This chapter posits that a critical facet of addictive behavior is that people use drugs to deal with discomfort and lack of meaning. Our discussion begins with cigarettes, perhaps the most widely used and most damaging drug the world has ever seen. By increasing the availability of dopamine (evoking pleasure) and acetylcholine (enhancing memory and mental alertness), nicotine and other ingredients in tobacco set the stage for rapid onset and extremely high rates of dependency. Given that there is almost universal awareness of the hazards associated with the myriad drugs available on the licit and illicit market, why does such a high percentage of humanity knowingly place themselves in harm’s way?

Are drug and alcohol abusers dyed-in-the-wool hedonists? Are they covertly suicidal? Most likely, neither is true. After having personally been involved in the treatment of more than 1,000 patients with substance abuse problems, Khantzian (1997, 2001), at the Department of Psychiatry, Harvard Medical School, has developed the “self-medication” model of addiction. According to Khantzian, an individual's vulnerability to substances is founded on what Carl Jung famously referred to as *spiritum contra spiritus*, figuratively translated as “spirituality can overcome spirits (alcohol).” This formulation implies that harmful involvement with mind-altering chemicals is related to our drive for comfort, connection, and wholeness. Drugs push aside suffering. The following quote from German poet Rainer Maria Rilke (1954) captures the essence of this perspective:

> How should we be able to forget those ancient myths . . . about dragons that at the last minute turn into princesses who are only waiting to see us once beautiful and brave? . . . Perhaps everything terrible is in its deepest being something helpless that wants help. (p. 69)

The propensity for self-medication is particularly evident in those who suffer traumatic life events. Sharp (2003) calls substance use and abuse “almost inevitable” for women and girls coping with abusive experiences.
Although the co-occurrence of posttraumatic stress disorder (PTSD) and substance abuse is more common in females, a significant proportion of the male population is seen as abusing substances to cope with suffering resulting from traumatic life events.

Whether the focus of self-repair is a drug or an activity, understanding and compassion require consideration of the internal struggle from which hedonic dependency derives. In this chapter, we explore biological, psychological, and social mechanisms that underlie self-medication through the abuse of tobacco, alcohol, heroin, and inhalants. Obviously, our list could include all of the misguided avenues to comfort and survival, which constitute the entirety of this book, and topics too numerous to discuss or as yet unforeseen. Perhaps the underlying issue is unfulfilled needs for intimacy (personal and spiritual), a topic that is covered at length in Section V, Craving for Intimacy.

**Nicotine: The World’s Antidepressant**

Tobacco is the crème de la crème of addictive drugs. In the United States, cigarette smoking causes an estimated 438,000 deaths, or about 1 of every 5 deaths, each year (an estimated 259,500 men and 178,000 women). This estimate includes approximately 38,000 deaths from secondhand smoke exposure (Centers for Disease Control and Prevention [CDC], 2005). More deaths are caused each year by tobacco use than by human immunodeficiency virus (HIV), illegal drug use, alcohol use, motor vehicle injuries, suicides, and murders combined (McGinnis & Foege, 1993).

Worldwide, about 80% of deaths among the 2.7 billion adults over age 30 involve vascular, respiratory, or neoplastic (cancer-related) disease. Smoking is associated with an increase in the frequency of many of these diseases. Estimates of global tobacco mortality indicate that in 2000, about 5 million premature deaths were caused by tobacco. About half (2.6 million) of those deaths were in low-income countries. Males accounted for 3.7 million deaths, or 72% of all tobacco deaths. Approximately 60% of male and 40% of female tobacco deaths were of middle-aged persons (ages 35 to 69). Future increases in tobacco deaths worldwide are expected to arise from increased smoking by males in developing countries and by women worldwide. If we conservatively assume that “only” about one-third of smokers die as a result of smoking, then smoking will eventually kill about 10 million people a year. Thus, for the 25-year period from 2000 to 2025, there would be about 150 million tobacco deaths, or about 6 million deaths per year on average; from 2025 to 2050, there would be about 300 million tobacco deaths, or about 12 million deaths per year (Jha et al., 2006).

**Effects on the Brain**

Nicotine is one of the active ingredients in cigarette smoke that partially accounts for the addicting power of cigarettes. As we covered in Neurochemistry 101
(Chapter 2), the addicting power of tobacco is due to an increase of dopamine (DA) in the nucleus accumbens (NAc). Nicotine directly stimulates the flow of DA into the NAc (Figure 5.1). Nicotine also stimulates the release of the excitatory neurotransmitter glutamate, which triggers additional release of DA. But as we have seen, GABA (produced by the ventral tegmental area—VTA) moderates DA release. The VTA initially enhances GABA release (producing calming effect) to moderate the increase of DA produced by nicotine. However, within a few minutes nicotine kicks in to inhibit the release of GABA (Mansvelder & McGeehe, 2002). Inhibiting the DA-releasing inhibitor results in high DA levels in the NAc. The combination of these effects, that is, (1) direct stimulation of DA release and (2) inhibiting the inhibitory effects of GABA on DA, results in an increase in DA in the NAc and an amplification of the rewarding properties of nicotine (Mansvelder & McGeehe, 2002). It should be of no surprise that the Japanese name for a type of cigarette translates to “Short Hope.”

It gets even worse. There appears to be an unknown substance in cigarette smoke that blocks the action of monoamine oxidase (MAO), which is responsible for breaking down (destroying) DA in order to maintain a balance of this neurotransmitter. So now it seems that smoking is a *triple-sided sword*: one to directly enhance DA, one to inhibit the DA inhibitor, and the third to block the DA destroyer (MAO). It would not be possible for the best pharmaceutical company in the world to design a more potent combination of drugs (nicotine and the unknown MAO inhibitor) to produce addiction.

![Figure 5.1](image-url)

**Figure 5.1**  
*Neurochemical effects of nicotine.* Nicotine inhibits inhibitory GABA neurons, stimulates dopamine-releasing neurons, and stimulates excitatory glutamate neurons (left panel). Each of these effects increases the amount of dopamine released in the nucleus accumbens (right panel).
Even this is not the end of the nicotine story with its multitude of effects on the brain. Many smokers, quite aware that smoking is really stupid, will claim that smoking makes them temporarily smarter and more alert. Actually, this is probably true. It is known that the chemical structure of nicotine is similar to that of the neurotransmitter acetylcholine, which is involved in many brain functions including memory and mental alertness. Because of the similarity in chemical structure, nicotine is able to attach itself to and activate acetylcholine (cholinergic) receptor sites.

On the other hand, Ott and his colleagues (2004) have shown that mental functioning degrades 5 times faster in elderly smokers than in elderly nonsmokers. They also observed that those who smoked more declined faster (showed more cognitive deficits) than those who smoked less. This is especially significant as we observe an increase in the average age of the population in the United States and around the world.

As is the case with all addicting drugs, continued activation of either the DA-enhancing neurons or the cholinergic receptors changes the sensitivity of these neurons to nicotine, which results in tolerance, dependence, and addiction. Nicotine seems to be one of the most addicting of all drugs of abuse. More than one-third of the 46 million adult smokers in the United States attempt to quit each year, but less than 10% succeed (American Heart Association, cited in Quit Smoking Hub, n.d.). As we have indicated, nicotine has receptors in many sites of the brain, which contributes to this powerful addiction.

How Fast Can I Get Hooked?

DiFranza (2008) explored how nicotine addiction develops in novice smokers. He developed a stunning hypothesis: limited exposure to nicotine—as little as one cigarette—can change the brain, causing neuronal modifications that stimulate the craving to smoke. He considered the defining feature of addiction to be loss of autonomy, that is, that quitting requires an effort or discomfort. DiFranza developed the Hooked on Nicotine Checklist (HONC), now available in 13 languages (see Table 5.1), to operationally define symptoms of nicotine addiction. The HONC, which could easily be modified to fit most other hedonic dependencies, is currently the most thoroughly validated measure of nicotine addiction.

