The link between substance use and sexual risk is complex. Research suggests that underlying factors such as personality, socioeconomic conditions, and the environments in which people socialize all mediate what may seem to be a straightforward relationship among substance use, sexual behavior, and HIV-related risk. This issue of PERSPECTIVES highlights the importance of client-centered counseling to help clients understand the role of substance use in their lives and to motivate them towards harm reduction.

Research Update

Substance use has long been associated with HIV transmission and HIV-related risk behavior, in particular, the sharing of injection drug equipment. But substance use has also been associated with the other primary means of HIV transmission: sex. In certain populations, for example, men who have sex with men and heterosexuals being treated for sexually transmitted diseases, substance use is linked to a higher likelihood of HIV transmission.

Many studies have found or suggested a link between substance use and unprotected sex, particularly when sex occurs under the influence, while others have not found such a relationship. For instance, among adolescents, substance use is associated with more sexual intercourse, multiple sexual partners, less condom use, and more sex with casual acquaintances.

Yet these statistical correlations do not fully explain the complex relationship between substance use and sexual behaviors that may lead to seroconversion, nor do they prove that substance use causes these sexual risks. Researchers have suggested different explanations for this relationship. Norman Zinberg created a model to express the diversity of experience people have with substances: “drug, set and setting.” Research and intervention often focus solely on the direct impact of the “drug” (its chemistry, amount, purity, and route and frequency of administration). But other factors influence the substance use experience, including “set” (the user’s motivations, expectations, personality, personal history, and physiology) and “setting” (physical environment, whether others are present, societal mores and peer attitudes toward using, and laws governing drugs).

From the overlap of all these areas emerges the truest sense of the relationship between drug use and sexual risk. This issue of PERSPECTIVES translates “drug, set, and setting” roughly into physiology, psychology, and context and uses this framework to review the research on substance use and sexual risk.

Methodological Challenges

Before reviewing the research from these three areas, it is important to note the methodological challenges to studying this question. First, it is difficult to design controlled experiments that examine the impact of substance use on sexual behavior in the “natural” setting in which sex normally occurs.

Second, research often does not clearly define “chronology,” that is, whether people are using substances at the same time they are having sex and whether drug use is before, during, or after sexual activity. One type of study, known as “event analysis,” overcomes this shortcoming; it examines a specific sexual encounter—for instance, “first sexual experience” or “most recent sexual encounter”—for factors such as substance use and HIV-related sexual risk. While event
analysis can uncover the chronological relationship between substance use and sexual activity in a particular instance, it is often not employed by researchers.

Third, studies are inconsistent in their definition of “risky sexual behavior.” Some types of sex—unprotected anal or vaginal intercourse with partners of different or unknown HIV status—are clearly more likely to lead to HIV transmission. However, studies often define risk behavior in a variety of ways that may be less related to transmission, for example, having multiple sexual partners, exchanging drugs for sex—whether or not protected—having sex under the influence of substances, or having sex with “risky” partners. Researchers also often fail to note whether partners have determined that they are of the same serostatus, which would lessen the risk of HIV transmission.

Fourth, much of the most methodologically robust research focuses on men who have sex with men, potentially limiting the generalizability of findings. Finally, and most significantly, it is almost impossible for researchers to determine whether substance use is causing sexual risk, whether sexual risk is causing substance use, whether the two factors are caused by other factors, or whether the two are independent.

It is tempting to make assumptions about how substance use and sexual risk relate, but for counselors, it is important not to draw conclusions based on general findings. The research is most valuable—despite its methodological problems—in informing counselors about the range of ways in which substance use and sexual behavior might relate. The actual impact is likely to be dependent on the specific meanings and functions of substance use and sexual behavior in the life of an individual client.

**Physiological Effects of Substances**

Different drugs have different physiological effects on sexual behavior and the ability to practice safer sex. For example, methamphetamine can enhance stimulation and stamina while reducing pain sensitivity, enabling users to tolerate longer and rougher sex and increasing the risk of membrane tears and HIV transmission. Some drugs induce loss of consciousness. A key factor in determining the biological effects of a substance is the variety of human physiology: different people react differently to the same substance.

