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Addiction in women

Gender may affect susceptibility, recovery, and risk of relapse.

Until the early 1990s, most research on substance abuse and dependence focused on men. That changed once U.S. agencies began requiring federally funded studies to enroll more women. Since then, investigators have learned that important gender differences exist in some types of addiction. (For a brief explanation of how we're defining these terms, see sidebar, page 3.)

Men are more likely than women to become addicts. In 2008, the U.S. National Survey on Drug Use and Health found that 11.5% of males ages 12 and older had a substance abuse or dependence problem, compared with 6.4% of females.

But in other respects, women face tougher challenges. They tend to progress more quickly from using an addictive substance to dependence (a phenomenon known as telescoping). They also develop medical or social consequences of addiction faster than men, often find it harder to quit using addictive substances, and are more susceptible to relapse. These gender differences can affect treatment.

Alcohol

Alcohol is the most commonly abused substance in the United States. About 7% to 12% of women abuse alcohol, compared with 20% of men. But research also suggests that since the 1970s, this gender gap has been narrowing, as drinking by women has become more socially acceptable.

This trend is concerning because women develop alcohol dependence more quickly than men do. Alcohol-related problems such as brain atrophy or liver damage also occur more rapidly in women than in men.

KEY POINTS

- Traditional addiction treatment programs were developed based on research in men.
- Women develop medical or social consequences of addiction faster than men, often find it harder to quit, and are more susceptible to relapse.
- These gender differences can affect treatment, but the research about how to improve outcomes is still in its infancy.

Several biological factors make women more vulnerable to the effects of alcohol. First, women tend to weigh less than men, and—pound for pound—a woman's body contains less water and more fatty tissue than a man's. Because fat retains alcohol while water dilutes it, a woman's organs sustain greater exposure.

In addition, women have lower levels of two enzymes—alcohol dehydrogenase and aldehyde dehydrogenase—that break alcohol down in the stomach and liver. As a result, women absorb more alcohol into the bloodstream.

Psychotherapy, self-help groups, and medications are all available to help people stop drinking. Although investigators once believed that women are not as likely as men to recover from alcohol dependence, the most recent research and analyses suggest the situation is complicated.

A large federal study of alcohol dependence in both men and women, the Combined Pharmacotherapies and Behavioral Interventions (COMBINE) trial, concluded that drug therapy and a specialized behavioral therapy helped patients of both sexes abstain from drinking. ▶▶

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Addiction in women *continued*

After four months, about three in four study participants who received naltrexone (ReVia, Vivitrol) or behavioral therapy plus medical management were either abstinent or drinking moderately. By the end of one year, overall rates of abstinence among these study participants were still significantly better than at the start of the study. (Acamprosate [Campral], another drug tested, proved no better than placebo.) Overall, men and women responded equally well to treatment.

A comprehensive review of the literature concluded that, although women with alcohol problems were less likely to enter treatment, once they began treatment they were just as likely as men to recover. Both this review and another concluded that programs that provided perinatal care, child care, and other family services would better enable women to enter treatment.

Women-only treatment programs are generally no more effective than mixed-gender programs for alcohol dependence. However, some subgroups of women—such as those with a history of trauma or abuse, or who have other psychiatric disorders—are more likely to recover in gender-specific treatment programs that address these factors.

Nicotine

Nearly 71 million Americans ages 12 and older—about 35% of men and 23% of women—said they smoked tobacco (most often cigarettes) in 2008.

Female smokers face more health risks than male smokers; they may be more likely to develop lung cancer, for example, and are twice as likely to have a heart attack. But the research suggests that women find it more difficult than men to quit smoking, and are more likely to start smoking again even if they do quit.

The reasons for this are not clear, although studies have found that female smokers are more responsive to environmental cues and triggers (such as wanting to light up a cigarette when drinking

alcohol), while male smokers are more responsive to the biological effects of nicotine. This suggests—and preliminary research confirms—that nicotine replacement therapy may not work as well in women as it does in men.

A meta-analysis of 14 placebo-controlled studies concluded that although both women and men were more likely to quit smoking while using a nicotine patch, women were less likely than men to do so. About 20% of men quit for six months using the patch, compared with nearly 15% of women; with a placebo patch, roughly 10% of both sexes quit.

