting abstinence. 	<ul style="list-style-type: none"> - The efficacy of 12-step programs has only been demonstrated for alcohol dependence. Currently, research on other drugs is being conducted. - But this treatment seems to promise to help drug users recover 	Alcohol Stimulants Opioids	6,14
Multisystemic therapy (MST)	Clinical psychologist Psychotherapist MST counsellor	<ul style="list-style-type: none"> - Focuses on changing the thinking and behaviour of adolescents and their parents by using cognitive-behavioural and social development strategies. It focuses on family strengths. - Focused on building adolescent peer skills, acquiring academic and professional skills. - Not focus on blaming the family or labelling parents. But here the key to long-term success is empowering caregivers. 	<ul style="list-style-type: none"> - Avoiding high abandonment rates and promoting responsible behaviour, reducing irresponsible actions by family members, addressing what is currently happening in adolescence, and focusing on prompt action on specific issues. - Significantly reduces adolescent drug use during treatment and for at least six months. - Reduces the number of incarcerations and the placement of minors outside the home. 	Children and adolescents who abuse alcohol and other drugs	6,15

Psychotherapy	Practitioner involved	Treatment method	Research outcomes	Target addict population	References
Family therapy	Psychotherapist Family counsellor	<ul style="list-style-type: none"> - Treatment includes individual and family sessions held in a clinic, in the home, or with family members at the family court, school, or other community locations. - During individual sessions, the focus is on decision making, negotiation, and problem-solving skills. Sessions with family members focus on parenting styles, using their influence productively and in a developmentally appropriate manner. 	<ul style="list-style-type: none"> - Effective to overcome family conflicts and maladaptive transgenerational tendencies. - Especially beneficial for families that are dealing with the effects of substance abuse. 	Alcohol Other drugs	6,16
Counselling Interventions	Psychotherapist Counsellor	<ul style="list-style-type: none"> - Counselling is a non-directive, humanistic, client-centred approach to an individual's difficulties. - Problem-solving, Goal setting, Relapse prevention and management, Harm Reduction, Brief intervention, Relaxation strategies, Grounding, Mindfulness, Challenging unhelpful thinking, Anger management, Assertiveness training. 	<ul style="list-style-type: none"> Supportive-expressive strategies make it easier for clients to talk about their own experiences, while expressive techniques aid in the identification and resolution of personal relationship issues. 	Alcohol Other drugs	6,17,18

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