

23. The Self-Medication Hypothesis of Addictive Disorders: Focus on Heroin and Cocaine Dependence

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DEVELOPMENTS in psychoanalysis and psychiatry over the past 50 years have provided enabling new insights and approaches in understanding mental life and in treating its aberrations. In psychoanalysis, there has been a shift from a focus on drives and conflict to a greater emphasis on the importance of ego and self structures in regulating emotions, self-esteem, behavior, and adaptation to reality. In psychiatry, we have witnessed the advent of psychotropic medications, a more precise understanding of the neurobiology of the brain, and the development of standardized diagnostic approaches for identifying and classifying psychiatric disorders. Such developments have had implications for understanding and treating addictions, especially given the recent dramatic rise in drug abuse in all sectors of our society and our growing inclination to treat our drug-dependent patients through private practice, in community mental health centers, and in methadone-maintenance or self-help programs, in close proximity to the surroundings in which their addictions evolved.

Popular or simplistic formulations in the early 1970s emphasized peer group pressure, escape, euphoria, or self-destructive themes to explain the compelling nature of drug dependency. In contrast, the work of a number of psychoanalysts in the 1960s and 1970s has led to observations, theoretical formulations, and subsequent studies representing a significant departure from these previous approaches and explanations. On the basis of a modern psychodynamic perspective, these analysts succeeded in better identifying the nature of the psychological vulnerabilities, disturbances, and pain that predispose certain individuals to drug dependence. This perspective, which has spawned a series of diagnostic studies over the past decade, emphasizes that heavy reliance on and continuous use of illicit drugs (i.e., individuals who become and remain addicted) are associated with severe and significant

psychopathology. Moreover, the drug of choice that individuals come upon is not a random phenomenon.

On the basis of recent psychodynamic and psychiatric perspectives and findings, I will elaborate on a self-medication hypothesis of addictive disorders, emphasizing problems with heroin and cocaine dependence. This point of view suggests that the specific psychotropic effects of these drugs interact with psychiatric disturbances and painful affect states to make them compelling in susceptible individuals.

PSYCHODYNAMIC FINDINGS

An extensive review of the psychoanalytic literature on addiction goes beyond the scope of this paper. I have reviewed elsewhere the early psychoanalytic literature on addiction, which principally emphasized the pleasurable aspects of drug use (1, 2). Psychoanalytic reports that pertain most to this thesis date back to the work of Chein et al. (3) and the earlier related work of Gerard and Kornetsky (4, 5), who were among the first groups to study addicts in the community (inner city, New York addicts) and attempt to understand the psychological effects of opiates and how they interacted with addicts' ego, superego, narcissistic, and other psychopathology. They emphasized that individuals use drugs adaptively to cope with overwhelming (adolescent) anxiety in anticipation of adult roles in the absence of adequate preparation, models, and prospects. Because they did not have the benefit of a modern psychopharmacologic perspective, they referred to the general "tranquilizing or ataractic" properties of opiates and did not consider that the appeal of narcotics might be based on a specific effect or action of opiates. In addition, their studies were limited to narcotic addicts, thus providing little basis to compare them to addicts dependent on other drugs.

Around 1970, a number of psychoanalysts began to report findings based on their work with addicts, who were coming in increasing numbers to their practices and to a variety of community treatment settings. In contrast to the early emphasis in psychoanalysis on a drive and topographical psychology, their work paralleled developments in contemporary psychoanalysis and placed greater emphasis on structural factors, ego states, and self and object relations in exploring the disturbances of addicts and understanding their suffering. More particularly, this literature highlighted how painful affects associated with disturbances in psychological structures and object relations interacted with the psychopharmacologic action of addictive drugs to make them compelling.

Despite a superficial resemblance to earlier formulations that stressed regressive pleasurable use of drugs, work by Wieder and Kaplan (6) represented an important advance and elaboration of trends set in motion by Gerard and Kornetsky in the 1950s. Wieder and Kaplan used recent developments in ego theory, which enabled them to appreciate that individuals self-select different drugs on the basis of personality organization and ego impairments. Their emphasis on the use of drugs as a "prosthetic," and their focus on developmental considerations, adaptation, and the ego clearly sets their work apart from earlier simplistic formulations based on an id psychology.

