Defining Substance Abuse

By Kathryn Utan

Human beings have consumed alcohol and other mind-altering drugs for thousands of years, yet never before has the burden of substance abuse on society been so great. The term "substance abuse" is not easily defined—consumption levels that seem to have little or no effect on one person, for example, may prove deadly for another.[1] Another seemingly gray area relates to the type of substance that is being abused. In many cases, the use of "hard" drugs, such as heroin or cocaine, is deemed unacceptable, while so-called "soft" drugs, such as alcohol and tobacco are, in most cases, viewed as a harmless part of normal social interaction. But two of these supposedly harmless substances—alcohol and tobacco—kill exponentially more people each year than all other substances combined. In the United States alone, studies conducted by the National Institute on Drug Abuse indicate that more than 25 people die from tobacco-related illnesses every year for each one who dies as a result of illegal drug use. And, in Russia, nearly 30,000 people a year lose their lives to alcohol poisoning, according to Deputy Health Minister Dr. Gennady Onishchenko.

Changing patterns of drinking and drug use in many regions of the world are causing a consequent increase in loss of productivity, injury, disability, and death. While globalization, according to United Nations Secretary-General Kofi A. Annan, offers the human race unprecedented opportunities, it also enables antisocial activities—such as substance abuse and the trafficking of illegal drugs—to bring misery to millions of families around the world each year. The UN's *World Drug Report 2000* indicates that more than 130 countries are currently struggling with substance abuse and addiction problems within their borders and, according to studies conducted by WHO, the highest levels in the world of alcohol consumption and related harm occur in its European Region. The brunt of this is borne disproportionately by the area's eastern nations (see Table 1).

Alcohol and other drug use is a contributing factor to a number of serious and costly social problems that plague society today. Violence, injury, child and spousal abuse, HIV/AIDS and other forms of sexually transmitted infections (STIs), teen pregnancy, school failure, car crashes, low worker productivity, depression, homelessness, and escalating healthcare costs can all be linked to substance abuse.

WHO statistics indicate a worldwide increase in the use of illicit substances and lower ages of initiation into drug and alcohol abuse. Traditionally a problem that affected men, substance abuse is on the rise among women in both developed and developing nations—partly because of the rapid social and economic changes that have occurred over the past few decades. This is particularly alarming because many female substance abusers are of child-bearing age, and use of alcohol, drugs, or tobacco can result in serious health problems for both mother and child.

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Some of the most commonly abused substances include alcohol, marijuana, heroin and other opiates, cocaine, tobacco, and amphetamines (see Table 2). Synthetic drugs such as ecstasy and other "club drugs" along with alcohol and inhalants—chemicals found in consumer products such as glue, aerosols, and cleaning products that are sniffed—pose a particular threat to younger populations.

When Casual Use Turns to Addiction

People do not begin using alcohol or drugs with the intention of becoming hooked. Those who experiment with an addictive substance start out by trying it "just one time." But the nature of addiction transforms the initial, conscious decision to drink or inhale or "shoot up" into an involuntary and uncontrollable function of the body and brain. Once using a substance is beyond a person's control, he or she is addicted, according to Alan I. Leshner, director of the National Institute on Drug Abuse (NIDA) in Bethesda, Maryland—an organization that supports more than 85 percent of the world's research on the health aspects of substance abuse and addiction. "A vast body of hard evidence shows that it is virtually inevitable that prolonged drug [and alcohol] use will lead to addiction and . . . the fact is, drug addiction is a brain disease," says Leshner.

The Global Spread of Drug Abuse in the 1990s

	Regions					Global (average)
	EUROPE	ASIA	AMERICAS	AFRICA	OCEANIA	ALL
Number of countries and territories reporting drug abuse to UNDCP, of which	41	37	27	22	7	134
Cannabis	100%	95%	92%	95%	100%	96%
Opiates	100%	100%	56%	86%	57%	87%
*Heroin	88%	81%	42%	82%	29%	76%
*Morphine	59%	62%	48%	36%	29%	51%
*Opium	44%	81%	19%	36%	29%	51%
Amphetamine-type stimulants (ATS)	93%	62%	63%	59%	43%	73%
Benzodiazepines	76%	62%	69%	68%	14%	69%
Inhalants (volatile substances)	76%	62%	74%	64%	57%	69%
Cocaine	73%	32%	85%	64%	43%	64%
Barbiturates	51%	43%	42%	36%	14%	46%

Close to global average: black
Above global average (>10%): red
Clearly below global average (<30%): gray

Table 1. No region of the world is untouched by the effects of drug abuse.