The frequency of use—whether it is limited, occasional, or chronic—and the amount of use also influence an individual’s physical response, undermining or enhancing aphrodisiac effects. For example, in large amounts, alcohol may impair arousal or the ability to ejaculate. Similarly, among heavy users, cocaine can lead to difficulty maintaining an erection and ejaculating, or to premature ejaculation.

Among the substances whose physiological effects may influence sexual behavior are cocaine, heroin, methamphetamine, and the “club drugs.” Although the rock form of cocaine, known as “crack,” has been associated with heightened sexual activity, studies have found the opposite to be true. One study of women found that crack use was associated with diminished sexual pleasure. Another study of both male and female users found that crack lessened both desire and ability to orgasm. In his review of the literature, Michael Ross found that crack may initially provoke sexual craving, but ultimately may lead to impaired sexual performance. The association between crack and sex may be due less to the sexually arousing qualities of crack (Zinberg’s “drug”) and more to the exchange of sex for money or drugs (“set” and “setting”).

Long-term heroin use has also been associated with lowered libido and diminished sexual performance, although in small quantities and earlier in the course of use, it may enhance sexual desire and performance. There is little data suggesting that marijuana affects sexual drive or function, although users say it increases sexual pleasure.

Methamphetamine (speed, ice, crystal, shabu shabu), a drug chemically related to amphetamine, produces sexual craving without interfering with performance, at least at lower doses and early in the course of use. Both stimulants and inhalants increase arousal and delay ejaculation. Methamphetamine may lead to an inability to get an erection. Combined with the drug’s aphrodisiac quality and increased anal sensation, this may lead to receptive anal sex among men who have sex with men—whether they identify as gay, bisexual, or heterosexual—and to the use of Viagra. Finally, methamphetamine may cause disinhibition and make users impervious to pain.

“Club drugs,” made popular in the past 10 years, are used primarily in dance or party settings and have complicated relationships with sexual function. They include methenylethynylethoxyamphetamine (MDMA, Ecstasy, X), nitrite inhalants (poppers), gamma hydroxybutyrate (GHB), and ketamine (special K, K). In a study of 35 recreational users, Ecstasy increased sexual desire in most subjects; in smaller numbers of subjects, it also delayed but intensified orgasm or impaired erection. Ecstasy is often diluted with methamphetamine, and this may account for some of the sexual effects.
Poppers, associated with sex among men who have sex with men, can increase the firmness and duration of erection and the risk for tears in the rectal mucosa. GHB is a sedative, which at lower doses may have a euphoric, relaxing effect. At just slightly higher doses, GHB can cause unconsciousness and amnesia, leading to its reputation as a “date rape drug.” Ketamine is a general anesthetic that produces a dreamy feeling at low doses and hallucination and immobility at higher doses. It is sometimes used to enhance the pleasure of anal sex.

Besides these physical effects, some researchers are studying potential links between substance use itself and immunosuppression, which may increase the likelihood of seroconversion if there is exposure to HIV during sexual activity.

**Psychological and Personality Factors**

An individual’s personality and psychology may interact with the effects of substances to create powerful influences on sexual behavior. Some researchers suggest that people engage in riskier sexual activity while using substances because mind-altering substances can diminish or compromise the quality of their decision making. Further, substance use may cause “cognitive disinhibition”—the reduction of discomfort with certain behaviors and feelings—enabling people to engage in otherwise uncomfortable or taboo behaviors. For example, a man who has sex with men but who has not accepted this aspect of his sexuality may use substances to facilitate sex or, after the fact, to justify it as being beyond his control. Some people may use substances so that they can avoid the burden of negotiating condom use, carrying condoms, or using condoms correctly.

In a particularly good example of “drug” combining with “set”—physiology interacting with psychology to create risk—substance use may decrease “anxiety and self-observation, which might otherwise inhibit pleasurable sexual experiences” resulting in a diminished awareness of the consequences of behaviors that may lead to HIV transmission. Many substances may have these effects, including stimulants such as cocaine and methamphetamine, and opiates such as heroin. Some can increase energy, intensify emotions, and heighten self-esteem.