The HONC was administered to hundreds of teenagers repeatedly over 3 years, and it turned out that rapid onset of addiction was very common. The most likely time for addiction to begin was the month after having the first cigarette. HONC symptoms could occur within the first weeks of smoking onset. “On average, the adolescents were smoking only two cigarettes a week when the first symptoms appeared. . . . A dozen studies have now established that nicotine withdrawal is common among novice smokers”—10% within 2 days and 25% to 35% within a month of having their first cigarette. In a large study of New Zealand youth, 25% had withdrawal effects after smoking one to four cigarettes (DiFranza, 2008, p. 84).
A New Theory of Nicotine Addiction

The drug nicotine appears to create craving and to suppress it: “[T]he direct immediate action of nicotine is to suppress craving and this action is magnified to an extreme because subsequent doses of nicotine provoke greater responses than the first dose” (DiFranza, 2008, p. 85). This phenomenon (sensitization), common to all addictive drugs, suggests that nicotine is addictive, not because it causes pleasure but rather because it suppresses craving. Apparently, nicotine, from the first cigarette, is sufficient to trigger a remodeling of the brain (DiFranza, 2008). This finding highlights the importance of anti-smoking campaigns.

Studies that show images comparing brain responses to the first dose of nicotine through the fifth dose given 4 days later, illustrate dramatic changes in brain function in areas such as the anterior cingulate gyrus and the hippocampus. The response to the first dose is relatively limited, but brain activity is far more intense and widespread after the fifth dose. These findings indicate that the brain quickly becomes sensitized to nicotine, enabling addiction to begin after just a few doses (DiFranza, 2008).

Other Health Effects of Smoking

The truly devastating effects of smoking are not the multifaceted action of nicotine in the brain. Figure 5.2 (from the CDC) shows serious effects on the health of smokers in the United States. Obviously, lung cancer is the greatest hitter, followed by heart disease. In terms of health effects and deaths, cigarette smoking is the most serious drug problem in the United States today.
Summary of Tobacco Effects

Tobacco is the most widely used drug of abuse and is responsible for more deaths and more financial expenditures due to health problems and lost productivity than all other legal and illegal drugs combined. Smoking is also the most preventable cause of death in the United States today. The deaths from cigarette smoking are not due to the nicotine, but to the 200 known poisons, including 50 carcinogens, in the smoke. However, it is the nicotine that is addicting and keeps the addict smoking. Nicotine is a drug that activates the dopamine reward system by direct stimulation of dopamine release as well as release of glutamate and inhibition of the inhibitory neurotransmitter GABA. In addition, there is a component of cigarette smoke that inhibits monoamine oxidase from destroying dopamine. These combined effects make nicotine one of the most addicting drugs, legal or illegal, in our society. The major negative health effects of tobacco are due to smoking (and chewing) and not to the nicotine. In fact, some evidence indicates that nicotine may increase cognition. Smoking is responsible for most of the lung cancer in the world as well as cancer of the larynx, esophagus, bladder, kidney, pancreas, stomach, and uterine cavity. It is also the major cause of chronic bronchitis and emphysema, and a major cause of heart disease.

Figure 5.2 Smoking-related deaths. According to the CDC (2005), based on statistics from 1997–2001, of an approximate 430,000 annual deaths in the United States attributable to cigarette smoking, 35% were due to lung cancer (125,000) and other (30,000) cancers, 28% were due to cardiovascular disease (coronary heart disease [100,000] and stroke [25,000]), and 17% were due to pulmonary disease (75,000).
Gender Differences in Patterns of Abuse

Several large-scale studies have shown that the prevalence rates of drug and alcohol use disorders are higher among men than women (Kessler et al., 1994; Regier et al., 1990). The National Institute on Alcohol Abuse and Alcoholism’s National Epidemiologic Survey on Alcohol and Related Conditions (NESARC), surveyed more than 40,000 adults (Conway, Compton, Stinson, & Grant, 2006). The study showed that men are twice as likely as women to meet lifetime DSM-IV criteria for any drug use disorder—13.8% of men versus 7.1% of women. Twelve-month prevalence rates of alcohol abuse are almost 3 times as high among men as they are among women—6.9% of men versus 2.6% of women (Grant, Dawson, et al., 2004).

These findings are congruent with earlier studies that show gender differences for alcohol use disorders to be greater than for drug use disorders (Grant & Harford, 1995; Kessler et al., 1994). In contrast to alcohol disorders, for example, prescription drug abuse is similar across gender. The National Survey on Drug Use and Health reported 12-month prevalence rates of abuse or dependence for nonmedical use of pain relievers to be 1.4% for men and 1.1% for women 18 to 25 years old, and 0.5% for men and 0.4% for women 26 years and older (SAMHSA, 2005).

About 60% of U.S. women have at least one drink per week, and among women who drink, 13% have more than seven drinks per week. Although fewer women than men drink, among the heaviest drinkers, women equal or surpass men in alcohol-related problems. Female alcoholics have death rates that are 50% to 100% higher than male alcoholics, including deaths from suicide, alcohol-related accidents, heart disease and stroke, and cirrhosis of the liver (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2005).

In terms of cigarette smoking, the overall prevalence among U.S. adults during the 30 days before being surveyed was 26.9%, and the prevalence rate for adult women was 24.9%. In all racial or ethnic groups and subgroups, men had significantly higher prevalences of tobacco use than did women. For some subgroups (e.g., many Asian subgroups), the difference in tobacco use between men and women was substantial (Caraballo, Yee, Gfroerer, & Mirza, 2008).

Co-occurring Disorders

The presence of mental health problems co-occurring with alcohol or drug abuse disorders highlights the importance of the self-medication hypothesis. Women are more likely to meet criteria for anxiety, depression, eating disorders,
and borderline personality disorder, and men are more likely to meet criteria for antisocial personality disorder (Brady, Grice, Duson, & Randall, 1993; Sinha & Rounsaville, 2002). For women, the onset of a psychiatric disorder is more likely to antedate the onset of the substance use disorder. This suggests that women are more likely to abuse substances as a form of self-medication (Kessler, 2004). In fact, using data from the Epidemiologic Catchment Area Study, Gilman and Abraham (2001) found that after a 2-year follow-up period, women with a major depressive episode (MDE) were more than 7 times as likely as women without an MDE to have alcohol dependence. However, men with an MDE were not at higher risk for the development of alcohol dependence.

Females also use cigarettes as a form of self-medication. Research has shown that across gender, individuals with depression are more likely to smoke cigarettes and are less successful in smoking cessation attempts. This relationship appears to be particularly strong for women. Oncken, Cooney, Feinn, Lando, and Kranzler (2007) found that women with a history of MDEs were twice as likely to relapse to smoking at a 1-year follow-up as women without an MDE.

Multiple studies show that relationships among trauma, posttraumatic stress disorder, and substance use disorders are highly important for women. Sexual abuse in particular and early life stress in general appear to be more common in girls than in boys (Kendler et al., 2000). Also, women who were exposed to violence in adulthood tend to use substances to self-medicate their feelings of anger, guilt, anxiety, fear, and shame, which places them at increased risk for repeated victimization, thus perpetuating the cycle of victimization and substance use (Kilpatrick, Resnick, Saunder, & Best, 1998). In animal studies, uncontrollable stress mediated by neurobiological reactions has been found to increase drug self-administration (Jacobsen, Southwick, & Kosten, 2001).

Understanding gender differences in the neurobiological response to stress may shed light on the relationship between trauma and substance use disorders for women (Stewart, 2000). In short, women’s substance-using careers are far different from men’s.

### Biological Differences

Women also differ in the way in which they metabolize alcohol: females are more vulnerable to organ damage, notably liver disease, and brain damage, which has been attributed to having a lower volume of body fluid in which to distribute alcohol. In addition, because women metabolize alcohol more slowly, they experience higher blood alcohol concentrations with similar drinking amounts (Lieber, 2001). Thus, lower levels of drinking are recommended for women than for men. According to the NIAAA (2005), drinking more than seven drinks per week increases a woman’s chances of abusing or becoming dependent upon alcohol; also, women who drink
fewer than seven drinks per week but have four or more on any given day are more likely to develop alcohol abuse or alcohol dependence.