On the basis of this and other recent work that considers ego and adaptational problems of addicts, and following lines pursued by Weider and Kaplan, Milkman and Frosch (7) empirically tested the hypothesis that self-selection of specific drugs is related to preferred defensive style. Using the Bellak and Hurvich Interview and Rating Scale for Ego Functioning, they compared heroin and amphetamine addicts in drugged and nondrugged conditions. Their preliminary findings supported their hypothesis that heroin addicts preferred the calming and dampening effects of opiates and seemed to use this action of the drug to shore up tenuous defenses and reinforce a tendency toward withdrawal and isolation, while amphetamine addicts used the stimulating action of amphetamines to support an inflated sense of self-worth and a defensive style involving active confrontation with their environment.

The work of Wurmser (8, 9) and Khantzian (1, 10-12) suggested that the excessive emphasis on the regressive effects of narcotics in previous studies was unwarranted and that, in fact, the specific psychopharmacologic action of opiates has an opposite, "progressive" effect whereby regressed states may be reversed. Wurmser believed that narcotics are used adaptively by narcotic addicts to compensate for defects in affect defense, particularly against feelings of "rage, hurt, shame—and loneliness." Khantzian stressed drive defense and believed narcotics act to reverse regressed states by the direct antiaggression action of opiates, counteracting disorganizing influences of rage and aggression on the ego. Both these formulations proposed that the psychopharmacologic effects of the drug could substitute for defective or nonexistent ego mechanisms of defense. As with previously mentioned recent investigators, Wurmser and Khantzian also considered developmental impairments, severe predisposing psychopathology, and problems in adaptation to be central issues in understanding addiction. Radford et al. (13) reported detailed case material which supported the findings of Wurmser and Khant-

zian that opiates could have an antiaggression and antiregression action or effect. They further observed that opiate use cannot be exclusively correlated with any particular patterns of internal conflict or phase-specific developmental impairment.

Krystal and Raskin (14) were less precise about the specific effects of different drugs but allowed that they may be used either to permit or prevent regression. However, their work focused more precisely on the relationship between pain, depression, and anxiety and drug and placebo effects. They explored and greatly clarified addicts' difficulties in recognizing and tolerating painful affects. They proposed that the tendency for depression and anxiety to remain somatized, un verbalized, and undifferentiated in addicts resulted in a defective stimulus barrier and thus left such individuals ill-equipped to deal with their feelings and predisposed them to drug use. Their work also focused in greater depth on the major problems that addicts have in relation to positive and negative feelings about themselves and in relation to other people. Krystal and Raskin believed that addicts have major difficulties in being good to themselves and in dealing with their positive and negative feelings toward others because of rigid and massive defenses such as splitting and denial. They maintained that drug users take drugs not only to assist in defending against their feelings but also briefly and therefore "safely" to enable the experience of feelings like fusion (oneness) with loved objects, which are normally prevented by the rigid defenses against aggression.

DIAGNOSTIC AND TREATMENT STUDIES

Partly as an extension and outgrowth of the psychodynamic studies and partly as the result of the development of standardized diagnostic approaches for classifying and describing mental illness, a number of reports over the past decade have documented the coexistence of psychopathology in drug-dependent individuals. Some of these investigators have also reported on the results of conventional psychiatric treatment, including psychotherapy, with drug-dependent individuals. Although the results of such studies to date have been inconsistently successful or inconclusive, they are suggestive enough to further support the concept that drug dependence is related to and associated with coexistent psychopathology.

In a placebo-controlled study, Woody et al. (15) treated a series of narcotic addicts with the antidepressant doxepin and documented significant symptom reduction. Their study suggested that this group of patients suffered with an anxious depression, and as the depression lifted with treatment, there was a

corresponding reduction in misuse and abuse of drugs and an improvement in overall adaptation. More recently, this group of investigators (16) reported longitudinal data on individuals dependent on psychostimulants, sedative-hypnotics, or opiates which suggested that addicts might be medicating themselves for underlying psychopathology. Their study suggested that such individuals might respond to the administration of appropriate psychopharmacologic agents for target symptoms of phobia and depression.