Source: United Nations Office for Drug Control and Crime Prevention, DELTA (Replies to Annual Reports Questionnaire). From *World Drug Report 2000*, www.odccp.org:80/world_drug_report.html.

Primary Drugs of Abuse Among Persons Treated for Drug Problems in Selected CEE/NIS Cities

Distribution of main drug percentages	Opiates	Cocaine	ATS*	Cannabis	Hypnotics & Sedatives	Total Number
Almaty, Kazakstan[b]	65.1%		1.7%	29.9%		9,458
Baku, Azerbaijan[b]	82.5%			12.4%		97
Bratislava, Slovakia	94.5%	0.1%	0.9%	1.4%	0.5%	1,002
Budapest, Hungary	37.8%	0.7%	10.4%	5.5%	9.8%	3,920
Dushanbe, Tajikstan[a]	92.3%			7.7%		130
Orenburg, Russia	70.4%	0.3%	5.2%	8.6%	7.7%	385
Prague, Czech Republic	41.7%	0.9%	47.2%	5.7%	1.3%	533
St. Petersburg, Russia	91.7%	0.2%	2.2%	1.0%	1.0%	1,063
Tashkent, Uzbekistan[b]	46.2%			34.2%		917
Zagreb, Croatia	73.4%	1.1%	4.2%	13.7%	5.3%	381

*Amphetamine-type Stimulants.(incl. Ecstasy)

This Table does not include hallucinogens and "other drugs;" therefore the percentages may not add up to 100 for all cities. All data from 1997, except [a]1996 and [b]1998.

Table 2. In many of AIHA's partnership countries, opiates are the "drug of choice" among a majority of people seeking treatment for addiction.

Source: Table adapted from the United Nations Office for Drug Control and Crime Prevention, DELTA (Replies to Annual Reports Questionnaire). From *World Drug Report 2000*, www.odccp.org:80/world_drug_report.html.

Even occasional use of a drug—cocaine, for example—can desensitize the brain so that the user needs to take an ever-increasing amount to achieve the same effect he or she experienced when first using the substance, according to Leshner. "Soon the drug is used more frequently and in larger doses, resulting in an uncontrollable, compulsive craving. That is the essence of addiction."

To develop an addiction, several elements—family history, psychological state, culture, and environment, to name a few—combine with perceived or actual physical dependence to create a craving, not only for the substance itself, but for the feelings it evokes. Public perception of a "user," however, often creates a false sense of security among people who drink or take drugs, Leshner explains. People who see themselves as social drinkers or who think they are only going to try a drug once "don't feel in any real danger until it is too late," he states, noting that addictive drugs can change the brain so rapidly and dramatically that they "literally take over" (see Fig. 1).

Alcohol: How Much is Too Much?

Many people are surprised to learn that what they consider "normal" social use of alcohol may actually fall into the category of substance abuse. Experts generally break down levels of alcohol use and abuse into the following categories:

Moderate drinking—equal to or less than two drinks a day for men and equal to or less than one drink a day for women.

At-risk drinking—more than 14 drinks per week or four drinks at one sitting for men and more than seven drinks per week or three drinks at one sitting for women.

Alcohol abuse—one or more of the following alcohol-related problems over the period of one year: failure to fulfill work or personal obligations; recurrent use in potentially dangerous situations; problems with the law; and continued use in spite of harm being done to social or personal relationships.

Alcohol dependence—three or more of the following alcohol-related problems over the period of one year: increased amounts of alcohol needed to produce an effect; withdrawal symptoms; drinking more over a given period than intended; unsuccessful attempts to quit or cut down; giving up significant leisure or work activities; and continuing drinking in spite of the knowledge of its physical or psychological harm to oneself and others.

Source: WebMD. http://webmd.lycos.com/content/dmk/dmk_article_5461916.

Figure 1. Levels of drinking are defined by weekly consumption and ability to function in society.

The Health Consequences of Substance Abuse

The negative effects alcohol and drugs can have on the human body are abundant and, although the danger increases exponentially with chronic use or abuse, even first-time users can experience adverse—sometimes deadly—consequences (see Fig. 2). The physical effects, while grave, can all too often be overshadowed by the heavy toll substance abuse exacts on the mental and emotional state of individuals, families, and entire communities.