There is also mounting evidence that hormonal fluctuation during the menstrual cycle can impact response to and craving for drugs. It has been shown that estrogen augments behavioral responses to cocaine in female rats (Lynch, Roth, & Carroll, 2002). In human females, this may explain increased responsiveness to cocaine cues at the beginning (follicular phase) of menstruation (Robbins, Ehrman, Childress, & O’Brien, 1999). Evans and Foltin (2006) showed that administration of progesterone during the follicular phase of the menstrual cycle attenuated the positive subjective effects of cocaine, indicating that progesterone may reduce the response to cocaine in women.

The case history of Bernice (below) is illustrative of a woman whose life has been fraught with guilt, depression, anger, and hostility in regard to current and past relationships. Her problems with alcohol are inextricably connected with a deep sense of disappointment regarding her feminine role. From a research perspective, women who have difficulty with their intimate relationships tend to drink more than others. Heavy drinking is more common among women who have never been married, are unmarried and living with a partner, or are divorced or separated. Also, a woman whose husband is a heavy drinker is more likely than other women to drink excessively (NIAAA, 2005).

**Case Example: Female Alcohol Abuse**

Bernice is a middle-aged housewife who lives with her husband and 23-year-old son in the suburbs of a relatively large metropolitan area. Many years of hidden drinking eventually became visible through a series of emergency hospitalizations. During the past decade, she has been hospitalized numerous times for alcoholism. When asked to describe the reasons for her recent relapse, Bernice began to reminisce about her daughter, who suffered from cerebral palsy and died more than 10 years ago. She explained that the present hospitalization was precipitated by a full night of solitary drinking after she felt rejected and insulted by a female friend. Bernice called her psychiatrist and asked to be treated for alcohol withdrawal symptoms. She said that she was frightened by the illusion of a young, dark-haired girl who appeared at the side of her bed. Bernice denied any connection between her vision of the young girl and her daughter. She felt that the underlying reason for her hospitalization was to escape from her husband’s and son’s anger and the feelings of loneliness she experienced at home.

Bernice was raised in a Midwestern city along with her sister, who is 5 years older. At the time of this writing, her mother and father were still alive and were in their seventies. In her early childhood, Bernice remembered feeling coerced to conform to what she regarded as unreasonable parental expectations. Her earliest memory, for example, involves a trip to Baltimore, where she was required to change clothes in the woods in order to appear neat and tidy while visiting her grandmother. Her early relationship with her mother is described as “OK,” but as she grew older, the situation deteriorated dramatically. Bernice believes that her mother lived vicariously through her children. “She wanted me to do what she wanted to do.” Her memory of her father is somewhat more pleasant. She describes him as an “intelligent, ingenious, fun-loving person . . . whose idealism causes him to be disappointed in people who don’t live up to his standards.” She also remembers being pressured by her father into living up to unreasonable expectations. “He wished more from me than could be expected of a young child.”

During early childhood, Bernice had only one female friend, a mentally ill foster child. Bernice was looked after by her sister, who resented having to take care of a child 5 years younger. Until Bernice was 15 years old, they occupied the same bed. Bernice recalls the physical closeness that
she and her sister shared with displeasure, and describes resentment at being ordered about. Her teenage years are described as “ghastly,” and most of her adolescent friendships were with boys. During this period, her sister joined the military, and Bernice was left to care for her mother who suffered from epilepsy. She has horrible memories of her mother being stricken with grand mal seizures, sometimes becoming injured from losing consciousness, often screaming from lack of oxygen. During this time, the relationship between Bernice and her mother was most stressed. Bernice felt the brunt of her mother’s frustrations. She remembers being told, “You’re cold, abrupt, unaffectionate . . . contemptuous,” and often being confronted with her unattractiveness to men.

Bernice studied psychology in college, where she met her husband. Their courtship lasted about 2 years and was for the most part asexual. Her first sexual encounter occurred at about 17 years of age, although she did not have intercourse until sometime after. She had intercourse with her husband and one other man prior to marriage, and in 1950 became pregnant with her first child—out of wedlock. She and her husband went to great lengths to conceal the pregnancy from her parents until after they were married. The child was born brain-injured with a diagnosis of cerebral palsy.

At the time of the most recent hospitalization, Bernice associated her problem drinking with the agony of caring for her daughter, who developed allergies and asthma for which she required medication to be administered in the early hours of the morning. Bernice would remain awake reading and drinking vodka until her daughter was sedated. She continued drinking after her daughter’s death and believes that she had been alcoholic about 3 years prior to that.

Bernice became very disturbed at the thought of divorce. She recalled her doctor’s warning that “he may have to divorce you in order to get you to stop drinking.” She expressed the belief that her husband and son were angry at her for her drinking. She believed that she could use alcohol in order to avoid their anger. Her marriage was further complicated by Bernice’s concern about not having reached orgasm for the past year. She wondered whether this was alcohol related. Another aspect of her problem was the loneliness that she experienced during her husband’s absence from home. She resented his travel as a salesman: “I’d like to get a map of the U.S. someday and the first big black thumb tack would go into Chicago because that is where he goes most . . . then Santa Fe, Albuquerque, and El Paso.”

At the onset of psychotherapy, Bernice had neither a strong sense of femininity nor a sufficient degree of positive self-regard. Early experiences with females were unusually stressful. One friend was mentally ill, her mother was epileptic, and her sister appears to have been overly aggressive and demanding. Having internalized a rather strict set of parental expectations, Bernice was critical of others and of herself. The guilt engendered by a premarital pregnancy was considerable, but the feelings of worthlessness surrounding the mothering of her severely afflicted daughter were enormous. Bernice felt victimized, viewing herself as being at the mercy of circumstances and people—her parents, sister, and daughter in the past, and her friends, husband, and son in the present. Drinking was the vehicle through which she had been able to cope with her surroundings. She became as helpless as the people to whom she dedicated much of her life. At the same time, she could use alcohol to escape from the guilt, loneliness, and anger that she was continuously plagued by. Like her mother, she was able to command assistance from those who cared about her.

In the course of psychotherapy, Bernice began to assume personal responsibility for alcoholism, while she gradually revised the deep-seated view of herself as a victim. In-depth explorations of her feelings about femininity and motherhood were beneficial. In the context of a safe and caring relationship with a female therapist, she was able to disclose feelings of guilt, inadequacy, and failure. After one year of individual therapy, her husband participated with Bernice in the counseling process. The couple was helped to understand the relationship between Bernice’s drinking and her husband’s moods and absence. Although Bernice was the “identified patient,” her husband also benefited from treatment. They made a commitment to spend more time together in mutually satisfying activities. Bernice and her therapist explored her relationship with her son, specifically how she would cope with separating—if and when he left home. She began to realize that her intellectual skills were sufficient to qualify her for interesting and rewarding employment; she set a long-term goal to transform from a woman feeling inadequate and victimized to one who accepts the challenge of having a comfortable and responsible life without the use of substances.
Of particular benefit to Bernice was her therapist’s use of Marlatt's (e.g., Marlatt & Gordon, 1985; Marlatt & Witkiewitz, 2005) relapse prevention strategy (see Figure 3.6 in Chapter 3). By systematically reviewing and exploring her typical thoughts and actions just before she began drinking, Bernice was able to understand the mental precipitants of previous relapses and to remain sober.

After summarizing the literature on gender-focused treatment, the next section of this chapter, Posttraumatic Stress Disorder and Self-Medication, details self-medication with alcohol, drugs, or other tension-reducing behaviors (e.g., sex, gambling, eating) as a misguided form of self-repair for both men and women. A broad spectrum of external props are used to cope with traumatic life events beyond the range of ordinary human suffering.

**Gender-Focused Treatment**

Women generally begin substance abuse later than men, and there is some evidence that they respond better to treatment. In an 8-year follow-up, Timko, Moos, Finney, and Connell (2002) found that the outcomes for women were somewhat better than for men using the same services. Jarvis (1992) found that women are likely to do less well in mixed-sex group therapy because of the overrepresentation of men and unfavorable sexual dynamics. Furthermore, women who report sexual or physical abuse tend to prefer a female therapist, while others do equally well with male or female therapists (Connors, Carroll, DiClemente, Longabaugh, & Donovan, 1997).