Researchers have studied personality variables that may underlie both drug-taking and sexual risk-taking behavior. For example, a “sensation-seeking” personality is characterized by the tendency to seek novel, varied, complex, and intense experiences, and the willingness to take risks for these experiences. Sensation seekers are more likely than others to have used drugs, to have begun using drugs earlier in life, and to have used greater amounts of drugs. Studies have also found that compared with others, sensation seekers have more open attitudes about sex, greater likelihood of having unprotected sex, and lifetime histories of greater numbers of sex partners.

Some studies suggest that not only does sensation seeking affect the relationship between substance use and sexual behavior, it may be a stronger predictor than substance use of unsafe sex. One study found that sexual sensation seeking predicted both substance use and unprotected anal sex, but that substance use did not directly affect the frequency of unprotected anal sex. Another found that sensation seeking predicted—but subst-

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**Schedule Change**

To sustain PERSPECTIVES over time in an era of rising costs, beginning with this issue PERSPECTIVES will be published four times a year. The next issue will come out in October 2003. If you have any questions, please contact Jennifer Jones: jejones@itsa.ucsf.edu or 415-502-4930.

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**Contextual Variables**

The physical, social, and cultural context in which substance use and sexual behavior take place influences physiological and psychological factors. Among these contextual vari-
able are the social networks a person belongs to, cultural influences, and legal and economic factors.

Sexual and drug-using networks—groups comprised of people connected through sexual or substance-using activity—may increase the likelihood of exposure to HIV. When there is a high level of HIV infection in a network, there is a much greater risk of contracting it, even if a similar behavior might not result in infection in a population with a lower rate of infection. A network’s social norms may further influence individual substance use and sexual behaviors through processes such as social comparison, group disapproval, and the socialization of new members.24

The relationship between substance use and sexual behavior may also shift depending on other environmental influences, for example, whether substance use occurs at a bar or a club versus at home, with acquaintances versus close friends, or with primary versus casual or anonymous partners.25 A vivid example of this is the highly sexualized “party” scene, in particular the “circuit parties” frequented by some men who have sex with men.

Circuit parties are multiday events in which gay and bisexual men gather for music, dancing, and entertainment. Both sexual activity and substance use are prevalent.11,26 A large study of circuit party attendees in three U.S. cities found that frequent use of Ecstasy, ketamine, and poppers (but not occasional use) was associated with unprotected sex at circuit parties.11 Certain motivations for attending parties, including to “look and feel good,” “have sex,” and “be uninhibited and wild” were associated with anal sex over the prior year. Of those using seven or eight drugs, 26 percent reported unprotected sex, compared with 10 percent of those using one drug.

These data suggest two things. Even in this highly sexualized, substance-intensive setting, many people who use drugs do not engage in unprotected sex. At the same time, circuit parties represent a good example of how “set” and “setting” can result in behaviors most likely to lead to HIV transmission: at the parties, substance use interacts with personal motivation—such as to be uninhibited and wild—in the context of a place where drug use and sexual activity are celebrated.

Finally, economic factors often shape sexual transactions. According to one study, crack users who exchanged sex for drugs or money differed significantly from crack users who did not: they had more sexual partners, more sex, more use of drugs with sex, and higher rates of sexually transmitted diseases.27 Substance users seeking to trade sex for money or drugs may find condom negotiation difficult because partners may pay less for protected sex or refuse to provide drugs under these circumstances. Another study found that while middle-income men who have sex with men used substances to enhance sexual pleasure, for low-income men, sexual behavior and drugs were linked as currency and commodity in the local economy.15

Gender dynamics—often related to socioeconomic status—also play a role. One study found that a woman’s substance use was less important in determining condom use than whether or not her male partner had used drugs or alcohol within two hours of sex.28

Harm Reduction

Because the relationship between substance use, sex, and HIV varies from person to person, interventions must be appropriate to the circumstances of individual clients. Over the past decade, “harm reduction” has become a key strategy for HIV-related substance use interventions.29

Among the key principles of harm reduction are the tenets that active drug users have the right to sensitive treatment, that they can and do participate in their own treatment, and that their success is related to both their own self-efficacy6 and a provider’s belief in that self-efficacy. Since behavior change occurs over time, any small step in reducing substance-related harm—including HIV risk—is a positive change.

