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The SAGE Encyclopedia of Abnormal and Clinical Psychology

Cocaine Use Disorder

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Book Title: The SAGE Encyclopedia of Abnormal and Clinical Psychology
Chapter Title: "Cocaine Use Disorder"
Pub. Date: 2017
Access Date: April 13, 2017
Publishing Company: SAGE Publications, Inc.
City: Thousand Oaks,
Print ISBN: 9781483365831
Online ISBN: 9781483365817
DOI: http://dx.doi.org/10.4135/9781483365817.n272
Print pages: 710-714

According to the World Health Organization, the prevalence of cocaine use is 1% to 3% in developed countries with higher rates in the United States, where 1.5 million individuals have a cocaine use disorder (CUD). Men and young adults in the United States between 18 and 25 years of age have the highest rates of cocaine use. CUD represents one of the stimulant-related disorders in the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (*DSM-5*). Many individuals with CUD have problems with alcohol and other drugs.

Cocaine, known among users as C, coke, snow, flake, blow, or crack, is a powerful, addictive central nervous system stimulant that directly affects the brain when it is snorted, smoked, or injected intravenously with a needle into the veins. Cocaine is sold as a water-soluble hydrochloride salt in a fine, white powder that is diluted or mixed with sugar, cornstarch, talcum powder, procaine, amphetamine, or heroin (called a "speedball") before it is injected or snorted. Or it is processed with ammonia or baking soda and water and then heated to remove the hydrochloride, which leads to a smokable form called freebase or crack cocaine. The high from snorting or injecting cocaine lasts longer than the high from smoking cocaine.

Cocaine produces an increase in energy and activity, a heightened sense of sensory arousal and sexual desire, pleasure and euphoria, and a decrease in appetite or the need for sleep. Cocaine affects the judgment, emotions, and behaviors of the user and causes an imbalance in the neurotransmitter dopamine in the brain. It can lead to constricted blood vessels; dilated pupils; an increase in heart rate, blood pressure, and temperature; feelings of anxiety, irritability, restlessness and depression; and unpredictable behaviors. Long-term use of this drug can lead to CUD, including dependence on the drug and an addictive lifestyle. Cocaine can cause disturbances in heart rhythm, chest pain, respiratory failure, heart attack, seizures, strokes, and abdominal pain. Injecting cocaine increases the risk for abscesses, HIV, and hepatitis B or C. Cocaine use during pregnancy can cause prenatal complications, premature delivery, or birth defects. CUD may contribute to mental health symptoms such as paranoia, auditory hallucinations, depression, and suicidal thoughts or behaviors.

CUDs often contribute to family, social, interpersonal, academic, occupational, spiritual, legal, or financial problems. Examples include damaged or lost relationships, family chaos, child abuse, high-risk sexual behaviors (unprotected sex, sex with strangers or multiple partners, sex without protection, or prostitution), criminal behaviors and problems with the law, lost jobs or underemployment, and financial problems.

This entry first describes screening and assessment for CUD and then discusses classification and criteria for a diagnosis. The remainder of the entry focuses on treatment programs for CUD.

Screening and Assessment

Screening and assessment for a CUD includes clinical interviews, interviews with family members, a physical examination and laboratory tests, medical record review, and/or pen-and-paper screening instruments completed by the individual. To determine whether a more extensive assessment is needed to gather more details of cocaine use and its consequences, additional screening tools, such as the Drug Abuse Screening Test and the National Institute on Drug Abuse's (NIDA) modified ASSIST (Alcohol, Smoking and Substance Involvement Screening Test), may be used.