As summarized by Back, Brady, Jaimimagi, and Jackson (2006), women are less likely to enter substance abuse treatment because of sociocultural factors (e.g., stigma, lack of partner/family support to enter treatment), socioeconomic factors (e.g., child care), pregnancy, fears concerning child custody issues, and complexities associated with increased rates of co-occurring psychiatric disorders. Furthermore, many women seek treatment at other settings (e.g., primary care, mental health). However, once women do enter treatment, they are at least as likely as men to complete therapy and have positive outcomes. Programs that address barriers to treatment that are specific to women (e.g., child care) and provide careful psychiatric assessment and treatment are likely to be the most effective.

The cognitive-behavioral approach (see Chapter 16) is a breakthrough for examining the relapse process and teaching relapse prevention skills for both men and women (Marlatt & Witkiewitz, 2005). However, for women with addictive disorders, *gender-focused* treatment is strongly indicated (Milkman, Wanberg, & Gagliardi, 2008). Table 5.2 presents general principles for treating women in counseling settings (Williams-Quinlan, 2004).

Women-focused treatment may produce improved outcomes because women perceive the same-sex treatment environment as one in which it is easier to disclose information about themselves such as issues with children,
sexuality, prostitution, sexual abuse, and physical abuse (e.g., Milkman et al., 2008; Sun, 2006). In addition, women-only settings eliminate the possibility of negative stereotyping and sexual harassment from their male counterparts (Weisner, 2005).

Perhaps the most important key to empowerment and strengthening women’s resiliency lies in provision of a safe and reliable environment for trust, bonding, and intimacy. A typical component of substance abuse is violence in the female’s domestic setting (Velez et al., 2006). Treatment that places the source of a woman’s problems solely within herself can actually do damage to the recovery process by exacerbating already existing tendencies toward self-blame and feelings of powerlessness (Covington, 2000; Crawford & Unger, 2000; Matlin, 1996; Pollock, 1998). Equally important is helping women to see that assuming a victim stance in response to social realities is not an excuse to avoid personal responsibility for their actions. The bottom line is that treatment outcomes are enhanced through gender-specific programs. Multiple treatment benefits are realized by empowering women to become self-sufficient and take personal responsibly for their own recovery (Milkman et al., 2008). These include

- Lower rates of relapse and recidivism;
- Lower rates of inpatient care;
- Greater job constancy; and
- Better parenting relationships resulting in higher rates of child custody.

“Protector (NOT!),” written by a woman with firsthand experience in the treatment system, addresses a woman’s journey from abusive relationships and codependence to self-awareness and personal empowerment.
Protector (NOT!)
When I was a child
She taught me to fear the wild . . .
You need a protector . . .
Need a protector . . .
You need a protector
From the BIG BAD WOLF.
And when I was bad (or not)
I was punished by the dad (or what) . . .
He’s our protector . . .
He’s our protector . . .
But he’s also the BIG BAD WOLF.
And when I was grown
I wanted out on my own.
Not without a protector . . .
You need a protector . . .
Need a protector
From the BIG BAD WOLF.
And so I was married
And tradition carried . . .
I had a protector . . .
Had a protector . . .
I had a protector
Who turned into the BIG BAD WOLF.
LEARN TO PROTECT YOURSELF.

—LaRee Herod

SOURCE: Reprinted with permission of LaRee Herod.

Posttraumatic Stress Disorder and Self-Medication

Earnest research concerning PTSD began after the Vietnam War due to the profound psychological problems experienced by its veterans, both men and women. However, it has been reported that PTSD-like symptoms have been observed in all veteran populations, including those of the World Wars, the
Korean conflict, and United Nations peacekeeping forces deployed to other war zones. Similar symptoms also occur in veterans from countries outside the United States including Australia and Israel (Beall, 1997). Written accounts of PTSD symptoms are documented from the U.S. Civil War, when it was known as “Da Costa’s Syndrome,” based on a paper written by Da Costa in 1871 (cited in Beall, 1997), which described it as “soldier’s heart” or “irritable heart.” Holocaust survivors are also discussed in medical literature as having similar symptoms, as are survivors of railway disasters and of the atom bombs dropped on Hiroshima and Nagasaki. Most recently, PTSD has come to the forefront of psychological interest as the survivors of the September 11, 2001, terrorist attacks in New York City exhibit symptoms of this disorder; survivors of the 2004 tsunami in southeastern Asia and eastern India, and survivors of the 2005 earthquake in Pakistan and hurricanes in the southeastern United States will undoubtedly suffer PTSD as well.

Today, PTSD is no longer considered a disorder only of war veterans, as it occurs in both men and women, adults and children, Western and non-Western groups, and at all socioeconomic levels. Only a small minority of people appear to be invulnerable to extreme trauma. These stress-resistant individuals appear to be those with high sociability; a thoughtful coping style; and a strong perception of their ability to control their own destiny, or possessing an “internal locus of control” (Herman, 1997).

At the core of PTSD diagnosis is an etiological agent (i.e., a traumatic event) that is outside the individual, as opposed to a weakness or flaw within the individual (Bayse, 1998). The traumatic event was described in the DSM-III as a catastrophic stressor that was outside the range of usual human experience. At that time, reactions to such events as divorce, failure, rejection, and so forth would have been diagnosed as adjustment disorders rather than PTSD. As Herman (1997) points out, however, rape, battery, and sexual and domestic abuse are so common that they can hardly be described as outside the range of ordinary experience. Military trauma, too, affects millions; thus, she asserts that traumatic events are extraordinary not because they are rare, but because of the way in which they affect human life.

Included in the DSM-IV as categories of traumatic events are those within the range of usual human experience such as automobile accidents and deaths. The DSM-IV specifies that the individual must have an intense emotional reaction to the traumatic event, such as panic, terror, grief, or disgust (Bayse, 1998). Herman (1997) uses the Comprehensive Textbook of Psychiatry’s description of trauma: “intense fear, helplessness, loss of control, and threat of annihilation” (p. 33).

PTSD Population Statistics

The National Center for Posttraumatic Stress Disorder (NCPTSD; 2007) reports that about 8% of the population will have PTSD symptoms at some time in their lives. Approximately 5.2 million adults have PTSD during a
given year; however, this is only a small portion of those who have experienced a traumatic event. About 60% of men and 50% of women experience a traumatic event at some time in their lives.

Women are more likely to experience sexual assault and child sexual abuse. Men are more likely to experience accidents, physical assault, combat, or disaster, or to witness death or injury. About 8% of men and 20% of women who experience a traumatic event will develop PTSD (NCPTSD, 2007). Sexual assault is more likely than other events to cause PTSD (Vogt, 2007).

Approximately 30% of men and women who served in war zones experience PTSD symptoms. An additional 20% to 25% have had some symptoms. Specific to the Vietnam War, research shows that of those who served, over 30% of men and 26% of women experienced PTSD symptoms at some time during their lives (Beall, 1997). As many as 10% of Gulf War (Desert Storm) veterans, 6% to 11% of Afghanistan (Enduring Freedom) veterans, and 12% to 20% of Iraq (Iraqi Freedom) veterans are estimated to have experienced, or be likely to experience, PTSD (NCPTSD, 2007).

According to the NCPTSD (2007), those most likely to develop PTSD

- Were directly exposed to a traumatic event as the victim or as a witness;
- Were seriously injured during the event;
- Experienced a trauma that was long lasting or very severe;
- Believed their lives were in danger;
- Believed that a family member was in danger;
- Had a severe reaction during the event such as crying, shaking, vomiting, or feeling separated from their surroundings;
- Felt helpless during the trauma, not being able to help themselves or family member(s);
- Had an earlier life-threatening event, such as being abused as a child;
- Had another mental health problem;
- Had family members with mental health problems;
- Had minimal support from family and friends;
- Recently lost a loved one, particularly if it was unexpected;
- Had recent, stressful life changes;
- Drank alcohol in excess; or
- Were women, poorly educated, or relatively young.

The NCPTSD (2007) also reported that African Americans and Hispanics may be at higher risk than Whites to develop PTSD, and that one’s culture or ethnic group may affect how one reacts to PTSD symptoms; people from groups that are open and willing to talk about problems may be more likely to seek help.

