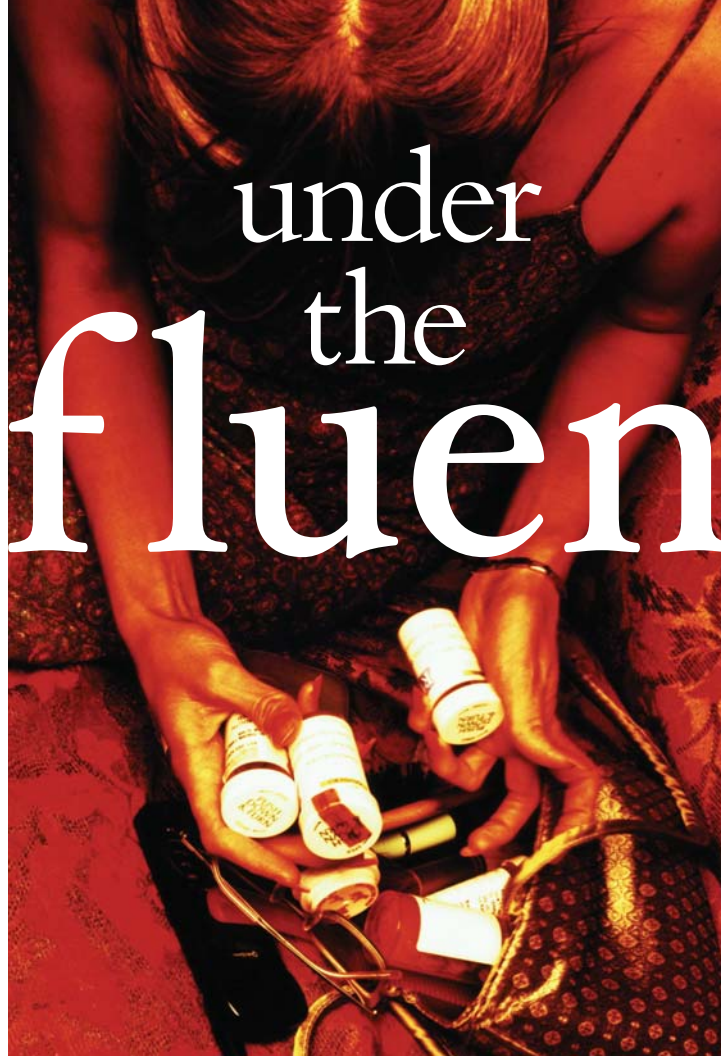


under the influence

The Economic Consequences of Substance Abuse and Addiction, and How Treatment Programs Tackle Them

BY CHARLES GERENA



Graduating from a drug treatment program should be a moment of triumph for people who fight their way out of the fog of addiction. But for Kevin McDonald, the struggle wasn't over.

With a felony record and only a high school education, McDonald had problems finding a job after leaving a drug treatment program in the 1960s. "I couldn't work anywhere except in fast food," he recalls.

That's why the Durham, N.C., program that McDonald founded in 1994 — Triangle Residential Options for Substance Abusers — emphasizes vocational training. "To me, it's not about just getting people off of drugs or alcohol ... you have to make addicts employable," he explains. "They need to be able to read and write to fill out a job application. They need a GED to get certain jobs."

The human toll of drugs and alcohol is well documented in academic literature and popular culture, but the economic impact isn't as straightforward.

Casual users of drugs or alcohol can suffer from physiological dependence and health problems, yet their extracurricular activities can have little impact on their work life. Also, not all users become addicted.

If substance users cross the line into abuse and dependence, however, they often can't function normally. Anecdotal evidence suggests that employers turn away recovering addicts like Kevin McDonald because of concerns about their economic performance. Indeed, some studies link abuse and addiction with negative outcomes such as unemployment, poor job performance, and lower wages. But other research shows no such association.

One thing is certain. The economic forces that seem to work against substance abusers and addicts can help them as well. Financial incentives and work therapy are powerful tools for drug treatment programs to use in encouraging abstinence and helping chronically unemployed addicts acquire marketable skills.

During the late 1800s and early 1900s, it was a common belief among those in the temperance movement that it took only one drink to put someone on the path to ruin. It would be decades after the lifting of Prohibition before society accepted that people could have a few drinks for pleasure without becoming alcoholics. In fact, the potential health benefits of moderate wine consumption have made headlines numerous times.