Classification and Criteria for Diagnosis

DSM-5 *Classification of Stimulant-Related Disorders*

The *DSM-5* includes these five categories of stimulant-related disorders: (1) stimulant use disorder, (2) stimulant intoxication, (3) stimulant withdrawal, (4) other stimulant-induced disorders, and (5) unspecified stimulant-related disorder. The essential feature of a disorder involving cocaine is a cluster of cognitive, behavioral, and physiological symptoms from among 11 symptoms (enumerated in the next subsection), which indicate (a) impaired control of cocaine use (Criteria 1–4), (b) social impairment resulting from cocaine use (Criteria 5–7), (c) risky use of cocaine (Criteria 8–9), or (d) physiological dependence (addiction) on cocaine (Criteria 10–11).

Symptom Criteria for CUD

Cocaine use is a disorder if an individual shows a problematic pattern of cocaine use leading to clinically significant personal impairment or distress. This pattern of cocaine use will show in at least 2 of the following 11 symptoms within a 12-month period, which indicate impaired control, social impairment, risky use, and physiological dependence. The severity of a CUD can vary from mild (two to three symptoms) to moderate (four to five symptoms) to severe (six or more symptoms).

1. The user cannot control how much cocaine is ingested and may use more of the drug or for a longer period of time than intended.
2. The cocaine user wants to cut down or stop but is unable to do this.
3. Too much of the user's time is spent on getting or using cocaine or dealing with the aftermath of getting high.
4. The cocaine user feels strong cravings for the drug even during periods of abstinence.
5. Cocaine use leads to not taking care of responsibilities with the user's family or other areas of life such as work.
6. Cocaine is still used even though it causes or worsens problems in relationships or the user's ability to function.
7. Cocaine use becomes the central focus of life to the point where the user stops social or recreational activities that once were important.
8. The cocaine user drives a vehicle or operates machinery after ingesting the drug even though this is risky.
9. Although cocaine use causes or worsens physical or mental health problems, the user still ingests the drug.
10. The user needs more cocaine to feel the high desired (higher tolerance) or gets high on lesser amounts (lower tolerance).
11. When the addicted cocaine user cuts down or stops drug use, he experiences withdrawal symptoms (see below).

Other Categories of Cocaine-Related Disorders

Cocaine Intoxication

Cocaine intoxication is a reversible syndrome that results from recent cocaine use. The user experiences behavioral or psychological changes (e.g., euphoria, anger, anxiety, hypervigilance, impaired judgment) as well as two or more of the following physical symptoms during or shortly after cocaine use: (1) irregular heartbeats, (2) dilated pupils, (3) elevated or

lowered blood pressure, (4) perspiration or chills, (5) nausea or vomiting, (6) weight loss, (7) psychomotor agitation or retardation, (8) muscular weakness, (9) respiratory depression, (10) chest pain or cardiac arrhythmias, (11) or confusion, seizures, or coma.

Cocaine Withdrawal

Withdrawal from cocaine is not as dangerous as withdrawal from alcohol, other depressants, or opioids. It occurs when prolonged cocaine use is stopped or reduced and involves depressed mood, significant distress or impairment in functioning and two of the following physiological changes: (1) fatigue, (2) vivid and unpleasant dreams, (3) insomnia or hypersomnia, (4) increased appetite, or (5) psychomotor retardation or agitation.

Other Cocaine-Induced or -Related Disorders

Cocaine-induced disorders include symptoms of other *DSM* disorders such as depression, bipolar, anxiety, psychotic, sleep disturbance, or sexual dysfunction. These may remit when cocaine use is stopped. A cocaine-related disorder may be diagnosed when cocaine use causes personal distress or impairment but does not meet the full criteria for CUD.

Treatment Programs

To treat CUD, a continuum of care that includes therapeutic community, halfway house, short-term residential, partial hospital, intensive outpatient, ambulatory, and continuing care (aftercare) is used. Specialty programs may be provided for individuals in the criminal justice system or those with co-occurring mental health disorders, but these programs are not limited to individuals with CUD. The American Society on Addiction Medicine recommends that the level of care be based on the following: an evaluation of intoxication and withdrawal potential, biomedical complications, mental health complications, motivation, social support, and relapse potential of the individual with CUD.