While some people may have few problems adjusting and returning to a normal state after a traumatic event, others may be debilitated for years; two people exposed to the same event will have different levels of reaction. Behavioral scientists are unable to predict or measure the potential effect of
a traumatic event on different people, but certain variables seem to have the most impact, including

- The extent to which the event was unexpected, uncontrollable, and inescapable;
- The level of perceived extent of threat or danger, suffering, upset, terror, or fear;
- The source of the trauma: human-caused is generally more difficult than an event of nature;
- Sexual victimization, especially when betrayal is involved;
- An actual or perceived responsibility for the event; and
- Prior vulnerability factors including genetics or early onset as in childhood trauma.

Symptoms of PTSD

Chronic PTSD typically involves periods of increase in symptoms, followed by a remission. Some individuals experience symptoms that are unremitting and severe, while others report a lifetime of mild symptoms, with significant increases in symptoms following major life events such as retirement, medical illness, or reminders of military service such as reunions or media attention to anniversaries of events. Table 5.3 shows the symptoms of PTSD.

Table 5.3 Symptoms of PTSD

<table>
<thead>
<tr>
<th>Reexperiencing the trauma</th>
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<tbody>
<tr>
<td>Flashbacks</td>
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<tr>
<td>Nightmares</td>
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<tr>
<td>Intrusive memories and exaggerated emotional and physical reactions to triggers that remind the person of the trauma</td>
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<table>
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<tr>
<th>Emotional numbing</th>
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<tr>
<td>Feeling detached</td>
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<tr>
<td>Lack of emotions, especially positive ones</td>
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<tr>
<td>Loss of interest in activities</td>
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<table>
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<tr>
<th>Avoidance</th>
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<tr>
<td>Avoiding activities, people, or places that are reminders of the trauma</td>
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<tr>
<th>Increased arousal</th>
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<tr>
<td>Difficulty sleeping and concentrating</td>
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<tr>
<td>Irritability</td>
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<tr>
<td>Hypervigilance</td>
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<tr>
<td>Exaggerated startle response</td>
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PTSD also creates physiological changes in the body including:

**Neurobiological changes**
- Alterations in brainwave activity
- Changes in the size of brain structures including decreased size of the hippocampus and abnormal activation of the amygdala
- Changes in functioning such as memory and fear responses

**Psychophysiological changes**
- Hyperarousal of the sympathetic nervous system
- Increased startle reaction
- Sleep disturbances
- Increased neurohormonal changes resulting in heightened stress and increased depression

**Physical manifestations**
- Headaches
- Stomach or digestive problems
- Immune system problems
- Asthma or breathing problems
- Dizziness
- Chest pain
- Chronic pain or fibromyalgia

**Psychological outcomes can include the following:**
- Depression, major or pervasive
- Anxiety disorders such as phobias, panic, and social anxiety
- Conduct disorders
- Dissociation
- Eating disorders

**Social manifestations include**
- Interpersonal problems
- Low self-esteem
- Alcohol and substance use
- Employment problems
- Homelessness
- Trouble with the law
- Self-destructive behaviors
  - Substance abuse
  - Suicidal attempts
  - Risky sexual behaviors
  - Reckless driving
  - Self-injury

To be diagnosed with PTSD, according to the DMS-IV, the stressor must be of an extreme nature, as in something life-threatening; however, in adjustment disorder (AD), the stressor can be of any severity, including divorce or job loss. Symptoms of avoidance, numbing, and increased arousal that are present before exposure to the stressor do not meet the criteria for PTSD diagnosis and should be considered as a mood disorder or another anxiety disorder.

**Physiological Diseases and Disorders**

Bender (2004) reports that women with PTSD experience more adverse medical conditions such as arthritis, lower back pain, obesity, emphysema, and hypertension than women in general or those with depression only. Depression has long been known to be associated with poor physical health, but women with PTSD exhibit even worse health, based on a 1999 survey of 30,000 female veterans. Almost 90% of women with a diagnosis of PTSD experienced at least one medical condition, which, in addition to the above-mentioned conditions, included low energy, chronic pain, and poor physical functioning. According to this study, women with PTSD also experienced more physical pain than women with depression or with neither diagnosis. Bender states that the study suggests that trauma may be linked to “chronic neuroendocrine dysregulation” as well as to poor personal habits such as smoking, drinking, or drug use, and cautions those in the mental health care field to be aware of the need for additional treatment for comorbid medical conditions.

Kimerling, Prins, Westrup, and Lee (2004) concur that both men and women with PTSD have a greater incidence of functional impairment as well as a poorer course of disease. These include cardiovascular disorders (a significant finding, since heart disease remains the leading cause of death among women in the United States) and gastrointestinal disorders including liver disease, viral hepatitis, irritable bowel syndrome, and gastroesophageal reflux disease (commonly known as chronic heartburn).

Women with PTSD who experienced childhood sexual trauma are also commonly found to have sexually transmitted diseases, suggesting that trauma exposure serves as a risk factor for infection, particularly HIV. Sexual trauma exposure is a direct risk factor for sexually transmitted diseases. Kimerling et al. (2004) reported that a 1996 study of HIV-infected women showed that 43% had been sexually assaulted at some time in their life. It was also reported that the disease progresses more rapidly among women with PTSD than among those without.

Studies also show that, in victims of trauma, there are physical changes, specifically volume reduction in the hippocampus, the learning and memory center of the brain. The hippocampus works in tandem with the medial prefrontal cortex, the area that regulates emotional response to fear and stress, thus indicating a physiological relationship to PTSD symptoms (Bremner, 2002). Combat veterans were found to have an 8% reduction in hippocampal volume, yet no differences were found in other parts of the brain. Interestingly, Bremner also reported that the hippocampal volume
reduction is specific to those with PTSD, not being associated with closely related disorders such as anxiety or panic disorder. Further, the hippocampus has the ability to regenerate neurons; however, stress has been found to stop or slow neuron regeneration. Bremner suggested that this change in size of the learning and memory center of the brain among PTSD sufferers may explain the delayed recall or “recovered memories” that many victims of childhood abuse experience. He explains that the abuse caused damage to the hippocampus, leading to a distortion or fragmentation of memories.

The changes in the function of the prefrontal regions of the brain may explain the pathological emotional responses in those with PTSD (Bremner, 2002). Bremner reported that studies of veterans with PTSD showed a decreased blood flow to this area when viewing combat-related scenes and sounds. This did not occur in veterans without PTSD. Similar results were found when comparing women who experienced childhood sexual abuse and suffer PTSD with those with childhood sexual abuse and no PTSD symptoms. However, a more recent controlled study indicated that twins not exposed to emotional trauma showed the same amount of “shrinkage” in their hippocampus, suggesting that a small hippocampal volume may be a pre-incident risk factor rather than brain damage from the emotional trauma (Herbert & Sageman, 2004).

Depressive Disorders

As noted above, major depressive disorder (MDD) is a frequent partner of PTSD, with studies showing similar rates of occurrence in both genders. As Kimerling et al. (2004) point out, this is an interesting phenomenon since women’s risk for MDD in the absence of PTSD is greater than men’s. Their explanation is that PTSD “may create a vulnerability toward depression in men that suppresses the protective effect of male gender” (p. 579).

Due to the overlap of MDD and PTSD symptoms (diminished interest in activities, sleep and concentration disturbances), assessment and diagnosis can be difficult. Kimerling et al. (2004) report that clinicians have outlined several methods of distinguishing between the two disorders. Diminished interest in activities in PTSD is specific to cues of past trauma exposure; MDD, on the other hand, is characterized by loss of energy and hopelessness. PTSD sleep difficulties are characterized by nightmares and hypervigilance that occur only after the traumatic event. Difficulties in concentration with MDD are more global, whereas with PTSD they are dissociative and result from trauma-related memories.

Substance Abuse

A 1990 study found that approximately 74% of men and 29% of women with PTSD had a lifetime diagnosis of alcohol abuse (Ouimette, Wolfe, & Chrestman, 1996). Kimerling et al. (2004) report that approximately 30% to 50% of men and 25% to 30% of women with lifetime PTSD
also are substance abusers. It has been shown that a comorbid diagnosis of PTSD and SUD (substance use disorder) is associated with poorer substance use outcomes: Those with PTSD relapse more quickly, drink more on days when they do drink, have a greater percentage of heavy drinking days, and suffer greater negative consequences due to their substance abuse than do non-PTSD abusers (P. J. Brown, 2000).

