

Substance abuse and addiction

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In a society in which approximately one in five Americans will have a problem with substance abuse during their lifetime, an understanding of the basic issues of substance abuse is a necessity for forensic psychiatrists as substance dependence, abuse, and addiction may be relevant in many forensic evaluations. Because of denial by many if not most substance abusers, knowledge of this area is especially essential so that its role can be recognized.

PSYCHOACTIVE SUBSTANCES AND 'ADDICTION'

Psychoactive substances are chemicals that affect the way an individual feels. This chapter will focus on those psychoactive substances that are abused, including alcohol, illicit drugs, and certain prescribed medications, such as painkillers. In addition to affecting mood states, psychoactive substances may have profound effects on cognition, behavior, and physiology, and therefore they influence how we function in an interpersonal and social context. Use of alcohol and other drugs can produce acute intoxication, withdrawal states, substance-induced psychiatric syndromes, and lead to syndromes of substance abuse and dependence (i.e., addiction). The commonly used term 'addiction' has become ever more ambiguous as it has been applied to everything from shooting heroin to playing video games and has been called 'the troublesome concept' (Achers 1991). The term has political and moral meaning, and reflects social modes of consumption, the limits of normative behavior, and the constitution of deviance (Quintero and Nichter 1996). The expert who communicates to judge or jury should remain sensitive to these semantic issues and specify the meaning intended.

SOCIAL HISTORY AND EPIDEMIOLOGY OF ALCOHOL AND DRUGS

Mankind has utilized psychoactive substances throughout history. Examples in the United States include the heavy

use of hard liquor in colonial America; the widespread use of narcotic-containing patent medicines in the nineteenth century; the cultural embrace of the cigarette in the middle of the twentieth century; the widespread use of marijuana in the 1960s; the 'crack epidemic' of the 1980s; and the success of Starbuck's coffee in the 1990s. Moral considerations have long colored the social view of alcohol and other substances of abuse. Victorians saw alcoholism as a disease of the will, while the temperance movement saw alcohol as being corrupting and evil and hence sought its outright removal from society. Largely ineffectual efforts to curb substance abuse have included the Pure Food and Drug Act of 1906, the Harrison Narcotics Act of 1914, prohibition under the Eighteenth Amendment to the U.S. Constitution and the Volstead Act of 1919, harsh criminal sentences for substance abusers, and the ongoing 'war on drugs.' A more detailed view of the historical and social context of substance abuse can be found elsewhere (Westmeyer 1998; Belenko 2000).

The National Institute of Mental Health Epidemiologic Catchment Area study, conducted in five cities in the United States, found lifetime prevalence rates of 13.5 per cent for alcohol disorders alone, 6.1 per cent for drug disorders alone, 22.5 per cent for mental disorder alone, and 29 per cent for comorbid mental and addictive disorders (Robins and Regier 1991). It was seven times more likely for an alcoholic or drug addict to suffer from the other addictive disorder. Some 37 per cent of those with alcohol disorders and 53 per cent of those with drug disorders had comorbid mental disorder – almost five times the likelihood of the general population. Those with bipolar disorder had almost 61 per cent prevalence of comorbid substance abuse; those with schizophrenia had 47 per cent comorbidity, and those with mood disorders had 32 per cent comorbidity. In another study, among those with antisocial personality disorder, 39 per cent had definite alcoholism and 12 per cent had possible alcoholism; borderline personality had a 43 per cent prevalence of alcoholism (Cloniger, Bayon, and Przybeck 1997).

PHARMACOLOGY

Psychoactive substances are usually consumed by ingestion, sniffing, inhalation, or by intravenous injection. Characteristic pharmacodynamic and pharmacokinetic features are important in understanding the acute and chronic effects of a substance in any given individual, as well as usual patterns of use and the time window of detection in bodily fluids. In addition, it must be appreciated that there are individual differences among users based on the user's own physiology and psychology. Furthermore, the effects of any given psychoactive substance will be influenced by the setting in which the substance is consumed, as well as the individual's expectations (or mind 'set') pertaining to the psychoactive substance use. Psychoactive substances can be broadly classified as central nervous system (CNS) stimulants and CNS depressants. In such a scheme, cocaine, amphetamines (and the amphetamine-derivative Ecstasy), caffeine, and nicotine are CNS stimulants; alcohol, barbiturates, opiates, and benzodiazepines are CNS depressants (marijuana, PCP, LSD, inhalants, and anabolic steroids fall outside such a division). The specific pharmacodynamic and pharmacokinetic features of the various psychoactive substances are discussed in detail elsewhere (Hardman and Limbird 1996).

DETERMINANTS OF SUBSTANCE ABUSE

Addiction is a highly complex biopsychosocial phenomenon, with a growing body of data and hypotheses reflecting research in genetics, biochemistry, animal behavior, psychology, psychotherapy, public health, economics, and sociology (see Lowinson *et al.* 1997 for more detailed discussion). Animal research has provided self-administration paradigms and the demonstration of the importance of mesocorticolimbic dopamine pathways in reinforcement in such models (Koob 2000). Addiction is theorized to be a neuroadaptational result of over-stimulation of 'pleasure pathways' in the CNS, in which down-regulation of hedonic brain mechanisms results in craving and relapse (Di Chiara, Acquas, and Carboni 1992). Genetic research on substance abusers is increasing; the dopamine receptor gene has been hypothesized to play a role in the development of addiction (Reich *et al.* 1999; Noble 2000). Substance-induced frontal lobe dysfunction has been hypothesized to explain the impairment of self-control described in addictions (Lyvers 2000). The frontal lobes are thought to provide 'executive functions' such as abstract reasoning, insight and judgment, planning, execution and evaluation, and inhibition of impulses (Stuss and Benson 1986). Brain imaging studies have demonstrated acute and chronic effects of alcohol and some drugs on the frontal lobes (Volkow *et al.* 1994; Volkow *et al.* 1996). Furthermore, recent reports suggest that cocaine, which has powerful vasoconstrictive effects,

does seem to change brain morphology (Bartzokis *et al.* 1999; Bartzokis *et al.* 2002; Lim *et al.* 2002). These studies suggest that chronic abuse may result in reduced brain myelination in adulthood and thus contribute to deficits in impulse control (Bartzokis *et al.* 2002). Brain imaging studies have demonstrated acute and chronic effects of alcohol and some drugs on the frontal lobes, which are thought to provide 'executive functions' such as abstract reasoning, insight and judgment, planning and evaluation, and inhibition of impulses (Stuss and Benson 1986; Volkow *et al.* 1994; Volkow *et al.* 1996). Genetic research on substance abusers is increasing; the dopamine receptor gene has been hypothesized to play a role in the development of addiction (Reich *et al.* 1999; Noble 2000).