Dorus and Senay (17) and Weissman et al. (18-20) evaluated large samples of narcotic addicts and, using standardized diagnostic approaches, documented a significant incidence of major depressive disorder, alcoholism, and antisocial personality. Rounsaville et al. (19, 20) concluded that their findings were consistent with the clinical theories of Wurmser and Khantzian, i.e., that depressed addicts used opiates as an attempt at self-treatment for unbearable dysphoric feelings.

At a conference sponsored by the New York Academy of Sciences on opioids in mental illness, Khantzian, Wurmser, McKenna, Berken, Millman, Vereby, and others presented clinical findings and theoretical observations that support a self-medication hypothesis of addictions (21). The sponsors of the conference and the participants reviewed the role of exogenous opiates as well as endorphins in regulating emotions. One of the conclusions drawn from these findings was that the long-acting opiate methadone might be an effective psychotropic agent in the treatment of severe psychoses, especially cases refractory to conventional drugs and in instances associated with violence and rage.

Treecce and Nicholson (22), using diagnostic criteria from *DSM-III*, published findings indicating a strong relationship between certain types of personality disorder and methadone dose required for stabilization. They studied this same sample and compared "high drug" and "low drug" users (i.e., in addition to their prescribed methadone dose) and were able to show that the high drug users were significantly more impaired in the quality of their object relations than the low drug users (23). In a recent report, Khantzian and Treecce (24) studied 133 narcotic addicts from three subject samples (i.e., a methadone program sample, a residential setting sample, and a street sample) and, using *DSM-III*, documented depression in over 60% and a range of personality disorders (that included but was not limited to antisocial disorder) in over 65%. We also explored the possible relationships between the disturbed/disturbing behavior of addicts as reflected by the personality diagnosis, and the painful affects with which addicts suffer as reflected by the diagnosis of depression.

Recently, Blatt et al. (25) used the Loevinger Sentence Completion, the Bellak Ego Function Interview, and the Rorschach to extensively study 99 opiate addicts and compare them to normal subjects. Their findings provide further evidence that opiate addicts suffer significantly in their interpersonal relations and in affect modulation. The authors indicate that addicts use drugs in the service of isolation and withdrawal.

In two carefully executed studies (26, 27) based on the assumption that opiate dependence is associated with psychopathology, the effectiveness of psychotherapy on the psychopathology and presumed related drug dependence of 72 and 110 narcotic addicts, respectively, was tested. Rounsaville et al. (26) found no evidence that psychotherapy appreciably influenced treatment outcome. Woody et al. (27) demonstrated that the addicts receiving psychotherapy had greater improvement than the addicts who received only drug counseling and that the psychotherapy subjects required less methadone and used fewer psychotropic drugs.

Finally, carefully executed studies dating back to the early 1970s document that in selected cases and samples of substance-dependent individuals, target symptoms and psychopathology have been identified and successfully treated with psychotropic drugs (15, 28–31).

CLINICAL OBSERVATIONS—NARCOTIC AND COCAINE DEPENDENCE

Clinical work with narcotic and cocaine addicts has provided us with compelling evidence that the drug an individual comes to rely on is not a random choice. Although addicts experiment with multiple substances, most prefer one drug. Weider and Kaplan (6) referred to this process as “the drug-of-choice phenomena,” Milkman and Frosch (7) described it as “preferential use of drugs,” and I (32) have called it the “self-selection” process. I believe that narcotic and cocaine addicts’ accounts of their subjective experiences with and responses to these drugs are particularly instructive. They teach us about how addicts suffer with certain overwhelming affects, relationships, and behavioral disturbances and how the short-term use of their drug of choice helps them to combat these disturbances.

Narcotic Addiction

Although narcotics may be used to overcome and cope with a range of human problems including pain, stress, and dysphoria (33), I have been impressed

that the antiaggression and antirage action of opiates is one of the most compelling reasons for its appeal. I base this conclusion on observations of over 200 addicts whose histories reveal lifelong difficulties with rage and violent behavior predating their addiction, often linked to intense and unusual exposure to extreme aggression and violence in their early family life and the environment outside their homes. These experiences included being both the subject and the perpetrator of physical abuse, brutality, violent fights, and sadism. In the course of their evaluation and treatment these patients repeatedly described how opiates helped them to feel normal, calm, mellow, soothed, and relaxed. I have also observed addicts in group treatment whose restlessness and aggressiveness, especially manifested in their abusive and assaultive use of obscenities, subsided as they stabilized on methadone (1, 10–12). I was also impressed that many narcotic addicts discovered the antirage action of opiates in a context of violent feelings, often of murderous proportion, being released in them by sedatives and alcohol or being manifested as a consequence of amphetamine and cocaine use (34).