Some 15 million people worldwide incur significant risk to their health as a result of using psychoactive substances, according to WHO estimates. In many countries, drug injection is becoming increasingly widespread, which frequently leads to a dramatic rise in blood-borne infections such as HIV/AIDS and hepatitis B and C. Studies conducted by NIDA and WHO also indicate a trend toward the use of multiple substances, which is more likely to result in intoxication, poisoning, and overdoses.

Treating Substance Abuse

Substance abuse is an eminently treatable disease, according to NIDA's Leshner. "Research shows that drug treatments are as, or more, effective than treatments for other chronic—often relapsing—disorders such as certain forms of heart disease, some mental disorders, and diabetes." Why then, he asks, is there any sort of debate over whether addicts should be treated at all? "Substance abuse costs society hundreds of billions of dollars a year, yet I still frequently hear people say 'Do they really deserve to be treated? Didn't they just do it to themselves? Why should we coddle people who cause so much social disruption?' Even many people who recognize that addiction is a disease still get hung up on whether or not it is a 'no fault' illness," Leshner claims.

A second area of contention, Leshner says, relates to whether a substance is "physically" or "psychologically" addicting. "The assumption is that the more dramatic the physical symptoms of withdrawal, the more serious or dangerous a drug must be. . . . But some of the most addicting and dangerous drugs—crack cocaine and methamphetamine are clear examples—produce very few physical withdrawal symptoms. In reality, the physical elements of addiction are, in most cases, easily manageable with appropriate medications (see Fig. 3). It is the uncontrollable, compulsive seeking and using of the substance that matters most of all to the addict and his or her family, and that should matter to society as a whole."

Some Potential Effects of Using

Marijuana

- Difficulty keeping track of time and impaired or reduced short-term memory
- Reduced ability to perform tasks requiring concentration, such as driving a car
- Increased heart rate
- Potential cardiac dangers for those with pre-existing heart disease
- Enhanced risk of cancer
- Increased testosterone levels in women, which increases the risk of infertility
- Diminished or extinguished sexual pleasure
- Psychological dependence requiring more of the drug to get the same effect

Tobacco

- Diminished or extinguished sense of smell and taste
- Frequent colds
- Smoker's cough
- Gastric ulcers
- Chronic bronchitis
- Increased heart rate and blood pressure
- Premature and more abundant facial wrinkles
- Emphysema
- Heart disease
- Stroke
- Cancer of the mouth, larynx, pharynx, esophagus, lungs, pancreas, cervix, uterus, and bladder

Alcohol

- Distorted vision, hearing, and coordination
- Impaired judgment, altered perceptions, and heightened emotions
- Loss of appetite
- Vitamin deficiencies
- Stomach ailments
- Skin problems
- Sexual impotence
- Liver damage
- Heart and central nervous system damage
- Memory loss

Source: The Straight Facts About Drugs and Alcohol. The (US) National Clearinghouse for Alcohol and Drug Information, www.health.org/pubs/strafact/straight.htm.

Figure 2. The list above highlights some physical symptoms associated with three commonly abused substances—alcohol, tobacco, and marijuana. Clinicians should be aware that these symptoms may indicate alcohol or drug usage patterns that can pose a serious health risk. Screening patients at the primary care level, as well as implementing community outreach and education programs on substance abuse, can make a real difference in both treating existing problems and preventing new ones.

Medical vs. Social Model

Traditionally, substance abuse treatment programs focused on the physical aspects of addiction. This medical or clinical model is generally hospital- or office-based and follows established norms of clinician/patient relationships with established boundaries such as accessibility by appointment and didactic learning techniques. More and more, however, treatment paradigms have shifted to a social model that encompasses the mental and behavioral aspects of addiction, in addition to the physical. In social programs, priority is given to community-based services such as early intervention, prevention and community outreach, residential treatment, re-integration, and follow-up care (see "Adolescent Drug and Alcohol Treatment: A Therapeutic Community for American and Russian-American Teens and Young Adults," page 33). Such programs are often set in a comforting, home-like atmosphere that encourages peer interaction—in fact, patients are usually tasked with familial chores such as cleaning and maintenance. Both medical and social models make use of the experience-based knowledge of recovering substance abusers. and the school-based knowledge of degreed professionals, but the medical model tends to place a greater value on the latter, while the social model focuses more on the former.[1]

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Another category of programs falling under the social model are 12-step, self-help groups such as Alcoholics Anonymous, which provide support and assistance to recovering substance abusers in an open, non-judgmental manner (see "Helping Substance Abusers Take Responsibility for Their Actions: Understanding 12-step Programs," page 28). These programs can be adapted to fit a variety of needs and settings, including in- and outpatient treatment facilities.