The 'self-medication hypothesis' posits that individuals predisposed by biological or psychological vulnerabilities use substances as a partially successful attempt to relieve psychological suffering; a person's preference for a particular drug involves some degree of psychopharmacological specificity (Khantzian 1999a). Case studies of substance abusers in treatment have emphasized self-regulation vulnerabilities: addicts have problems regulating feelings and demonstrate self-esteem deficits that result in an inability to get needs met or to establish satisfying relationships. They are also deficient in self-care capacities that otherwise would protect them against harm by utilizing reality-testing, judgment, control, signal anxiety, and the ability to draw cause-consequence conclusions (Khantzian 1999b). Such difficulties help elucidate how Alcoholics Anonymous successfully provides a method of recovery (Khantzian and Mack 1999). Cognitive approaches emphasize dysfunctional beliefs that revolve around drugs or alcohol; faulty thinking and maladaptive beliefs present major obstacles to quitting (Beck *et al.* 1993).

'Intrapersonal factors' have been noted to help determine aspects of the social environment, which in turn alter the probability of drug use. Furthermore, intrapersonal factors alter chances of initiation, as well as the transition from initiation to regular use of a drug, and the transition from regular drug use to problem use (Newcomb and Earleywine 1996). Such factors include personality, cognitions, affect, problem behaviors, biogenetics, demographics, and bonding (Newcomb and Earleywine 1996). Contextual variables (i.e., availability or utilization of other competing reinforcers and associated environmental constraints), in applying behavioral theories of choice, have predictive validity with regard to drug use behavior: as positive reinforcement from drug-free activities diminishes, the frequency of drug use increases (Correia *et al.* 1998). Economic theories of 'rational choice' and 'constrained utility maximization' have been demonstrated to apply to substance abusers, and even in the case of addictive commodities, the law of demand still applies (Chaloupka and Pacula 2000).

ADDICTION: DISEASE OR SYMPTOM?

Despite the diagnostic cataloguing of substance use disorders by national and international medical organizations, there still remains controversy about whether addiction is a symptom or disease. The American Medical Association states that drug dependencies are diseases (American Medical Association 2001a) while the American Psychiatric Association and the World Health Organization define 'substance dependence' as a mental disorder, preferring to avoid the much confused and stigmatized label of 'addiction' (World Health Organization 1992; American Psychiatric Association 1994). The disease model proclaims addiction as a 'brain disease' like schizophrenia and Alzheimer's disease: this may reflect both the concept that the individual cannot and will never be able to use substances moderately (genetic or quasi-genetic neurophysiological deficiency), as well as the concept that the disease reflects the profound effects of the abused substances on the individual's neurophysiology. Such theory fuels hope that a pharmacological treatment for addiction can be determined based on such a biological understanding. In the psychological model, alcohol and drugs are viewed as agents used by vulnerable individuals to self-regulate their internal state. The 'cultural constructivist model' argues that addiction is an environmentally specific, culturally relative behavioral adaptation, while the 'political economy model' ties the 'diagnosis of addiction to bourgeois medicine and drug use to alienation, poverty, global markets, and labor forces that render drug use a dysfunctional form of coping in a chaotic world where instant gratification has strong appeal' (Quintero and Nichter 1996). Finally, the utilitarian model argues that while addiction may not be a biomedical disease, providing such a designation offers sufferers legitimate access to the sick role, reduces stigma, and enables treatment (Acker 1993; Quintero and Nichter 1996).

Despite a growing body of biological research and theory, there is a dearth of effective pharmacological treatment for substance dependence. In fact, addiction specialists still rely heavily on the non-medical self-help fellowships such as Alcoholics Anonymous to support the initiation and maintenance of sobriety in alcoholics and drug addicts. Extrapolation from animal models to the complexity of human behavior remains a problem, while brain imaging studies of humans, despite producing intriguing pictures, suffer from the lack of normative databases regarding human emotional states and behavioral patterns (Kulynych and Jones 2001). The specificity of dopaminergic pathways for drugs of abuse is blurred by research in which stress causes dopamine release in the rat nucleus accumbens, in seeming contradiction to the theory that such release reflects pleasure or positive reinforcement (Gray, Young, and Joseph 1997). Indeed, others have suggested that this pathway is correlated with stimulus novelty or relevance, or is involved in reward

learning or 'incentive salience' (Frenk and Dar 2000). Food, water, and sexual opportunity also cause mesolimbic pathway activation; furthermore, clinical addiction-like syndromes have been described for gambling, eating, and sexual behavior (Damssma *et al.* 1992; Young, Joseph, and Gray 1992; Wickelgren 1997). In this light, addiction has been hypothesized to be one of many related behavioral conditions that make up 'obsessive-compulsive spectrum disorders' (Hollander and Wong 1995; Stein 2000). Contrary to a scenario in which biological need solely dictates substance consumption, there is a negative price elasticity associated with the price of alcohol and drugs, in which substance 'consumers' use correspondingly less quantity when the price is raised; when inconvenience and legal sanctions raise the 'price' of using, consumption goes down (Chaloupka *et al.* 1999). Social restrictions on smoking in the workplace, in restaurants, and in bars in California has been associated with the lowest smoking rates in the country; furthermore, a growing percentage of California smokers are 'discretionary' smokers, who smoke only on occasion, when convenient (Gilpin, Cavin, and Pierce 1997). While the brain is an integral part of substance dependence, the proclamation by some that addiction is a 'brain disease' is overly reductionistic and does not explain the complexity of addiction. The psychiatric tradition calls for examining biological, psychological, and social factors as critical in understanding addictive phenomena in an individual human being. The forensic expert should function within a broad, multifaceted conceptual model, ever sensitive to the range of orientations and beliefs among lay people and experts.