Interestingly, women are more likely than men to develop substance use disorders after exposure to a traumatic event and symptoms of PTSD, with approximately 65% to 84% of women experiencing PTSD before developing substance use disorders. This points toward the “self-medication” hypothesis for PTSD/SUD comorbidity among women, where women use alcohol or drugs to cope with trauma-related symptoms. Sharp (2003) calls substance use and abuse “almost inevitable” for women and girls coping with abusive experiences. In contrast, men are more likely to experience trauma due to their behaviors linked to substance use, which then results in PTSD symptoms (Kimerling et al., 2004). Kimerling et al. strongly suggest that clinicians routinely screen clients for SUD when PTSD is suspected.

### Recovery From Trauma

Recovery from traumatic events is described by Herman (1997) as unfolding in three stages, the first being that of establishing safety. The second stage includes the tasks of remembrance and mourning, while the third stage encompasses reconnection with ordinary life. As with any abstract concept, the stages are not followed exactly nor are they linear. Herman describes traumatic syndromes as “oscillating and dialectical in nature . . . defying any attempt to impose such simpleminded order” (p. 155). These stages are defined here in an attempt to assist clients and clinicians alike in simplifying and gaining control of a seemingly uncontrollable process.

#### Safety

Survivors of victimization must shift their surroundings from that of unpredictable danger to reliable safety. This includes recognizing and naming the demon. As Herman (1997) discusses, some may feel relieved to learn that there is a name for their problems. Others, however, resist the diagnosis out of fear of the stigma associated with any psychiatric diagnosis; some may deny the condition out of a sense of pride. Many survivors of physical or sexual abuse do not make the connection that their experience of abuse is directly related to their symptoms or behaviors. Herman goes on to emphasize that the process of developing a framework that relates the client’s problems to the traumatic history is beneficial, as it assists in developing a therapeutic alliance.

Establishing safety includes allowing the victim to regain control. While those who become dependent on drugs or other tension-reducing behaviors may have attempted to regain control through external stimulation, true
control is accomplished when victims feel safe in relation to others, as well as with their own thinking and feeling. As Herman (1997) suggests, gradually developing a safe and trusting therapeutic relationship is key. In addition, family, friends, and lovers who were not involved in abuse of the victim should be mobilized to act as a support system. Further, any attachment to those involved in the victimization must be disconnected, as must use of illicit drugs or alcohol (assumed, in the case of incarcerated victims).

**Remembrance and Mourning**

After having regained a sense of control, developed a feeling of safety within the self and among others, and discontinuing self-destructive behaviors, trauma victims can gradually move on to stage two: remembrance and mourning. This is the phase where victims verbally tell the whole in-depth, sordid story. As Herman (1997) notes, the difference between remembering the trauma and retelling the trauma is likened to a series of still snapshots as opposed to full cinematic movies with the inclusion of words and music.

Retelling the story must be repetitive; eventually, the story no longer will arouse such intense feelings (Herman, 1997). Ultimately, it becomes only a part of the survivor's experience rather than the focus of it. The memory fades, and grief loses its strength. The victim's life story begins to take on other aspects rather than only one. This, indeed, is a simple explanation of a complex process, but one that can be accomplished with a knowledgeable and trained clinician who can look past the anger and hatred that may accompany PTSD and its symptoms.

**Reconnection**

After mourning the loss of the person they were before the trauma, victims must create a new self and a new future. As quoted by Herman (1997), psychiatrist Michael Stone describes this task (specific to his work with incest survivors) thusly:

All victims . . . have, by definition, been taught that the strong can do as they please, without regard for convention. . . . Re-education is often indicated, pertaining to what is typical, average, wholesome, and “normal” in the intimate life of ordinary people. Victims . . . tend to be woefully ignorant of these matters, owing to their skewed and secretive early environments. Although victims in their original homes, they are like strangers in a foreign country, once “safely” outside. (p. 198)

Herman (1997) believes the statement “I know I have myself” is the anchor of the third stage. No longer possessed by past trauma, the survivor now understands the results of the damage done and becomes the person he or she wants to be. Imagination and fantasy, desire and initiative are at the core of this stage, where hopes and dreams are weaved into reality.
Herman (1997) emphasizes that resolution of the trauma is never final, and recovery is never complete; the impact of trauma will “reverberate throughout the survivor’s lifecycle” (p. 211). While incomplete, recovery will allow the survivor to return to the normal tasks of life. Becoming more interested in the present and future than the past, a survivor of trauma overcomes fear and opposition and gradually engages in new and healthy relationships.

In summary, there are seven criteria for the resolution of trauma (Herman, 1997):

- The physiological symptoms of PTSD have been brought within manageable limits;
- The survivor is able to bear the feelings associated with traumatic memories;
- The person has authority over the memories; for example, he or she can either remember the event or put it aside;
- The memory is coherent and linked with feeling;
- The survivor’s self-esteem has been restored;
- Important relationships have been reestablished; and
- A coherent system of meaning and belief concerning the trauma has been constructed. (p. 213)

Patients in the Street

A complicating feature of the drug scene is that addicts often appear to have more practical information about the effects of mind-altering drugs than the physicians who prescribe them. An old adage is, “The doctor who treats himself has a fool for a patient.” Deep in the gutter of the treatment community, a group of patients prescribe and administer their own medications. Through rumor and experimentation, they discover illegal, mood-affecting drugs, which appear to magically induce enormous pleasure and also subdue undesired emotions. Through trial and error and various social influences, the novice learns to procure a host of substances that are known among street users to influence or improve painful emotions. Illicit drugs serve as prosthetic devices that temporarily reduce discomfort from feelings such as anxiety, rage, hurt, shame, and loneliness. Addicts select their drugs of choice based on an interaction among street mythology, the chemical action of the drug, and the nature of their particular cognitive and emotional state.

On the basis of observations and interviews with hundreds of addicts, Khantzian (1997, 2001) found that opiate users are particularly compelled by the anti-aggression and anti-rage action of narcotic drugs. Addicts’ life histories reveal prolonged periods of uncontrolled rage and anger, replete with horrifying accounts of violent episodes that predate their drug experiences. The addicts themselves were often victims of unusual levels of aggression in their family, their community, or both. During treatment, opiate-dependent patients repeatedly explained their compulsion for narcotics on the basis of
how it made them feel in relation to their anger. They frequently use such terms as mellow, soothed, normal, calm, and relaxed. Khantzian also found that patients who often appear hyperaggressive, restless, or even assaultive in group therapy become more relaxed as they adjust to a therapeutic dose of methadone. Many patients who started their drug abuse with another type of drug switch to heroin as their drug of choice when they repeatedly experience uncontrolled fits of violence or rage under the influence of alcohol, sedatives, amphetamines, or cocaine.

In his 14-year history of experimentation, abuse, addiction, and drug-related crime, Philip became extremely knowledgeable about the commodities and characters in the drug world. In the following case study, we shall “inject” Philip’s understanding of his progression from heroin use to addiction with an explanation of the biochemical substratum of his progressively disturbed functioning. His case illustrates how an addict learns to regulate his physiology through a well-planned self-medication schedule. His skill reflects a high level of street knowledge of how to cope with the medical issues of dependence, tolerance, and withdrawal.

Case Example: Self-Medication and Recovery

Philip switched his drug of choice from cocaine to heroin after discovering heroin’s soothing and anti-aggressive effects. When interviewed, he was 29 years old and had been in drug-free treatment for nearly 14 months. He had begun smoking pot and using amphetamines at 13 years of age and maintained a $100 to $200 per day heroin habit for 5 years, prior to his conviction and mandatory treatment. He supported his addiction primarily through the sale of marijuana and cocaine. In lieu of prison, Philip opted for placement at a residential drug treatment center after having been arrested for possession and attempted sale of 10 grams of cocaine.

Philip is the only male in a family of eight children. He felt “robbed” at the age of 9 when his father suddenly died of a heart attack while serving in the military. During adolescence, in the mid-1960s, he lived in a large metropolitan area where illicit drugs were readily available. He started experimenting with marijuana and amphetamines at the age of 13. At 15, he began to sniff cocaine and would sell grams of coke to his friends and school contacts. He first sniffed heroin at 17, recalling that he was tricked by a friend who told him it was cocaine. He was initially angry because he had heard about the perils of heroin on the street. He ignored the warnings, however, as he enjoyed the soothing sensations brought on by the drug. He continued to use heroin, blocking from his mind any thoughts of becoming “strung out.”