According to Jacob Sullum, author of *Saying Yes: In Defense of Drug Use*, the current view of casual drug use is similar to how Americans used to feel about alcohol. "There is no reason why you can't apply the same model [of moderation] to drug use," argues Sullum, who is also a senior editor at *Reason* magazine. "The vast majority of drug users are not heavy users."

Sullum cites the 2001 National Household Survey on Drug Abuse (NHSDA) to support this claim. Among 70,000 people age 12 and older, 13 percent reported using some sort of illicit

drug in the past year. However, only 3 percent reported abusing or being dependent on drugs. Similarly, 64 percent of interviewees said they drank alcohol in the past year, but only 6 percent had progressed to abuse or addiction.

Researchers have confirmed that substance use progresses in stages, starting with readily available items like beer or tobacco and continuing to hard liquor and illicit drugs. Nevertheless, users don't automatically move from one stage to the next, nor do they inevitably become addicts.

In general, a variety of factors influence substance users in their decision to continue or escalate their habit. "The progression from use to abuse and dependence varies with drug type as well as with factors that are specific to individuals and their environments," according to a 1994 report titled "Under the Influence? Drugs and the American Work Force." These factors range from peer influence and exposure to stressful life events to tem-

perament and family history.

The effect of casual drug and alcohol use on a person's work also involves a complex assortment of factors. Wayne Lehman, senior statistician at SHL USA, a human resources consulting firm, says it depends on the person and the type of work. "Some people have a greater tolerance [for drugs and alcohol] than others."

Economists and psychologists have shown that substance abuse and addiction is correlated with economic performance. But a direct cause-and-effect relationship has been tougher to prove.

For example, past drug use appears to negatively affect a person's employment status. In a 1992 study by economists Charles Register of Florida Atlantic University and Donald Williams of Kent State University, past marijuana use adversely affected a male's chances of being employed. Another study that year by economists

Andrew Gill and Robert Michaels at California State University, Fullerton found that illicit drug users had a lower probability of being employed than non-users.

John Atkinson at the University of Texas School of Public Health offers a possible explanation for this relationship. The amount of drugs or alcohol that individuals consume may complement their desire for leisure. Consequently, users may trade work for additional leisure time if they progress into abuse and dependence. However, they may re-enter the work force temporarily when they can no longer support their growing habit. "In this case, drug use is a substitute for leisure time," wrote Atkinson in a 2000 study of 1,100 drug addicts living in Houston.

But when the study tried to support this hypothesis, it failed. "There was no evidence of a statistically significant work/leisure tradeoff in either direction as the usage frequency of ... drugs increased," Atkinson noted.

Other research has associated substance abuse and dependence with job performance. The 2000 NHSDA reported that 12 percent of workers who had used illicit drugs within the last month had missed work for more than two days due to illness or injury, compared to 7 percent of workers who didn't use drugs. About 4 percent of drug users had skipped work more than twice versus 2 percent of non-users.

Lehman found similar results when he surveyed more than 4,000 municipal workers in several southwestern cities during the 1990s. Workers who said they smoked marijuana were less likely to commit to the organization and had less faith in management. Smokers also reported more accidents and workers' compensation claims than workers who hadn't used marijuana.

But measuring the extent of this association isn't easy. "When you do lab studies and give people alcohol or marijuana, they may behave more poorly," says Lehman. "Trying to generalize [those results] to a workplace setting doesn't work well. At work, you can find ways to compensate and achieve an average performance. You are [also] doing something ... routine and highly

Is Taking Drugs Rational?

A fundamental assumption of economics is that consumers make rational decisions. They choose alternatives that they expect will yield the greatest benefits given their limited resources. As long as the incremental benefit of consuming one unit of a good exceeds the expected incremental cost, people will keep consuming that good.

In a 1988 paper for the *Journal of Political Economy*, economists Gary Becker and Kevin Murphy at the University of Chicago went a step further with their exploration of the theory of "rational addiction." They posited that substance users and addicts continue to get high or drunk as long as the pleasure they receive outweighs the negative consequences.

How can people rationally decide to damage their lives with excessive drug or alcohol consumption? Becker and Murphy found that those who place greater value on present consumption than future consumption are more likely to become addicted to drugs or alcohol. For example, getting drunk to wash away the memories of a bad day at work is more important to alcoholics than how bad they'll feel the next day, or how much time they'll spend in the hospital for kidney treatment when they're older.

But even those who are looking for a quick

fix for their problems tend to act purposively. Drug users, Becker and Murphy found, are quite price sensitive and tend to take their budgets into account before making a purchase.