DIAGNOSIS

The text revision of the fourth edition of the *Diagnostic and Statistical Manual (DSM-IV-TR)* of the American Psychiatric Association provides operational criteria for making a diagnosis of substance dependence, the term used to encompass pathologically compulsive substance use, in the past variously referred to as addiction, habituation, physical dependence, and psychological dependence (American Psychiatric Association 2000). It should be noted that the DSM is a so-called 'consensus' document, meaning it is drafted by committees of experts, to reflect the current state of clinical and scientific understanding, subject to both compromise and revision. Nevertheless, the DSM-IV-TR provides the most common nomenclature.

In the current DSM-IV-TR, substance dependence is described as a mental disorder. It is considered a 'cluster of cognitive, behavioral, and physiological symptoms indicating that the individual continues use of the substance despite significant substance-related problems ... there is a pattern of repeated self-administration that usually results in tolerance, withdrawal, and compulsive drug-taking

behavior.' The diagnosis is made when there is a 'maladaptive pattern of substance use, leading to clinically significant impairment or distress.' As part of such a maladaptive pattern, at least three of seven criteria must occur at any time in the same twelve-month period. The seven criteria include: tolerance; withdrawal; taking the substance in larger amounts or over a longer period than intended; persistent desire or unsuccessful efforts to cut down or control use; spending a great deal of time obtaining, using, or recovering from the substance; reducing or giving up important social, occupational, or recreational activities; continued use despite knowledge of having a persistent or recurrent physical or psychological problem caused or exacerbated by the substance. In addition, DSM-IV-TR provides criteria for a diagnosis of substance abuse, in which there is a maladaptive pattern of use manifested by recurrent adverse consequences such as risk of physical injury or legal, social, or interpersonal problems. Individuals may be diagnosed with substance abuse when they fulfill the appropriate criteria and have never met the criteria for substance dependence. There are also DSM-IV diagnoses of intoxication and withdrawal, which reflect the particular features of the syndrome for each individual substance.

It is important to note that in the DSM-IV-TR, the diagnosis of substance dependence does not depend on how many drinks an individual consumes, or how frequently during the week the drug is taken. Furthermore, the dependence criteria do not include craving, a commonly used term which is difficult to define and operationalize. DSM-IV-TR utilizes a single definition to fit all substances of abuse, emphasizing the commonality of the syndromes. This choice is controversial and does not mean that there are not differences between different substances of abuse. Nor do the diagnostic criteria predict treatment response in an individual. Generally speaking, an individual with all of the criteria is more severely dependent than someone with only a few. The DSM-IV has 'course-specifiers' referring to early or late, partial or sustained remission. The chronicity and relapsing-remitting nature of the disorder are captured by these terms. In Alcoholics Anonymous, individuals are considered either sober or relapsed (there is no partial sobriety) and the term relapse is only used when it follows a significant period of sobriety.

USE OF DSM-IV-TR IN FORENSIC SETTINGS

As noted in the Introduction to the DSM-IV-TR, 'there are significant risks that diagnostic information will be misused or understood'... due to 'the imperfect fit between the questions of ultimate concern to the law and the information contained in a clinical diagnosis. In most situations, the clinical diagnosis of a DSM-IV-TR mental disorder is not sufficient to establish the existence

for legal purposes of a "mental disorder," "mental disability," "mental disease," or "mental defect." In determining whether an individual meets a specified legal standard (e.g., for competence, criminal responsibility, or disability), additional information is usually required beyond that contained in the DSM-IV-TR diagnosis. This might include information about the individual's functional impairments and how the impairments affect the particular abilities in question' (American Psychiatric Association 2000, p. xxiii).

With regard to substance use disorders in particular, there may be important questions about the implications of a substance dependence diagnosis for such issues as an individual's ability to quit using the substance; the voluntariness of drug-using and associated behaviors; and responsibility for such behaviors. These must be specifically addressed and clarified for the trier of fact. Further discussion follows in this chapter.

PROCESS ADDICTIONS AND ADDICTIVE BEHAVIORS

Recently, certain compulsive behaviors have begun to be viewed by some as similar in their phenomena to psychoactive substance abuse, e.g., pathological gambling, sexual addiction, compulsive overeating. These have been called 'process addictions' as opposed to 'chemical dependency' (Burglass 1997; Goodman 1999; Rosenthal and Lesieur 1996). These behaviors have been noted to involve phenomena of euphoria, tolerance, withdrawal-like syndromes, craving, and compulsive use despite adverse consequences. Just as there are self-help fellowships such as Alcoholics Anonymous for dependence on substances, there are many for dependence on various behaviors, such as Gamblers Anonymous, Sex Addicts Anonymous, and Overeaters Anonymous. Whether these behavioral problems are best classified as addictions is controversial, although history has already witnessed that important early advances in the treatment of alcoholism took place in lay, rather than medical settings. Since such problem behaviors may also present in forensic contexts they are noted here. The DSM-IV includes only pathological gambling as an official diagnosis, listed under the category of Impulse Control Disorders, as distinguished from Substance-Related Disorders. 'Obsessive-compulsive spectrum disorders' has been proposed as a concept that links a variety of impulsive-compulsive behavioral disorders, including substance dependence and the process addictions (Hollander and Wong 1995; Stein 2000).