Through sniffing heroin, Philip brought about a temporary decrease in the rate of neurotransmission in his central nervous system, which was precisely the effect that he enjoyed. However, in a few hours the drug sensations wore off, and his level of neurotransmission returned to normal. Subjectively, he experienced a return to his customary state of loneliness and tense depression. He continued to episodically sniff heroin for the next 6 months when the drug was available and when inner distress and anxiety seemed unbearable. Although filling opiate receptor sites in the brain by the ingestion of heroin caused a corresponding decrease in neurotransmission, the brain would automatically initiate a self-regulatory process to reinstate normal neuronal activity. Enzymatic changes occurred in an attempt to accelerate neurotransmission to offset the decrease brought about by heroin.

When he first began to use heroin, Philip could be satisfied with an amount about the size of one match head. It would “nod him out” for about 6 hours. Between irregularly timed doses, which he ingested two to three times weekly, his functioning seemed unimpaired. In only a few hours, the drug sensations seemed to wear off and Philip could conduct his business as usual. He was able to eat and

(Continued)
sleep regularly. Yet the immediate soothing effects that he derived from ingesting heroin were slowly being challenged by longer-lasting changes in brain chemistry. Although he continued to use heroin at the initial match-head level, the intensity of his feeling was being eroded constantly by these insidious chemical changes that attempted to return his neurotransmission to a “normal” level.

After several weeks, Philip noticed that he needed an increased amount of heroin to feel high. His required dose began to swell to two, three, four, and still more match heads. Even at higher doses, however, he began to recognize that he wasn’t getting the same feeling of pleasure. He recalled that after about 6 months of frequent and escalating use, he woke up one morning “feeling shitty.” Philip had become physically dependent on heroin and required it regularly just to feel normal. He was getting strung out.

About 2 months later, he allowed a crony to “geez” him with a hypodermic syringe. “Hitting up” was like nothing he had ever experienced before. It was “heaven...like everything in the world had just been taken care of.” He quickly learned to self-administer the drug and began to use it on a daily basis. Without heroin, he would anticipate becoming sick. His thoughts became obsessed with when and how he was going to “do some stuff.” He would attribute all unpleasant bodily sensations, even hunger, to the absence of heroin in his system. His body weight decreased from 150 to 118 pounds. When heroin wasn’t readily available, Philip would use prescription narcotics. He knew a physician who, in exchange for cocaine, would allow him to browse through the PDR (Physician’s Desk Reference) and pick out any drug he wanted. He would select Dilaudid to avoid being sick, which didn’t seem to have negative side effects like headaches or ringing in his ears. At this point in his addictive “career,” his entire life began to revolve around not being sick. His dependence was so great that he could get “normal,” but he couldn’t get high. Philip was deeply entrenched in the maintenance phase of his habit. The enzyme levels in his brain had changed so drastically that even large doses could not re-create the feelings of pleasure and calm, hallmarks of his initial use.

After 2 to 3 years of regular use, Philip recalls having to wake up every 3 to 5 hours to inject himself with heroin. When he was without the drug for more than 8 hours, his withdrawal symptoms would become very severe. He remembers his skin becoming blotchy; breaking out in cold sweats; shaking all over; getting cramps in his legs, back, and stomach; and sometimes vomiting. In the absence of the drug, his neurotransmission did not return to normal; rather, it became accelerated because of his chronic drug abuse. Somehow he would manage to get some heroin from a spoon into a syringe, then into a vein. Within about 30 seconds, he felt as if heroin were “filling all the gaps” in his body. Sometimes he would “jack off” with the needle by pulling up blood into the syringe and then injecting it back into his vein. For the most part, Philip found this practice repulsive and he did it infrequently. He remembered a female addict, however, who would sit, sometimes for 20 minutes, “pulling it up in the syringe...in and out.”

During the lengthy maintenance period, Philip was nearly always obsessed with the functioning of his body. He recalls being regularly constipated from the effect of heroin on his digestive system. When several days passed without a bowel movement, Philip would interpret being constipated as “something wrong.” His remedy was based on practical experience with a range of pharmacological effects. He would sit on the toilet, get some cocaine, and then “hit it up.” By repeating this procedure at least twice per week, Philip was able to “clean himself out.” After 5 years of living in this hellish state, Philip was ordered by the court to choose between jail and treatment for his drug problem at a therapeutic community (TC).

In this setting, drug addiction is traditionally viewed as a symptom of weakness in character, usually associated with alienating childhood circumstances. The addict chronically avoids dealing with conflict by withdrawing into a protective shell. This self-destructive pattern is interpreted as a response to feelings of incompetence and inadequacy. While using drugs to escape from stress, the addict denies personal problems and hides behind a criminal mask of toughness and superiority. Under the guise of sincere friendship and urgent need, addicts manipulate others to assist them in gratifying their infantile wishes.

The therapeutic community strives to provide a positive family atmosphere in which self-realization can occur. In a setting where drug inaccessibility is strictly enforced, addicts are given the opportunity to clarify their values and goals in life. They are expected to move toward the
development of a greater sense of moral responsibility. These opportunities are possible largely because the addict has been removed from the environmental stimuli—drug access, recurrent stress, and drug-using friends—that have surrounded and fostered his compulsive drug-using behavior. Correspondingly, TC graduates are expected to eliminate drug use, learn adaptive responses to stress, and readjust to the outside world as comfortable and responsible citizens.

The new resident’s involvement in the TC program is strongly influenced by his or her experience during the initial or “prospect” phase of treatment. Philip was tempted to “jump” several times, but each time a senior resident talked to him, and he decided to stay. He remembers feeling completely disoriented during the beginning of treatment when he was required to wear pajamas, work at menial chores, and sit in groups with fellow residents who “confronted each other whenever someone would hide out in their druggie attitude.”

A hierarchical arrangement of leadership roles within the resident group is an integral part of the TC treatment approach. Residents take on increasing responsibility for operating the facility as they earn status as reliable and trustworthy members of the community. Conversely, verbal reprimands, role demotions, and increased work assignments are directed toward shaping and directing clients who have been observed to “slip.”

As time went on, Philip began to realize the importance of being in treatment. In the beginning, he remembers feeling that it didn’t matter how he acted; he would get accused, insulted, and questioned anyway. He felt “damned if you do, damned if you don’t.” He later understood that the purpose of frequent personal confrontations was to promote healthy responses to stress. “No matter what situation you were in, no matter what you tried to work out, you could always do it without stickin’ a fucking needle in your arm.” He remembers always being scrutinized and challenged by other members of the group about minute details of his demeanor. After several months of being constantly and thoroughly checked for his motives and attitudes, he noticed that he began checking himself. “All of a sudden you caught yourself like, I’m doing something wrong. I shouldn’t be doing this. . . . [Y]ou started to feel guilt. For once you started feeling happy. You noticed the birds singing and the sun’s shining, and they’re gonna let us out in the park to throw the football around.”

When positive experiences such as these occur, the result is often enhanced self-esteem and a corresponding reduction in alienated-alienating behaviors. Philip now regards having “stuck out” the therapeutic community as the best decision of his life. He views the TC as the only place where a hard-core drug abuser can have a chance at getting his life together. He feels that in the course of treatment, he came across many people who helped him to “clean up,” but the person he thanks most is himself. After 14 months of complete abstinence, Philip reported that he reached a point where he made the decision to stay clean permanently. He realized that there was no way that he could continue doing heroin and be a normal human being, “and what I want to be is a normal human being, so I decided never to do it again.”

Philip was hired as a counselor in the therapeutic community. He has been able to use his drug abuse and treatment experiences to guide others through the recovery process. At the time of this writing, he has been entirely drug-free for 16 years.