Clinical vignette. A 29-year-old ex-felon, admitted to a closed psychiatric ward because of increasing inability to control his alcohol and cocaine use, demonstrated dramatically this special relationship between violence and drug use and why opiates were his drug of choice. I saw this patient in consultation on a day when he had become very agitated and intimidating as he witnessed a very disturbed female patient being placed in four-point restraints. An alert attendant, who was a felon himself on work release, ascertained from the patient that this scene triggered panic and violent reactions similar to those he had experienced when he had been attacked by guards in prison because he had been threatening or assaultive. When I met him I was surprised by his diminutive stature and reticence. I told him I wanted to understand his drug-alcohol use and determine whether our unit was okay (i.e., safe) for him. He immediately apologized for overreacting to the restrained patient and explained how much it reminded him of his prison experience. He quickly launched into his worry that his alcohol and cocaine use was causing increasingly uncontrolled outbursts of verbally assaultive behavior and, as a consequence, an increasing tendency to use opiates to quell his violent reactions. He openly admitted to past overt assaultive behavior, most frequently involving knifings, when he felt threatened, provoked, or intimidated. He kept returning to the confrontation and restraint of the patient, apologizing for his reaction but also explaining how disorganizing and threatening it was for him. He said there had been a time when attack would have been a reflex in such situations, but he wanted to reassure me and the staff that he really understood why we were doing what we were. He seemed to be begging to stay and said he wanted help with his alcohol and drug use. An inquiry about his drug use and its effect on him revealed that he preferred opiates, so much so that he knew he had to avoid

them. (He explained that he knew too many people who had become hopelessly dependent on or had died because of opiates.) Whereas alcohol or stimulants could cause violent eruptions, he explained that opiates—and he named them all correctly—countered or controlled such reactions. He said that the only person he had to rely on was his mother but that she was very ill and in the hospital. He complained that he had suffered as a consequence of his father's alcoholism, the associated violence, and his premature death (alcoholic complications) when the patient was in his early teens. His father's unavailability and early death had left him without supervision or guidance. He bitterly lamented that a brother 5 years older had been "useless" in providing any guidance on how to control his drug-alcohol use or his impulsive and aggressive behavior ("he didn't help me to smarten up").

The patient's description of his violent side before prison and once in prison, confirmed by the mental health aide who corroborated his story, was chilling and convincing. He was equally graphic in describing the many attacks he suffered at the hands of sadistic correction officers and other inmates. What was clear was that, whether he was the perpetrator or the victim, the violence was a recurrent, regular, and repetitious part of his adult life. I have concluded (11, 12) that such individuals welcome the effects of opiates because they mute uncontrolled aggression and counter the threat of both internal psychological disorganization and external counteraggression from others, fears that are not uncommon with people who struggle with rage and violent impulses. The discovery that opiates can relieve and reverse the disorganizing and fragmenting effects of rage and aggression is not limited to individuals who come from deprived, extreme, and overtly violent backgrounds.

Clinical vignette. A successful 35-year-old physician described how defensive and disdainful he had become since his early adulthood as a consequence of his mother's insensitivity and his father's cruel and depriving attitude toward the patient and his family, despite their significant affluence. He said he became dependent on opiates when his defense of self-sufficiency began to fail him in a context of disappointing relationships with women and much distress and frustration working with severely ill patients. More than anything else, he became aware of the calming effects of these drugs on his bitter resentment and mounting rage. He stressed how this effect of the drugs helped him to feel better about himself and, paradoxically, helped him to remain energized and active in his work.

I have described (12, 34) similar patients from privileged backgrounds in which sadistic or unresponsive parents fueled a predisposition to angry and violent feelings toward self and others.