ASSESSMENT

Unfortunately, most medical and graduate programs devote limited time to substance abuse and addiction

issues. Psychiatrists may train in subspecialty fellowship programs approved by the Accreditation Council for Graduate Medical Education and can earn subspecialty certification from the American Board of Psychiatry and Neurology as recognition of their expertise. Other physicians, as well as psychiatrists, may earn certification by the American Society of Addiction Medicine. Psychologists may receive certification through the American Psychological Association.

Alcoholics and substance abusers do not usually present themselves for diagnosis or treatment to addiction specialists. In medical settings, typically they present to primary care clinicians for complications of their addiction or unrelated medical problems. Alcoholics and addicts present to psychotherapists, counselors, or clergy for mood, relationship, and work difficulties. Failure to diagnose a substance abuse problem is common. The clinician must be sensitive to clinical indicators and make specific assessment. Alcoholics and addicts experience shame and denial regarding their substance abuse problems, which are stigmatized as reflecting poor moral character, weakness of will, or criminality. As a result, the individual may not self-identify alcohol or drugs as an issue. Furthermore, family members may themselves be in denial of the seriousness of the problem, may facilitate the addict's continuing use, and may rescue the addict from predicaments created by the substance abuse. Of course, in some forensic contexts, intoxication or addiction may be purposefully put forth by a defendant as an excuse for an illegal act, or by a plaintiff as an example of disability or damages, or may be falsely denied because of psychological denial of the problem or a wish to hide something that could create problems in a legal setting.

Assessment requires thorough review of the psychiatric and medical history, as well as mental status examination and toxicological testing. All available records and collateral sources of information should be obtained, as substance abusers are frequently a poor source for reliable history. Subjective questionnaires may be used for screening purposes (e.g., Michigan Alcohol Screening Test; Selzer 1971). Neuropsychological testing can be valuable in determining cognitive deficits in chronic abusers or in assessing for psychosis, depression, and personality disorder. Physical examination and laboratory testing can often provide evidence of the medical sequelae of chronic substance abuse. A substance abuse problem should be suspected in anyone with a psychiatric history, as substance use is more common in the psychiatric than in the general population. Mood disorders, schizophrenia, posttraumatic stress disorder, and personality disorders are commonly complicated by substance abuse. Furthermore, alcohol and drugs can produce mood syndromes, paranoia, and psychosis. Medical complications, such as gastritis or fractures, may result from alcohol and drug abuse. Addiction may result in poor or deteriorating psychosocial functioning, including marital and employment problems. There may be a family history

of substance abuse. Review of legal history may reveal arrests for driving under the influence or possession of a controlled substance. Memory, concentration, problem-solving, and abstract reasoning may be adversely affected by chronic alcohol or drug use. Toxicology utilizing urine, blood, hair, or breath may be positive for alcohol or illicit drugs and should be obtained if there is a suspicion of substance use. Similarly, other laboratory testing may reveal serum hepatitis or HIV, which can result from intravenous drug abuse, or evidence of macrocytic anemia or cirrhosis of the liver, both consistent with chronic alcoholism. Physical examination may reveal the perforated septum of the cocaine sniffer, burns on the fingers of crack smokers, the track marks of the heroin addict, or the ascites of the alcoholic.

TREATMENT AND TREATMENT PLANNING

While relapse rates are high in substance abusers (25 to 97 per cent after one year), there is ample evidence that treatment works, and is comparable to treatment results found in the chronic medical disorders (Daley and Marlatt 1992; McLellan *et al.* 2000). Contrary to old notions, compulsory treatment, as mandated by the Court, has been found to be as effective as treatment obtained voluntarily by a highly motivated individual (Miller and Flaherty 2000). Substance abuse treatment is associated with reduction in crime (Wald, Flaherty, and Pringle 1999).

Forensic psychiatrists may be called upon to make treatment recommendations regarding substance abuse problems; for example, in order to help the judge set appropriate terms of probation. A good rule of thumb is to suggest multiple modalities of treatment and surveillance. Residential treatment may be required in an addict who has not demonstrated an ability to initiate abstinence or has failed previous outpatient programs. These controlled settings provide individual and group treatment in a drug-free environment that conducts ongoing random drug testing. Day hospital treatment or intensive evening programs provide less structure, but are consistent with living at home or maintaining employment. At the completion of a residential program, such outpatient programs provide an appropriate step-down level of care. Participation in Alcoholics Anonymous, Narcotics Anonymous, or similar self-help fellowships provides an important parallel modality while an individual is in residential or outpatient treatment. Individual psychotherapy in the outpatient setting can provide additional attention to emotional or cognitive problems. Medication therapy can include, where indicated, antidepressants or antipsychotics for associated psychiatric comorbidity, or include prescription of medications specific for supporting abstinence, such as methadone for opiate dependence, or naltrexone or antabuse for alcohol dependence.

A minimum of one year of treatment in one form or another is prudent, given the high rates of relapse within the first year of recovery. The progression from more structure to less structure over the course of the year allows the initiation of abstinence, education about addiction, development of relapse prevention skills, comfort with Alcoholics Anonymous, definition of appropriate medication regimens, education and involvement of the family, and gradual transition to greater levels of responsibility and stress in everyday life. Ongoing evaluation of the individual's participation and success in treatment is important because of the high rates of relapse; surveillance and re-evaluations provide additional incentive. Random urine toxicological testing on a twice-weekly basis is a relatively good compromise of cost and yield in detecting drug use. Attendance of required treatment activities is also an indicator that the individual has not relapsed. Re-examination by a forensic consultant on an intermittent basis (e.g., every six or twelve months) can re-assess the participation and success of the individual in question. A comprehensive review of substance abuse treatment can be found elsewhere (Galenter and Kleber 1999).