This model fits well with the “stages of change” theory that is the basis for much HIV prevention counseling.31 For example, in the context of harm reduction, a client who becomes slightly more comfortable in negotiating sexual behavior (Action Stage), or even moves toward recognizing the ways in which sexual negotiation can be helpful to him or her (Contemplation Stage), is considered to have taken a significant step.

Harm reduction is often seen as an alternative to abstinence-based interventions, in which clients completely eliminate substance use. It is more useful, however, to think of abstinence as one option on the harm reduction spectrum. Some clients may choose abstinence as a goal; others may make other choices—for example, reducing the frequency with which they have sex while intoxicated—that reduce harm without eliminating substance use.

Harm reduction is client-centered, that is, designed to reflect client interests, abilities, and goals.6 Counseling that focuses on personal perceptions of risk—encouraging clients to identify goal behaviors and working with clients to develop a personalized action plan—can assist clients in reducing sexual HIV-risk related to substance use.31

Conclusion

The extent to which substance use leads to sexual behaviors that risk HIV transmission is related to the complex interaction among physiological, psychological, and contextual factors. This insight affirms the importance of client-centered counseling; only by understanding the effect of substance use on an individual can a counselor motivate a client towards HIV risk reduction.
Implications for Counseling

Although the relationship between substance use and sexual behavior is more complicated than what is implied by the conclusion that “drugs lead to HIV,” there is reason to believe that substance use combined with other factors can increase HIV risk. It is, therefore, important for HIV test counselors to consider the role that substance use plays in clients’ lives.

Fostering a Neutral Stance

It is critical, particularly when working with substance-using clients, to create and maintain a non-judgmental atmosphere. Clients who have disclosed substance use in the past often come to counseling having experienced negative reactions, including being stigmatized or having their concerns ignored by service providers. As a result, clients may feel shameful, defensive, or fearful when discussing substance use.

To avoid damaging the counseling relationship, counselors should seek to become conscious of their own feelings and attitudes about substance use. In addition, counselors should seek to avoid the temptation to make assumptions about the nature of the relationship between substance use and sexual behavior for a particular client. Certain circumstances—for example, being in recovery, having a loved one with addiction issues, or hearing about the harm a client is experiencing from using substances—can make it difficult for a counselor to stay neutral. Supervision, consultation with peers, and professional training can support counselors in maintaining appropriate boundaries and remaining client-centered.

Since many people use substances, it is wise for counselors to assess all clients for substance use and the ways in which use may increase the risk of HIV transmission. One way to begin this assessment is to ask open-ended questions, such as: “How do you meet your sex partners?” (noting whether they mention bars, raves, circuit parties, or other contexts in which substance use is prevalent); “In what ways, if any, does doing drugs enhance or diminish your sexual experience?”; “How do you feel substance use affects your ability to engage in protected sex?”; and “How do substances affect sex for you?” Ask clients which substances they use, remembering that many use more than one substance, including alcohol. Also ask the ways in which clients take particular substances, how often they use them, and how much they use. During this exploration, be especially careful to communicate that there are no right or wrong answers: the client’s situation plus the extent of his or her desire to change behavior, and not the counselor’s beliefs about substance use, will determine the direction of the session.

Two concepts can help counselors sustain a neutral stance. “Any positive change” acknowledges that any step a client is willing and able to make—no matter how seemingly small or unrelated to HIV—builds support for future HIV-related behavior change and harm reduction. This perspective honors a client’s innate ability to achieve personally meaningful and realistic behavior change. “Unconditional positive regard” recognizes that clients, regardless of how they use substances, exhibit strength, resilience, and motivation. This perspective can become the basis for exploring HIV-related risk and behavior change.

Assessing Risk and Supporting Change

As is true for client-centered counseling, harm reduction relies on a drug user’s sense of self-efficacy, thereby involving clients in determining the course of their own treatment. Family nurse practitioner Linda Creegan recommends that after taking a sexual history, counselors ask what behaviors clients believe put them most at risk for HIV. This will help clarify from the client perspective the connection between substance use, sexual risk, and HIV. For example, a client might respond, “I’m most at risk when I get high and then go to the bathhouse.”