Individual, group, and/or family therapies and ancillary services (vocational counseling, medical care, social services) are used to help individuals with their CUD and related problems. Many patients in treatment benefit from mutual-support programs such as Cocaine Anonymous (CA), Narcotics Anonymous (NA), or other programs.

Psychosocial Treatments

Evidence-based treatments used to treat CUD include individual drug counseling (IDC), group drug counseling (GDC), cognitive behavioral therapy (CBT), motivational interviewing, contingency management or motivational incentives, community reinforcement approach plus vouchers, motivational enhancement therapy, the Matrix model, relapse prevention therapy, Twelve Step Facilitation Therapy, and couple and family therapies (although these have been studied much less than nonfamily interventions). Most of these therapies are described in clinical manuals published by NIDA or developers of the specific model of treatment. The following subsections briefly summarize some of these therapies.

Individual Drug Counseling

This disease model of addiction incorporates the twelve-step philosophy of recovery. IDC helps the patient learn coping strategies to manage and recover from the adverse effects of

CUD. Patients are encouraged to be active in CA or NA. Key issues addressed in IDC are denial; cravings; people, places, or things that "trigger" desires for cocaine; how to structure time; leisure activities; ways to resist social pressure to use cocaine; how to manage feelings; tools to reduce relapse risk; relationship in recovery; spirituality; how to address employment or money issues; and other substance problems or addictive behaviors.

Twelve-Step Facilitation Therapy

Twelve-step facilitation therapy, whether individual or group formats, facilitates patient participation in a twelve-step program such as CA or NA. Acceptance of cocaine addiction, surrender to a higher power, acceptance of the fellowship and recovery program promoted by CA or NA, and active involvement in twelve-step meetings, sponsorship, and other program activities are emphasized. The patient is asked to attend twelve-step meetings, maintain a journal of reactions to meetings, and read recovery material.

Cognitive Behavioral Treatment

CBT is sometimes referred to as relapse prevention therapy or coping skills training. This therapy teaches the patient coping skills to meet the challenges of recovery and maintain abstinence. Cocaine addiction is viewed from a social learning perspective in which patients learn harmful behaviors, such as cocaine use, to change how they feel. Positive feelings from cocaine lead to continued use of the drug. As cocaine addiction progresses, patients have less confidence in their ability to cope without using it. CBT helps patients identify cocaine triggers that increase the likelihood of relapse. Patients also learn problem-solving and behavioral skills to cope with high-risk situations and feelings and to counteract self-defeating thoughts. Behavioral rehearsals are used to help patients learn coping skills to use in real life. Homework assignments encourage the use of skills outside of treatment. Skills are also taught through therapist modeling, verbal presentation, treatment contracts, and self-monitoring. Therapists are active and directive in carrying out this treatment and encouraging active collaboration with patients.

Motivational Interviewing

Motivational interviewing, typically used early in the treatment process, provides an atmosphere of acceptance and compassion to assist patients in addressing their motivation and commitment to change, their ambivalence about change, and their specific goals and reasons for change related to their cocaine use.

Contingency Management

Contingency management uses motivational incentives to reward patients for abstaining from cocaine and adhering to treatment goals. Patients earn points or choose prizes of varying value for program attendance or cocaine-free urines. Research has shown that such incentives have resulted in significant improvements in cocaine-free urines and treatment attendance.

Group Drug Counseling

There are many models of group treatments for CUD, including GDC. The first phase comprises structured weekly group sessions focused on a specific topic, with discussion,

handouts, and written assignments. At the beginning of each session, patients share their experiences of the previous week with regard to cocaine use, cocaine cravings, high-risk situations, and attendance at support meetings, and at the end of each session, patients reiterate their plan to address their recovery during the upcoming week. In the second phase, the focus is on coping strategies to facilitate abstinence.