Cocaine Addiction

From a psychodynamic perspective, a number of investigators have speculated on the appeal of stimulants and, in particular, cocaine. For some, the energizing properties of these drugs are compelling because they help to overcome fatigue and depletion states associated with depression (32). In other cases the use of stimulants leads to increased feelings of assertiveness, self-esteem, and frustration tolerance (6) and the riddance of feelings of boredom and emptiness (9). I have proposed that certain individuals use cocaine to "augment a hyperactive, restless lifestyle and an exaggerated need for self-sufficiency" (34, p. 100). Spotts and Shontz (35) extensively studied the characteristics of nine representative cocaine addicts and documented findings that are largely consistent with the psychodynamic descriptions of people who are addicted to cocaine.

More recently, we have considered from a psychiatric/diagnostic perspective a number of factors that might predispose an individual to become and remain dependent on cocaine (36, 37): (1) preexistent chronic depression; (2) cocaine abstinence depression; (3) hyperactive, restless syndrome or attention deficit disorder; and (4) cyclothymic or bipolar illness. Unfortunately, studies of representative larger, aggregate samples of cocaine addicts do not yet exist to substantiate these possibilities.

Clinical vignette. A 30-year-old man with a 10-year history of multiple drug use described the singularly uplifting effect of cocaine, which he came to use preferentially over all the other drugs. In contrast to a persistent sense of feeling unattractive and socially and physically awkward dating back to adolescence, he discovered "that (snorting) it gave me power—and made me happy. It was pleasant—euphoric; I could talk—and feel erotic." Subsequently, injecting it intensified these feelings, but more than anything else, the cocaine helped him to not worry what people thought about him.

I have been repeatedly impressed how this energizing and activating property of cocaine helps such people, who have been chronically depressed, overcome their anergia, complete tasks, and better relate to others and, as a consequence, experience a temporary boost in their self-esteem (37).

Clinical vignette. In contrast, a 40-year-old accountant described an opposite, paradoxical effect from snorting cocaine. Originally, when I evaluated this man, I thought he was using the stimulating properties of the drug as an augmentor for his usual hyperactive, expansive manner of relating. He finally convinced me to the contrary when he carefully mimicked how he put down several lines in the morning, snorted it, and breathed a sigh of relaxation and then described how he could sit still, focus on his backlog of paper work, and complete it.

This man's story, a recent dramatic and extreme case (38), and two other related reports (36, 37) suggest that cocaine addicts might be medicating themselves for mood disorders and behavioral disturbances, including a pre-existing or resulting attention deficit/hyperactive-type disorder. The extreme case responded dramatically to methylphenidate treatment. I have successfully treated several other patients with methylphenidate. The patients I have treated with methylphenidate provide further evidence to support a self-medication hypothesis of drug dependency. At this point it would be premature to conclude precisely what the disorder or disorders are for which cocaine addicts are medicating themselves. However, the pilot cases and my previous clinical experiences suggest several possibilities. The patients share in common lifelong difficulties with impulsive behavior, emotional lability, acute and chronic dysphoria (including acute depressions), and self-esteem disturbances that preceded cocaine use. All of the patients experienced a relief of dysphoria and improved self-esteem on cocaine; they also experienced improved attention leading to improved interpersonal relations, more purposeful, focused activity, and improved capacity for work. The substitution of the more stable, long-acting stimulant drug methylphenidate provided an opportunity for me to observe these patients clinically and to confirm the stabilizing effect of stimulants on them.

COMMENT

Clearly, there are other determinants of addiction, but I believe a self-medication motive is one of the more compelling reasons for overuse of and dependency on drugs. Clinical findings based on psychoanalytic formulations have been consistent with and complemented by diagnostic and treatment studies that support this perspective, which, I believe, will enable researchers and clinicians to further understand and treat addictive behavior. Rather than simply seeking escape, euphoria, or self-destruction, addicts are attempting to medicate themselves for a range of psychiatric problems and painful emotional states. Although most such efforts at self-treatment are eventually doomed, given the hazards and complications of long-term, unstable drug use patterns, addicts discover that the short-term effects of their drugs of choice help them to cope with distressful subjective states and an external reality otherwise experienced as unmanageable or overwhelming. I believe that the perspective provided by the self-medication hypothesis has enabled me and others to understand better the nature of compulsive drug use and that it has provided a useful rationale in considering treatment alternatives. The heuristic value of this hypothesis might also help us to more effectively understand and treat the most recent elusive addiction, cocaine dependence.

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