__________________________________ Prescription Drug Abuse

McCabe (2008) reported increases in the prescription rates of potentially addictive medications in the United States, including stimulants, opioids, and benzodiazepines. These increases are likely the result of many factors, including improved awareness regarding the usefulness of drugs in the treatment of mental disorder, increased duration of treatment, availability of new medications, and increased marketing. The public has become alert to the abuse potential of these medications and high prevalence rates of nonmedical use, especially among young adults 18 to 24 years of age.
McCabe (2008) used questionnaire data to study prescription drug use and potential drug abuse among 3,639 college students (average age, 19.9 years). Students were asked if they had been prescribed or had used without a prescription four classes of prescription drugs—opioids, stimulants, sleeping aids, and sedative or anxiety medications. In addition, they were asked if they had experienced drug-related problems (e.g., performed illegal activities to obtain drugs, had withdrawal symptoms, or experienced medical problems as a result of drug use).

Fifty-nine percent reported having used at least one of the drugs with a prescription for medical reasons, while approximately one in five reportedly took them without a prescription for nonmedical reasons. Those who had reported that they used drugs without a prescription—whether or not they had also used them for medical reasons—were more likely to screen positive for drug abuse than those who had used the drugs only for medical reasons or had never used them at all.

**Inhalants: How Stupid Can You Get?**

Inhalants, which are volatile substances that produce breathable vapors, include paint sprays, paint thinners and removers, spray paints, deodorant, vegetable oil, gasoline, glues, and other aerosols. In addition, certain medical anesthetics found in commercial and household uses are abused. These include chloroform, ether, nitrous oxide (laughing gas), and aliphatic nitrites (NIDA, 2005a).

Nitrites, which include cyclohexyl, amyl, and butylnitrite, are often used to enhance sexual performance. Nitrites act much like Viagra by dilating blood vessels and relaxing muscles. Cyclohexyl nitrite is found in room deodorizers, while amyl nitrite is sometimes prescribed by doctors for heart pain. Both amyl and butylnitrites are packaged in small bottles, and are referred to as “poppers.”

**Inhalants and the Brain**

One of the most dangerous as well as widely used inhalants is the organic aromatic compound toluene (found in gasoline, paint thinner, and correction fluid). It is used commercially to make TNT (trinitrotoluene), an explosive used in military bombs. Although quite different from TNT, toluene does a number on the brain not unlike that of TNT on a city. But first, let’s see if we can explain why anyone would use inhalants such as toluene. Toluene and most other inhalants (except nitrites) activate the brain’s dopamine reward system. That should not come as any surprise at
this point. The rapid high produced by inhalants resembles that of alcohol intoxication. This high is followed by drowsiness, lightheadedness, apathy, impaired functioning and judgment, disinhibition, and belligerence. The other short-term effects of inhalant abuse are too numerous to mention here, but include dizziness, slurred speech, increased lethargy, muscle weakness, and stupor. Heart failure and death can occur within minutes after a prolonged “sniffing.” While long-term effects include weight loss, irritability, decreased coordination, depression, and withdrawal, the real bomb—figuratively speaking—is the damage to the brain. Much of it is damage to the myelin sheath, which insulates the neurons and significantly speeds neurotransmission. This insulating sheath is soluble in many organic solvents including toluene, which literally dissolves this protective layer.

Toluene’s effects on the brain are shown in Figure 5.3. The brain actually shrinks in size with chronic toluene abuse. The neurons are destroyed in a manner similar to that of buildings in a city being destroyed by TNT. Since toluene affects nearly all areas of the brain, it is like a “dumb bomb,” indiscriminately destroying everything it hits. This is really bad news, since the two areas we need to preserve are the hippocampus, for memory, and the frontal cortex, for cognition. Rosenberg, Grigsby, Dreisbach, Busenbark, and Grigsby (2002) have shown that inhalant abusers suffer more brain abnormalities and cognitive deficits than cocaine users. It is also believed that much of this damage by inhalants is irreversible.

Summary of Inhalant Effects

Inhalants exert their effect on the brain by activating the dopamine reward system. In many ways, the high produced by inhalants resembles that produced by alcohol, but is much more damaging to the neurons in the brain. As noted above, this is due to the damage to the protective myelin sheath, which surrounds nerve fibers in the brain and other parts of the nervous system.

National surveys (e.g., NIDA, 2005a) indicated that nearly 23 million Americans have abused inhalants at least once. Even a single session of inhalant abuse can cause death from cardiac arrest or asphyxiation. Regular abuse can result in serious harm to the brain, heart, kidneys, and liver.

Figure 5.3 Toluene’s effect on the brain.
The brain shrinks in size. Brain images show marked shrinkage of brain tissue in a toluene abuser (B) compared to a nonabusing individual (A). Note the smaller size and the larger (empty) dark space within the toluene abuser’s brain.
Khantzian’s (2001) self-medication model of addictive behavior views the use of mind-altering chemicals as misguided attempts to cope with feelings of discomfort, lack of meaning, and a fragmented sense of self. An underlying theme in many substance abusers’ lives is unfulfilled longings for intimacy.

The widespread abuse of tobacco is viewed as a worldwide system of self-medication that serves to improve attention and concentration and to relieve symptoms of depression. Upon ingestion of nicotine, immediate sensations of relaxation, produced by increased availability of the inhibitory neurotransmitter GABA, are quickly followed by a surge of dopamine in the nucleus accumbens. Further, nicotine activates acetylcholine receptor sites resulting in the perception of improved memory and concentration. Nicotine addiction occurs rapidly—as little as one cigarette can change the brain—causing neuronal modifications that stimulate the craving to smoke. The neurobiological effects of nicotine and tobacco on the brain are far overshadowed by the devastating effects of cigarette smoking in terms of lung cancer, coronary heart disease, stroke, and chronic lung disease.

The section on substance abuse among women begins with comparing prevalence rates for alcohol and drug abuse between men and women. Although men have higher prevalence rates for alcohol and drug abuse disorders, the rates of prescription drug abuse and nicotine dependence are similar across gender. Among female substance abuse clients, the presence of mental health problems co-occurring with alcohol or drug abuse disorders highlights the importance of the self-medication hypothesis. Women are more likely to meet criteria for anxiety, depression, eating disorders, and borderline personality disorder. Gender differences in biology and social learning experiences (often trauma associated with childhood and adult sexual abuse) highlight the need for women-focused models of treatment. The case study of female alcohol abuse is illustrative of a woman’s struggle with female role expectations, unpleasant feeling states, and unfulfilled longings for intimacy.

The section on posttraumatic stress disorder explains how conceptualizations of causality are grounded in psychobiological responses to such horrific events as natural disasters, rape, or exposure to war. Approximately 60.7% of men and 51.2% of women report at least one traumatic event in their lives. Only a small portion of those who have experienced at least one traumatic event actually develop PTSD. The symptoms of PTSD include re-experiencing the trauma, emotional numbing, avoidance, increased arousal, neurobiological changes, physiological changes, physical manifestations, and disturbances in psychological and social functioning. In addition to being twice as likely to suffer from PTSD as men, women experience more chronic forms of the disorder with some differences in the appearance of co-occurring disorders: Men are more likely to manifest alcohol dependence...
and antisocial personality disorder, and women are more likely to experience depression, phobias, and more adverse medical conditions. Recovery from trauma is discussed in terms of three interrelated stages: (1) establishing safety, (2) remembrance and mourning, and (3) reconnection with ordinary life. Becoming more interested in the present and future than the past, a survivor of trauma overcomes her fear and opposition and gradually engages in new and healthy relationships.

The section called Patients in the Street explores how heroin may initially serve as a means of achieving a sense of comfort and relaxation with reprieve from feelings of anger and desperation. As compelling biological forces combat the changes brought on by chronic abuse, the addict becomes “expert” at prescribing means to maintain his or her involvement with the drug. The case of Philip illustrates an addict’s progression into deeper and deeper levels of despair. The therapeutic community is discussed as a means to promote recovery and a responsible relationship to society.

Finally, inhalant abuse is shown as one of the gravest drug threats to the integrity of the brain—a classic example of how misguided attempts at self-repair can morph into permanent patterns of self-destruction.

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1. This section is derived from the chapter “Understanding Posttraumatic Stress Disorder,” by Karen Storck, in Criminal Conduct and Substance Abuse Treatment for Women in Correctional Settings: Female Focused Strategies for Women in Correctional Settings, by Milkman, Wanberg, and Gagliardi (Sage, 2008).