VIOLENCE, CRIME, AND SUBSTANCE ABUSE

Crime and substance abuse frequently co-occur (White 1997). Some 80 per cent of the nearly two million incarcerated adult Americans are or have been involved with drugs (Belenko 2000). It is estimated that 60 per cent of arrestees are incarcerated for drug-related charges, and 70 per cent of arrestees test positive for an illegal substance at the time of arrest (Sinha and Easton 1999). Within inmate populations, those who abuse alcohol are more likely to have been imprisoned for a violent offense; nearly three-fourths of all inmates who had ever used drugs used them in the month prior to arrest (Belenko 2000). Studies of homicides have reported that 45 to 80 per cent of offenders had been drinking at the time of the crime (Bradford, Greenberg, and Motayne 1992). Assault, robbery, and rape have a high correlation with alcohol presence in both offender and victim; marital assault has a high correlation with alcohol consumption; property crimes and arson are associated with a high rate of alcohol use (Bradford, Greenberg, and Motayne 1992). Recent research has demonstrated that the comorbidity of substance abuse with psychiatric disorders has been implicated as a particularly strong risk factor for violence. Such dually disordered individuals are more violent as a group than individuals with a psychiatric illness alone; those with a psychiatric disorder but without substance abuse are no more violent than the general population in their own neighborhood (Steadman *et al.* 1998; Monahan *et al.* 2001).

What is less clear from the literature is the issue of causality. Goldstein (1989) proposed three ways that drugs

and violence could be related: (i) the pharmacological effects of the drug on the user induces violent behavior; (ii) the high cost of the drugs leads to economic compulsive violent crime to support continued use; or (iii) systemic violence reflects the nature of the drug distribution network. Substances of abuse do directly affect the human CNS: alcohol can disinhibit impulses, affect attention and cognition, impair judgment regarding risk, or increase aggressive tendencies (Quigley and Leonard 2000). Experimental research has demonstrated an increase in aggression among subjects exposed to alcohol under controlled conditions (Quigley and Leonard 2000). Stimulants can lead to paranoia and associated violence. However, in experimental settings marijuana reduces aggression, even though its use also is widespread in offender populations. A similar contradiction applies to opiates. It is possible that the illegality of these drugs is the relevant connection. Overall, the evidence that drugs induce violence is limited; the pharmacological model probably accounts for a relatively small percentage of violence, while the systemic model may be the most relevant (Collins 1990; White 1997).

The so-called 'spurious model' holds that there is no direct causal link of substance abuse and violence, rather they may share common causes or occur coincidentally (White 1997). Young males account for a great deal of violent behavior and they also tend to be the heaviest substance abusers as a group. Both crime and substance abuse tend to occur in similar demographic settings in which delinquent behavior is the norm. Some hypothesize that drugs do not cause violence, rather violence itself leads to substance abuse as evidenced by the tendency of aggressive individuals to migrate towards subcultures in which there is heavy substance abuse, or for criminals to utilize intoxicants to calm their nerves prior to committing a crime (White 1997). In addition, individuals with antisocial personality or adolescent histories of delinquency have a high incidence of substance abuse (Cloninger, Bayon, and Przybeck 1997). Collins (1990) has proposed that violence is a complex phenomenon which involves interaction of many types of factors: developmental (early abuse or neglect, socialization experiences); cultural (norms, values, beliefs); drug pharmacology (cognitive impairment, emotional lability); social (community disorganization, social control); economic (opportunity, compulsion); and situational (location, environment).

CORRECTIONAL SETTINGS

The period between 1980 and 1996 saw a tripling of the prison population in the United States, and substance abuse-related crimes provided the main impetus for this surge (Wald, Flaherty, and Pringle 1999). Lifetime substance abuse is reported in approximately three-fourths

of inmates (Belenko 2000). Drug and alcohol treatment successfully reduces rearrest, conviction, and incarceration, particularly when therapeutic community modalities of treatment are utilized (Wald, Flaherty, and Pringle 1999).

DIVERSION, DRUG COURT, AND COERCED TREATMENT

Diversion describes a process whereby individuals arrested for drug-related offenses, typically of a non-violent nature, may engage in a treatment program in order to avoid or reduce criminal charges. The underlying concept is that treatment of underlying addictive problems will reduce criminal recidivism in this population by both addressing the underlying behavioral problem and avoiding exposure of such individuals to the hardened criminals in state prison. Furthermore, diversion programs reduce the burden on local courts and reduce the expansion of prison populations. Typically, the individual must comply with treatment participation and remain substance-free in order to avoid criminal sanctions. The literature demonstrates that coerced addiction treatment can have just as good outcome as voluntary treatment (Miller and Flaherty 2000). Sentencing may involve requirements regarding treatment and sobriety, as may terms of probation and parole. Progress reports, treatment participation, and urine toxicological surveillance are generally part of such requirements.

ADDICTIVE BEHAVIOR: INVOLUNTARY OR VOLITIONAL?

In addressing behavior in the context of substance intoxication and addiction, controversy exists regarding whether such conduct is volitional and willfully intended or whether it is automatic and beyond control, resurrecting philosophical debate about 'free will' versus 'determinism.' The disease model uses the term 'loss of control' to characterize the fact that an addict will compulsively use despite knowing that the use is causing a variety of negative consequences. Substance-induced pathophysiology and frontal lobe dysfunction are the suspected reasons. A variety of arguments hold that the compulsion to get drunk is so disabling that an individual is deprived of the ability to avoid risk-creating intoxication; that 'denial' prevents recognition of the lack of control; that alcoholism destroys the capacity to foresee the consequences of drinking; and that the compulsion overwhelms behavioral control creating an equivalent of coercion (Watterson 1991). A corollary argument holds that because addiction is inaccessible to the will, alcoholics and addicts cannot control the problem (i.e., their use is involuntary) (Lehman 1990).