Other economists have pointed out that many of the costs of addiction are external. Therefore, they don't have any bearing on a person's decision to continue consuming drugs or alcohol. For example, excessive drinking can lead to greater incidence of drunk driving and child abuse. Also, the long-term health effects of addiction can be borne by taxpayers who fund special government programs to help addicts.

Psychologists and other experts on substance abuse and addiction tend to be skeptical of the rational addiction theory. Wayne Lehman, senior statistician at SHL USA, a human resources consulting firm, says that substance abusers may make a benefit-cost judgment to start their drug use but that's as far as it goes.

"True addiction is characterized by a loss of control," notes Lehman. "With alcohol and addictive drugs, there is a change in brain chemistry that occurs. ...It becomes a lifetime problem that a person really has no control over. Once you get to that point, it's not a rational decision."

—CHARLES GERENA



At TROSA in Durham, N.C., drug addicts learn a trade as part of their recovery.

learned, so you can get by with less than a full brain.”

As for the potential negative effect of substance abuse and dependence on income levels, few researchers have found one. Jeffrey DeSimone, an economist at East Carolina University, discovered a causal relationship in an unpublished study of criminals who were screened for drug use upon booking. “Current use of marijuana, cocaine, and heroin each negatively affect[ed] ... current earnings from legal employment,” he describes.

On the other hand, several studies found that consumption of drugs and alcohol had a mostly positive effect on wages. How could this be possible, given the detrimental effects of these substances on physical and mental health?

In a 1999 paper for the Research Triangle Institute, DeSimone wrote, “Wages may not reflect productivity costs of drug use. Since wages are often fixed in the short term and individual output is often difficult to observe, they may not adjust quickly enough to productivity changes to reflect an effect of current drug use. Furthermore, [researchers] suggest that firms are more likely to deal with drug-using workers by terminating their employment than by reducing their wages.”

There also is a broader problem with analyzing the economic effects of substance abuse and dependence. Drug addicts and alcoholics could have

underlying behavioral issues that cause them to both abuse substances and perform poorly in the working world. For economists and psychologists, separating the real effects of addiction from the personality traits of the addict has been a challenge.

Regardless of how substance abuse and dependence relate to economic performance, the fact remains that hardcore abusers and addicts are often undesirable to employers. They typically don’t have a consistent work history, a basic education, or marketable skills. Some treatment programs have tried to address these employment challenges by using the power of financial incentives and work therapy.

For years, researchers have experimented with using inducements to reinforce drug abstinence. Patients undergoing drug treatment are given something of tangible value in exchange for proving they are clean.

Kenneth Silverman, an associate professor of psychiatry and behavioral sciences at Johns Hopkins University, has investigated voucher-based reinforcement of drug abstinence. “The biggest challenge [with drug treatment programs] is promoting abstinence,” says Silverman, “arranging the contingencies so that the largest percentage of patients stay engaged in the program, and initiate and sustain abstinence.”

In a 1996 study of cocaine addicts undergoing outpatient treatment, Silverman and his colleagues at the Addiction Research Center offered vouchers three times a week in exchange for drug-free urine samples. The first clean sample was worth \$2.50, then the vouchers increased in value by \$1.50 for every negative test result. If any sample tested positive, the patient wouldn’t receive a voucher and the “pay scale” dropped back to \$2.50. Patients who consistently provided clean samples over the 12-week testing period could earn a total of \$1,155 in vouchers, which were exchanged for goods and services purchased on their behalf.

According to Silverman, the study’s results were dramatic. “About half of the 19 patients [in the test group] who were exposed to the abstinence rein-

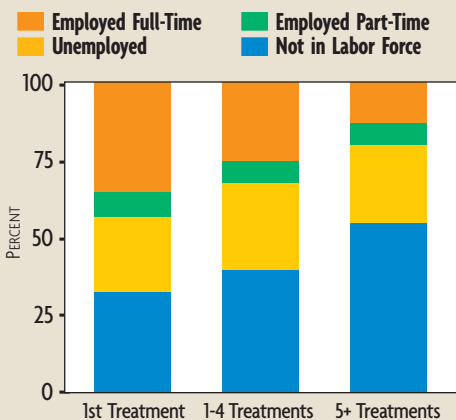
forcement with the vouchers stopped their cocaine use” for seven to 12 weeks. In contrast, only one person in the control group of 18 patients sustained their abstinence for more than two weeks.