Findings from a large-scale multisite cocaine collaborative study funded by NIDA showed that (a) at 1-year follow-up there was a significant reduction of cocaine use; (b) the combination of IDC and GDC was the most effective treatment combination; (c) the therapeutic alliance between the individual therapist and the patient, or the helping alliance between the group therapy and group members, was an important factor that influenced outcomes; (d) patients with counselors or therapists who were in recovery from an addiction did not have better outcomes; and (e) African American patients with counselors from a similar background did not have better outcomes. Connecting with a patient appears to be more important than having a similar ethnic or recovery background with the patient.

Matrix Model

The Matrix model is an outpatient program used with cocaine and other stimulant disorders delivered in an individual (10 sessions), group (44 sessions), or family format (12 sessions) over 4 months. Previous versions consisted of a longer episode of treatment up to 12 months. More than 20 years of research support the efficacy of this approach. This model and structured curriculum for group sessions are described in a counselor's manual, a family education manual, and a patient recovery handbook.

The goals of treatment are to teach patients about addiction, recovery, and relapse and to help them learn skills to initiate abstinence, prevent relapse, and engage in long-term recovery by participating in mutual-support programs such as CA, NA, Methamphetamine Anonymous, and Alcoholics Anonymous since many individuals also have an alcohol use disorder. An extensive structured group program focuses on early recovery, relapse prevention, social support, and family issues. Examples of topics in early recovery groups include stopping the cycle of addiction, identifying triggers to use drugs, body chemistry in recovery, and twelve-step programs. Examples of topics covered in relapse prevention groups include feelings (dangerous emotions, boredom, guilt and shame, anger, stress, depression), work and recovery, motivation, making new friends, repairing relationships, and relapse justifications. Examples of topics in the family program include triggers and cravings, recovery for the patient and family, other substances and addictions (alcohol, marijuana), and living with addiction. Social support groups are available for those who complete the initial 12 weeks of treatment and show stable recovery. Specific topics covered depend on the issues of group members. Examples include other compulsions, friendships, sober fun, grief, honesty, scheduling time, sex, and spirituality.

Family Treatment Approaches

Family approaches can (a) help get the member with CUD into treatment; (b) increase his or her treatment attendance and completion; (c) stop or reduce his or her cocaine use; (d) improve his or her functioning at work, in school, with family, or in the community; and (e) for the family system, improve communication, improve family involvement in treatment, and reduce the burden felt by family members. The community reinforcement approach is an example of a comprehensive outpatient program that combines individual counseling, family (or relationship) counseling, and contingency management (voucher). Family sessions focus

on improving relationship and communication skills with the patient and spouse or partner.

Medication-Assisted Treatment

Medications with some efficacy but not approved by the U.S. Food and Drug Administration for cocaine dependence include modafinil, buproprion SR, desipramine, disulfiram, and topiramate. Individuals prescribed medications should also engage in psychosocial therapies and/or mutual-support programs, as these increase the likelihood of successful treatment outcome.

Mutual Support Programs

CA, NA, and other programs are recommended for individuals in recovery from CUD. Actions such as attending meetings, getting a sponsor, working the Twelve Steps, and using the other tools of the program appear to have the best outcomes. Other non-twelve-step programs (e.g., Rational Recovery, Smart Recovery, Women for Sobriety) may help, but they are not available in many communities; however, online chat rooms may help some individuals with CUD.

Relapse

Many factors contribute to cocaine relapse such as negative emotional states, social pressures to use cocaine, strong cravings, interpersonal conflict, or positive emotional states. Because it is not using coping skills that leads to relapse, many therapies incorporate elements of relapse prevention into their clinical programming to help patients identify and manage with appropriate interventions any signs of relapse in order to limit the damage. If a patient does relapse, clinical focus can be on further developing the patient's coping strategies and making lifestyle changes.

See alsoAddiction, Recovery From; Cocaine Intoxication; Cocaine Withdrawal; Narcotics Anonymous; Substance Use Disorders and Co-Occurring Mental Health Disorders; Substance Use Disorders and the Family

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http://dx.doi.org/10.4135/9781483365817.n272
10.4135/9781483365817.n272

Further Readings

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