However, an individual that has claimed that he 'could not stop' is typically an individual that simply *did* not stop, reflecting that individual's level of motivation and commitment. There is great difficulty in distinguishing between an allegedly 'irresistible' desire and one simply not resisted (Morse 1999). Individuals frequently do not believe that they could have controlled some action and have blamed others; empirically, a belief in lack of choice is more likely to be associated with antisocial conduct (Reid 1978; Halleck 1992). Perception of self-efficacy increases the likelihood of behavioral control (Carbonari and DiClemente 2000). There is no doubt that in the course of addiction, the use of the psychoactive substance of choice achieves a higher and higher priority in the individual's life, relative to other choices. Until there develops sufficient motivation to make a change, the substance use continues. Change is difficult even in non-addicts, as is clear from the annual ritual of 'earnest' New Year's resolutions quickly abandoned in succeeding days and weeks. Clinicians generally acknowledge that the choice to abstain is a difficult one for the addict, and consequently they attempt to make it easier by providing hospitalization and detoxification (Halleck 1992). Frequently, addicts who 'could not' stop using subsequently do so in the face of legal difficulties or medical complications, as these consequences have raised the priority of not using to a greater level than that of using. Addicts respond to social, economic, and legal constraints consistent with rationality, which forms, in part, the basis of governmental intervention.

It is argued that possessing and using the substance in question is intentional action; the addict does so to achieve pleasure of intoxication or avoid the pain of inner withdrawal and inner tension, or both (Morse 1999). Similarly, the compulsion excuse is problematic: the addict's choices are not so difficult that the 'wrong' choice should be excused by society (Morse 1986; Morse 1999). Actually, neither the addict, despite great fear of physical or psychological withdrawal symptoms or dysphoria, nor the pedophile, despite strong desires for sexual contact with children that produce distress or dysfunction, can demonstrate fear of death or grievous bodily injury that would be required for a duress defense (Morse 1999). In the absence of cognitive impairment of the processes involved in obtaining, retaining, and utilizing knowledge (a possible result of chronic alcoholism, for example), the addict is assumed to have the capacity to behave rationally (Halleck 1992). It has been argued that the alcoholic has control over whether he or she begins to drink each day; similarly, the alcoholic engages in a large variety of other conscious, purposive actions (Watterson 1991). Many states in considering drunk driving killings consider the state of mind when the first drink is taken as relevant to a charge of murder. Addicts obviously are in control of their behavior when they go to an Alcoholics Anonymous meeting instead of seeking out their drug of choice. Furthermore, treatment professionals rely

on the fact that addicts can make decisions and change their behavior, as the alternative would be hopelessness and pity.

A variety of other terms have been coined to reflect compromise between volitional and involuntary labels, including 'diminished choice' and 'impairment of the will.' 'Habit' has also been proposed as a term more appropriately centered than disease or freedom (Valverde 1998). Another amalgam of concepts is reflected in Alcoholics Anonymous: although AA uses the term 'disease,' alcoholics nevertheless are expected to take action, such as attending meetings and practicing the twelve steps, as the appropriate response to their 'powerlessness' over alcohol.

CRIMINAL RESPONSIBILITY, INSANITY, AND DIMINISHED CAPACITY

In response to the addict's typical abdication of responsibility and projection of blame, the recovery program of Alcoholics Anonymous requires that the addict be accountable for his behavior, including its negative consequences. Furthermore, once aware of the problem with substances and the consequences of abuse, the addict must accept responsibility for taking the steps necessary to achieve and maintain sobriety. This approach is not different from the legal system's position on the responsibility of the addicted offender.

In American and English common law, voluntary intoxication does not fully excuse an offender who has committed a crime and is not a defense under a not guilty by reason of insanity plea in a general intent crime, although it may result in a diminished verdict or sentence (Slovenko 1995). Involuntary intoxication, on the other hand, can be totally exculpatory. This requires that the individual has consumed the substance due to duress or trickery; or behaved violently due to a previously unknown susceptibility to a recognized atypical reaction to a substance; or the intoxication resulted from previously unknown side effects of a drug prescribed as a treatment (Slovenko 1995; Pandina 1996; Burglass 1997). If chronic substance abuse has caused permanent and irreversible brain damage resulting in mental illness or cognitive dysfunction, an insanity defense may be possible in some jurisdictions under the concept of 'settled insanity' (Slovenko 1995; Kermani and Castaneda 1996). Toxic psychoses caused by voluntary ingestion, if only temporary in duration, do not qualify for 'settled insanity' (Slovenko 1995).

Under the concept of diminished capacity, a *mens rea* partial defense, voluntary intoxication could negate the capacity of an offender to form a specific intent required by the definition of the criminal charge in a specific intent crime (Weinstock, Leong, and Silva 1996). If the requisite specific intent were nullified, guilt could be found only for a lesser included crime that does not require that specific intent (e.g., manslaughter instead of

second-degree murder); this contrasts with the insanity defense, a complete defense which can result in a finding of 'not guilty' by reason of insanity (Weinstock, Leong, and Silva 1996). The mere fact of intoxication does not automatically mean that the defendant lacked the requisite specific intent; if the opinion is based solely on the defendant's intoxicated condition, a qualified expert on the effects of intoxication may opine in some jurisdictions on the issue of capacity to form the requisite intent (Slovenko 1995). A diminished capacity defense would argue, for example, that because of intoxication, the defendant could not deliberate (if a necessary element to constitute the particular crime) (Weinstock, Leong, and Silva 1996). California now has replaced diminished capacity with 'diminished actuality' in which the psychiatrist cannot testify about the ultimate issue, but the trier of fact can use the psychiatric information to decide whether the person did or did not harbor a requisite specific intent (Weinstock, Leong, and Silva 1996). Diminished capacity and diminished responsibility have also been used in sentencing, where intoxication and addiction issues may be raised as mitigating factors. However, with courts being given less discretion in sentencing, such evidence is often brought out in plea-bargaining prior to trial or during trial in determination of guilt or innocence (Slovenko 1995).