Making Prevention a Priority

The most basic form of prevention is education. Information is the foundation of every community outreach program—whether it is dealing with substance abuse or any other health topic ranging from breast health to intimate partner violence—

Main Drugs Used in the Treatment of Narcotic Dependence

Name of drug: Methadone

Mode of action and main effects

Methadone is a synthetic opioid that binds to the same receptors as endogenous (opioids naturally produced in the body) and exogenous opiods (other opioids not produced in the body). Because of its similar pharmacological effects, methadone prevents withdrawal symptoms in opioid-dependent people. It is used in the management of opiate withdrawal and for the maintenance of addicts. The main advantages of methadone are that it can be taken orally and that its effects last for 24 hours.

Name of drug: LAAM (L-alpha-acetylmethadol)

Mode of action and main effects

LAAM is a synthetic opioid that can also be used as a maintenance drug. It is chemically related to methadone and, like methadone, is orally active—in other words, produces its effect when taken by mouth. However, it has a longer duration of action (2-3 days). The onset of action is slower compared with methadone and the time to reach maintenance levels is also longer with LAAM (8-20 days) compared with methadone (5-8 days). LAAM should not be administered daily because of drug accumulation and the danger of overdose. LAAM has been available since 1993 in the United States for treatment of opiate dependence, but is not available in all other countries.

Name of drug: Buprenorphine

Mode of action and main effects

Buprenorphine is a partial agonist (in simple terms, an agonist is a drug that is capable of combining with a cell receptor and stimulating or initiating a biochemical response) which is dissolved under the tongue and used for opioid maintenance. It exhibits a ceiling effect (increasing the dose only increases the effect to a certain point). It is thus safer than full agonists such as morphine or heroin and less likely to produce respiratory distress. Buprenorphine withdrawal symptoms are milder than those for methadone. In order to reduce the abuse potential of buprenorphine, naloxene—a narcotic antagonist (in simple terms, a substance that is capable of inhibiting the effect of a target substance by binding to a cell receptor and displacing the original drug and nullifying, countering, or reversing its effect) which reverses the respiratory, sedative, and hypotensive effects of heroin overdose, has been added to some buprenorphine tablets. Buprenorphine is currently not available in all countries.

Name of drug: Naltrexone

Mode of action and main effects

Naltrexone blocks the effects of opioid drugs, but it produces no pharmacological effects of its own. In a person who is opioid-free, naltrexone produces no discernible effects. However, if it is administered to someone who is physically dependent on opioids it will precipitate withdrawal. It will also cancel out the effects of other opioids taken concomitantly. It is orally active and long-acting (1-2 days). It has been indicated to help highly motivated drug addicts keep abstinent.

Source: United Nations Office for Drug Control and Crime Prevention, World Drug Report 2000. ww.odccp.org:80/world_drug_report.html.

Figure 3. The UN's World Drug Report 2000 indicates that pharmacological treatments used in structured maintenance programs for addicts reduce illicit opioid abuse and criminal activity, improve social functioning and productivity, reduce HIV transmission, and improve pregnancy outcomes in addicted women.

and the dissemination of that information is the key to a successful education campaign. But for substance abuse prevention programs to work, they must engage local governments, schools, community groups, healthcare professionals, families, and individuals (see "Preventing Substance Abuse through Community Outreach and Health Promotion Programs Targeting Youth," page 37). Substance abuse is a problem that affects communities as a whole, and as such, treatment and prevention must encompass all levels and groups within the society.

Speaking on June 26, 2000—the International Day Against Drug Abuse and Illicit Trafficking—Pino Arlacchi, executive director of the United Nations Office for Drug Control and Crime Prevention, said, "The challenge lies with each of us as we confront drug abuse in our own communities. We know that well-conceived drug abuse prevention programs work. The list of success stories around the world is growing. I challenge each and every community to become part of that list. Our young people deserve nothing less. There are positive alternatives to the culture of drug abuse, and they need not be expensive. But they require the support and involvement of parents, teachers, the business community, and political leaders." Providing a strong and supportive network that educates individuals and encourages them to take responsibility for their own well-being is the first step in combating the negative influences that all too often lead to substance abuse.

Reference:

1. Sandra Shaw and Thomasina Borkman, eds., *Social Model Alcohol Recovery: An Environmental Approach,* (Bridge Focus Inc., Burbank, California, 1990).

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