Other stop-smoking medications, such as bupropion (Zyban) and varenicline (Chantix), do not rely on nicotine replacement. Varenicline interacts with nicotine receptors in the brain to reduce craving while also blocking the pleasurable effects of nicotine. Bupropion is an antidepressant that helps reduce the desire to smoke, although it's not yet clear how it works in the brain to reduce craving. The limited research available suggests that these medications might be equally effective for both sexes, at least in the short term.

Counseling used in conjunction with medication boosts the chance of quitting for both men and women. Given that women are more responsive than men to environmental cues that may trigger a relapse, it makes intuitive sense that using cognitive behavioral therapy to help them resist such cues would help. Unfortunately, this has not been studied in the research setting, so it's impossible to say for sure.

About half of female smokers say they are afraid they will gain weight if they stop smoking. Although the usual advice is to exercise or count calories while kicking the habit, this may be impractical and only ensure that the effort to stop smoking will fail. A preliminary study suggests that it may be more productive to help women learn to accept any weight gain as a reasonable trade-off for the improved health that comes from smoking cessation.

Addiction, dependence, or abuse?

Terminology matters. Addiction specialists use the following words in specific ways.

Addiction. The term does not appear in the *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (DSM-IV), but incorporates elements of both substance abuse and dependence. Addiction involves craving for a particular substance, inability to control its use, and continued use despite negative consequences.

Dependence. According to the *DSM-IV*, people who are dependent on a substance exhibit at least three of the following symptoms or behaviors over a period of time, typically for a year or longer: greater tolerance for the substance, withdrawal symptoms, ongoing desire to quit using, loss of control over use, preoccupation with the substance, less focus on other meaningful activities or commitments, and continuing use in spite of negative consequences.

Abuse. The *DSM-IV* uses this term to describe people who use a substance excessively on a regular basis, in spite of incurring legal problems, endangering themselves, jeopardizing relationships, or falling through on major responsibilities. But they do not yet show signs of dependence—such as a psychological compulsion or physical need to use the substance.

Finally, studies find that kicking the habit is especially tough for women during the menstrual cycle's luteal phase (which begins mid-cycle, just after ovulation). Preliminary research suggests that women who time their quit date to occur during the follicular phase (which begins after menstruation and ends at ovulation) are more likely to abstain from cigarettes for a longer period than women who quit during the luteal phase.

One theory is that the increase of estrogen levels during the follicular phase decreases anxiety and improves mood, helping a woman cope better with the challenges of smoking cessation.

Stimulants, opioids, and marijuana

The evidence is mixed about gender differences in addiction to illicit drugs or prescription medicines.

Stimulants. Men and women are about equally likely to use and abuse stimulants such as cocaine and methamphetamine. But gender differences do exist. For example, women report first using cocaine at younger ages than men. Preliminary evidence in people and in animals also suggests that women more quickly develop

dependence on stimulants, and are more prone to relapse after quitting the habit.

As with nicotine, hormonal fluctuations may increase cocaine cravings during certain times of the menstrual cycle. Preliminary evidence also suggests that women may experience more intense craving than men do when exposed to cues that remind them of cocaine.

Opioids. Women are more likely than men to receive prescriptions for opioids, perhaps because they are more likely to suffer from chronic pain conditions such as fibromyalgia. Women are more likely than men to visit emergency rooms because they abused opioids, suggesting (although not proving) that they suffer more medical consequences.

While medications are available to treat opioid dependence, few studies have examined gender differences in treatment response.

Marijuana. Men are nearly three times as likely as women to report smoking marijuana on a daily basis. Although preliminary research suggests that women might suffer more adverse medical effects, and progress more quickly to dependence, the only

consensus so far is that more research is needed about gender differences in marijuana use.

Implications for treatment

Over 20 years, a growing body of evidence reveals that women who are addicted to substances often face challenges that men do not. A better appreciation of the gender differences should help women avoid the pitfalls of substance use and help clinicians help women with addiction achieve sobriety. ♥

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For more references, please see www.health.harvard.edu/mentalextra.