CHILD CUSTODY, PARENTAL RIGHTS, AND CHILD ABUSE

Parental substance abuse has adverse effects on children. Child abuse and neglect is more prevalent in families in which one or both parents abuse substances, and are estimated in heroin addicts to be almost sixteen-fold higher than that in the general population (Sowder and Burt 1980). While the presence of substance abuse does not automatically mean that a parent is unfit, it may be a contributing factor in such a finding. Custody evaluations in divorce, adoption proceedings, and revocation of parental rights may require a thorough evaluation by a substance abuse expert, usually in consultation with a child and adolescent psychiatrist. The Court is interested in such issues as: the presence of a substance use disorder; impairment of an individual's capacity to perform parental duties; potential for behavior that would jeopardize the child; cooperation and participation in drug rehabilitation; potential for recovery from addiction; and time course of recovery (Kermani and Castaneda 1996).

DRUG AND ALCOHOL TESTING, DRUNK DRIVERS, AND BARTENDERS

Jobs involving the public safety, sensitive positions involving national security, and sobriety check-points

are typical settings in which alcohol and drug testing is common (Kermani and Castaneda 1996). In 1986, by executive order, President Reagan mandated a drug-free workplace; this was followed by *The Mandatory Guidelines for Federal Workplace Drug Testing Programs: Final Guidelines* (United States Department of Health and Human Services 1988), which has also served as a model for private industry, with 40 per cent of the nation's companies testing by 1990 (West and Ackerman 1993). Several Supreme Court decisions have allowed widespread random testing of employees in jobs that affect public safety (West and Ackerman 1993). Pre-employment screening of job applicants, random testing, and testing for cause are three basic types of workplace testing. Certified Medical Review Officers usually review drug tests in the workplace, verifying that there is an intact forensic chain of custody, evaluating the legitimacy of psychoactive medications in the test sample, and interpreting the test results to rule out false positives and negatives (see Swotinsky and Smith 1999). Drug test results may also be used in a variety of other contexts, for example in child custody evaluations or private disability cases, and may require similar evaluation by the forensic consultant.

Drunk drivers tend to be young males with prior arrests (often recidivists), a high frequency of accidents and violations, and personality characteristics of emotional instability; impulsiveness and thrill seeking; hostility; and depression and low perceived personal control (Sloan *et al.* 2000). In 1990, 35 per cent of 21- to 24-year-olds who died in fatal crashes had blood alcohol levels greater than 0.10 g/100 ml. Police may test an individual for signs of intoxication, such as slurred speech (*Michigan v. Sitz* 1990; *Pennsylvania v. Muniz* 1990). Furthermore, body fluid measurements may be made in cases of automobile fatalities or other crimes. A forensic psychiatrist may be asked about the validity of alcohol or drug test results, pharmacological dynamics and kinetics, and the likely effects on the performance capacity of an individual. In addition to criminal and administrative sanctions (and coerced treatment), drunk drivers have tort liability and may have to compensate injury victims. More recently, tort liability has been extended to third-party servers (so called 'dram shop liability') in which liquor stores, bars, restaurants and other establishments that carry liability insurance are held liable for injuries stemming from accidents caused by an obviously intoxicated adult or minor patron (Sloan *et al.* 2000). Such cases may call for an expert opinion regarding drinking rates and quantities, body fluid measurements, and signs of intoxication or impairment.

WORKPLACE AND DISABILITY

Federal disability laws include The Rehabilitation Act of 1973, The Fair Housing Amendments Act of 1988,

and the Americans with Disabilities Act (ADA) of 1990. A comprehensive review of the ADA can be found elsewhere (Parry 1997). Individuals with disability are protected from discrimination. It is incumbent on the employer to provide reasonable accommodation, as long as the employee can perform the job with such accommodation. Individuals suffering from alcoholism must be given the choice of accepting treatment before beginning a process for removal. The Drug Free Workplace Act of 1988 prohibits employees from using or being under the influence of alcohol and illegal drugs on the job. The ADA limits employment protection to drug users who are not currently using illegal drugs or are in supervised treatment programs. The ADA specifically excludes individuals who are using illicit drugs, as well as individuals using controlled substances, including any prescribed drug, not under the supervision of a licensed healthcare professional. If the individual's disability creates a direct threat of harm to others that cannot be reasonably reduced through accommodation, it is not covered by ADA. This can include abuse of alcohol away from the job that affects the employee's performance. Misconduct due to alcohol abuse is not protected. The ADA also addresses licensing issues pertaining to access to professions.

The Social Security System provides disability insurance through Social Security Disability Insurance (SSDI) and Supplemental Security Income (SSI). Psychiatrists providing social security disability evaluations need note that disorders of alcohol or drug abuse are insufficient qualifiers for disability in the absence of other psychiatric or physical disabilities. Veterans Administration disability programs also do not consider substance use disorders alone as sufficient. This has been upheld by the Supreme Court, which cited willful misconduct, in violation of VA regulation, as characterizing alcoholism at least in part (*Traynor and McKelvey v. Turnage* 1988). Chronic pain syndromes may be the basis of a workers' compensation claim or private long-term disability insurance case and require the careful assessment for addiction issues.

CIVIL COMMITMENT

Only some states and the federal government have commitment statutes regarding alcoholics and drug abusers, and none of them commits people for treatment unless the individual is demonstrated to be dangerous to self or others or gravely disabled (Kermani and Castaneda 1996). Some states have separate commitment laws for substance abuse (versus other mental illness), and may require a bed in a drug rehabilitation program. California law requires commitment to an approved alcohol and drug facility; because none exists in Los Angeles County, an individual can be involuntarily hospitalized only if an additional mental disorder co-exists with the substance abuse.