Still, half of the test group didn’t abstain from drug use. So Silverman upped the ante in a follow-up study at Johns Hopkins’ Center for Learning and Health. He took a group of cocaine addicts that hadn’t responded to the voucher incentives and increased the value of the vouchers to a maximum of \$3,500 over a nine-week period, or the

Bad Outcomes

For many alcohol and drug abusers, it can take several attempts to successfully kick their habit. A June 2002 report found that people admitted to substance abuse treatment more than once have different socioeconomic characteristics than first-time admissions. One such difference is in the person’s employment status, as depicted below.

Employment Status of Admissions, 1999



SOURCE: Substance Abuse and Mental Health Services Administration, U.S. Department of Health and Human Services

equivalent of a \$20,000 annual salary. Again, about half of the patients achieved long periods of abstinence. Silverman realized that the higher the magnitude of the financial reward, the greater the ability of vouchers and other incentives to compel addicts to abstain from drugs over an extended period.

While using large financial rewards is an effective form of drug treatment, it also makes the process very expensive. That’s when Silverman started thinking about how a self-sustaining business could fund the use of finan-

cial incentives. In 2000, he started Hopkins Data Services in Baltimore to train cocaine and heroin addicts as data entry operators and put them to work.

Before they can begin a day of work, participants report to a small in-house laboratory where they provide a urine sample. If the sample is negative, they check into a data entry workroom and start earning a base pay of \$5.25 an hour. If the sample is positive, they have to leave and the production-based bonuses they receive are cut from \$5 per batch of data entered to \$1 per batch. But they can return and start rebuilding their bonus rate for every negative drug sample they submit. A similar reward mechanism is used while addicts are in training.

Currently, more than 20 people are in training at Hopkins Data Services, where for their efforts they receive vouchers that can be redeemed for goods. No one has been put on the payroll since October 2002 because the company doesn't have enough clients. In the past, as many as a dozen people were entering research data for scientists at Johns Hopkins, the University of Maryland, and various pharmaceutical firms in the Baltimore area.

Silverman says he chose the data entry field because past surveys of addicts indicated they were interested in doing office work. Also, the work could be easily tracked, which would enable him to provide various incentives for being on time and staying on task. For example, addicts can earn additional vouchers for achieving perfect scores and for surpassing various milestones during the training phase. When they are "hired" and start earning a salary, half of their pay is dependent on the number of characters they type and the number of errors they make.

"The population probably has long histories of unemployment for a good reason, so...we needed to arrange special contingencies to promote productivity," explains Silverman. At the same time, he learned that the base pay must be high enough to create a sufficient incentive to participate in the program.

The work therapy program at Triangle Residential Options for Sub-



To encourage productivity, this recovering addict in Baltimore receives bonus pay for completing data entry drills.

stance Abusers (TROSA) doesn't focus on financial incentives for drug abstinence. Instead, its 300 residents receive housing, food, clothing, and group therapy in exchange for working at one of the service firms operated by the organization in the Durham area.

The reward they receive for abstinence is the opportunity to receive on-the-job training at a wide range of businesses, from trucking and painting to catering and automotive repair. In addition, TROSA residents have access to adult literacy and GED classes, college-level courses, and computer training at an on-site classroom.

As residents progress in their training, they are entrusted with additional responsibilities, often over other people. This helps them attain a sense of self worth and connect emotionally to their co-workers. "We are putting people in places where they can succeed, because these people have felt like they have failed at everything they have done," says McDonald. "They learn how to care again."

By making them the cogs that run the organization, TROSA aims to empower substance abusers and addicts. "They say that society owes them — it doesn't," notes McDonald. "You have to earn your way." This approach also helps TROSA pay the bills — 90 percent of the organization's operating budget comes from the revenue generated by its businesses and in-kind donations

solicited by residents.

Studies of work therapy programs like TROSA concluded that participants do better economically and are less likely to get arrested. But these programs can have high turnover rates — only a few people may "graduate" from the more rigorous programs.

McDonald says the average stay for residents in his two-year program is 444 days. He says an addict who honestly screws up is given a second chance — they have to clean floors and do dirty work as penance — but a positive drug test with no explanation will put the addict back on the streets.

Every treatment program walks a fine line between providing sufficient rewards for abstinence and sufficient punishments for missteps. "The longer you stay in treatment, the better off you are," concludes Wayne Lehman. "It's akin to treating diabetes or high blood pressure. You don't treat the disease once and cure it — it is lifetime maintenance." **RF**

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