CONFIDENTIALITY AND DUTY TO WARN

Federal regulations prohibit the disclosure of records or information concerning any patient in a federally assisted alcohol or drug treatment program (42 CFR Part 2). Federal law supersedes any state or local law that is less restrictive. In the absence of written patient consent, disclosure may be made only to other staff of the treatment program; to medical personnel in a medical emergency that poses an immediate threat to health; in response to a valid court order (not merely a subpoena, which may be contested); in reporting child abuse; concerning a crime on the premises of a program or against treatment personnel; disclosures made for research or audit purposes; communications with qualified service organizations; and communications that contain no patient-identifying information. Patients whose probation or parole conditionally requires treatment may not revoke their consent to disclose information. Psychiatrists, following the precedent of *Tarasoff v. Regents of the University of California* (1976), in jurisdictions that have followed this Court's reasoning and developed relevant statutes, or because of ethical concerns, have a duty to take reasonable steps to protect an intended victim from a patient that has made a threat. This may require a violation of confidentiality. There remains legal controversy regarding in what situations a duty exists, what is foreseeable, and what constitutes reasonable steps. However, the presence of substance abuse invariably increases the risk of violence. Notification of a potential victim or law enforcement agency should not identify that the report is being made by a substance abuse program or that the threatener is in substance abuse treatment (this can be done relatively easily if the program is part of a general hospital).

MALPRACTICE AND INAPPROPRIATE PRESCRIPTION

Litigation may include allegations that a physician's prescriptions have caused a patient's addiction or suicide attempt or that the patient was not informed of the risks of the medications. Negligent assessment of substance abuse comorbidity or inappropriate treatment for substance abuse problems may also be alleged. Prescription of excessive amounts of controlled substances, or prescribing such medications to a known addict, may result in loss of license or prescribing privileges. State regulatory bodies routinely monitor the prescribing profile for controlled substances, particularly opiates, which raises ethical questions of privacy and confidentiality, and contributes to the reluctance of many physicians to adequately treat legitimate pain (Burglass 1997). Appropriate documentation in the medical record is crucial (see Burglass 1997). Substance-abusing physicians may suffer impairment that leads to inappropriate diagnosis

or treatment, or they may violate boundaries, including sexual indiscretion with patients, which may result in a lawsuit.

SUICIDE

Suicides account for the leading cause of malpractice suits filed against psychiatrists (Gutheil 1999). Substance abusers are at greater risk for suicide, with outpatient alcoholics having been calculated as having an annual risk of suicide that is ten-fold that of the general population; co-morbid depression or antisocial personality disorder are significant contributing factors (Murphy and Wetzel 1990). The acute effects of intoxication increase the risk of suicide by increasing aggression and impulsivity, while simultaneously impairing cognition and judgment. Substance abusers additionally suffer numerous interpersonal losses and typically experience deteriorating psychosocial support systems (Weiss and Hufford 1999). Approximately one-half of alcohol-dependent women and one-fourth of alcohol-dependent men have a lifetime history of depression (Kessler *et al.* 1997). Appropriate risk assessment requires a careful review of substance use.

THE IMPAIRED PHYSICIAN

It has been estimated that 10–15 per cent of physicians are dependent on alcohol or drugs (Keeve 1984). Physicians are generally reluctant to report impaired colleagues, though a forensic psychiatrist may be asked by a hospital administration, by a physician's attorney, or by the Medical Board to provide an evaluation regarding a physician's substance abuse and ability to practice medicine. The American Medical Association's Principles of Medical Ethics (American Medical Association 2001b) states that it is unethical for a physician to practice medicine while under the influence of a substance which impairs the ability to practice (Council on Ethical and Judicial Affairs 1998). Furthermore, physicians have an ethical obligation to report impaired colleagues according to the AMA Principles of Medical Ethics (American Medical Association 2001b). If available, the hospital's in-house impairment program, such as the well-being committee of the medical staff, should be contacted. For a non-hospital physician, the local medical society may be contacted. California has a diversion program to which a physician may voluntarily self-refer, or be referred by a hospital well-being committee. If necessary, a report can be made to the state licensing board if no other steps can facilitate entrance into an impairment program. Federal (Health Care Quality Improvement Act of 1986) and state laws (not interfered with by federal law) exist regarding the reporting of impaired physicians (Sadoff and Sadoff 1994). Pennsylvania has mandatory reporting laws, which grant

immunity to anyone who makes a good faith report. California law, on the other hand, does not require a physician to report another physician suspected of alcohol or drug abuse (Medical Board of California 2000).

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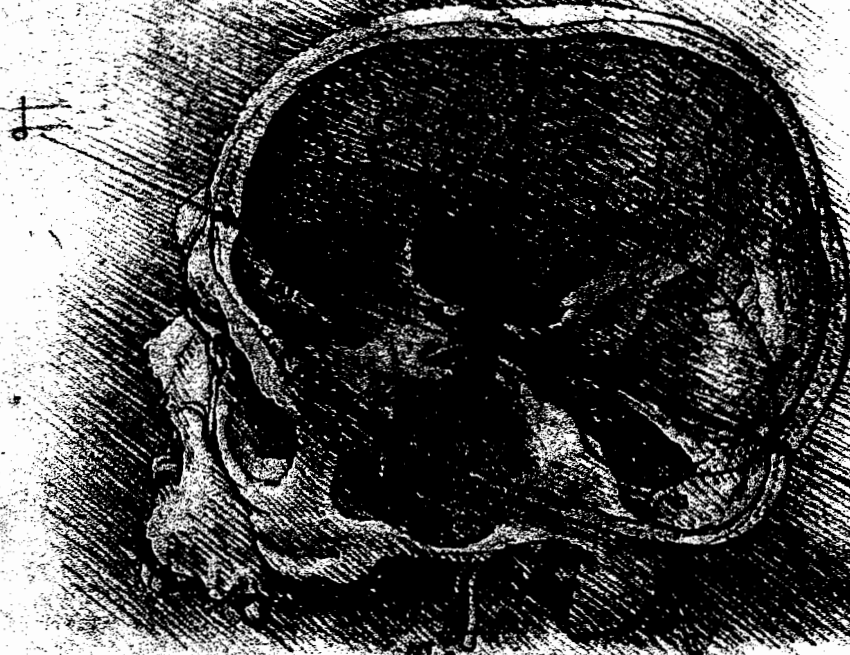
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