Next, counselors might ask clients what they would like to do differently to reduce this risk. This approach allows clients to come up with individualized solutions: “I won’t get high before I go to the bathhouse,” “I’ll go with my buddy who watches my back,” “I won’t go on Saturday nights when things get really crazy.” Then, counselors ask clients about the last time they had sex in a way that successfully reduced their risk of HIV transmission, what strategies they think they could employ from that experience, and what factors impede or support this new behavior. Finally, counselors ask clients how they might put this plan into action: “How will you go about that?” “What’s one thing you could do to begin?” “When’s a good time to try this?” “Who can you talk to about this for support?” This approach allows a client to identify his or her own place along the stages of change spectrum and an intervention appropriate to that stage. It also recognizes and encourages that clients can do their own risk analysis and select risk reduction strategies.

A Counselor’s Perspective

“I find it helpful to explore any one of the three areas—drug, set, or setting—that seems most present in a client’s story, to use that area as the focus for risk reduction.”
Other types of questions may also support client self-efficacy, particularly those that focus on the connections between sex, drugs, and risk. Does the client make the decision to use substances first and then have sex, or is it the other way around? How does the client use substances to enhance the sexual experience? Are there times when sex is as enjoyable without substance use; if so, when? What proportion of the time does the client use before or during sex? In what ways do the client’s friends combine substances with sex?

Substances can enable people to engage in behaviors that they desire on some level, but about which they feel conflicted. Does a client believe that substance use leads to or justifies risk behavior? The challenge for counselors is to help such clients figure out how to meet their sexual needs and their goals for harm reduction. Help clients recognize that they have the capacity to protect their health even when they use or drink. For example, a counselor might observe, “I’m hearing you say you enjoy getting a little high, heading to the baths, and getting laid. It also sounds like you’ve been worried about HIV.” This observation meets a client who is at the Contemplation Stage where he is and identifies a contradiction for him to consider.

Since any sexual encounter that may lead to HIV transmission involves more than one person, ask clients not only if they use substances prior to or during sex, but also whether their partners do. Does substance use by the client or the partner make safer sex seem less important or harder to negotiate?

**Harm Reduction**

Be prepared to refer clients for other services, including drug treatment, psychotherapy, and needle exchange and other harm reduction programs. Alcoholism: Clinical and Experimental Research. 2000; 24(7): 1026–1035.


References


21. Justus A, Finn P, Steinmetz J. The influence of traits of disinhibition on the association between alcohol use and risky sexual behavior.
Case Study

Mitch, a 33-year-old man, has been married to his wife for 10 years. He identifies as heterosexual but acknowledges having had four male partners in the past year and having “been attracted to guys” for a long time. He never thought he “could do something about it” until he “found himself partying”—using crystal, X, and poppers—at a gay bar a year ago. “The year has been a big change, really wild,” but now he feels depressed and scared. He has put off testing. No one knows he is testing today.

Affirm Mitch’s decision to be tested, and acknowledge that this may have been very difficult for him. Ask what made him decide to finally test now. Explore whether or not he has any friends with whom he can talk about sex with men, “partying,” or HIV.

Briefly discuss what is making Mitch feel “depressed, guilty, and scared.” HIV? Being sexual with men? His wife finding out? Depending on his response, explore his most prominent concerns and how they relate to testing. For example, normalize Mitch’s experience by noting that many men who identify as heterosexual have male partners. Briefly explore any feelings of isolation Mitch may feel and his experience of being sexual with men after waiting so long.

Ask Mitch what he knows about how people get HIV. Affirm correct information and correct any misperceptions. Ask him what kinds of sex he has with male partners and with his wife, if and when he uses condoms, and how this has worked for him. Ask Mitch if he has been screened for any other sexually transmitted diseases; if so, has he found that he had any?

Explore the connection between Mitch’s substance use and his being sexual with men. In what contexts—including sexual ones—does he use drugs? Conversely, what is it like for him when he has sex while not under the influence; what does he think it might be like? Where does Mitch meet his partners? In what ways does using substances influence whether he or his partners use condoms or their sexual behaviors? Ask Mitch to describe the frequency, kind, and amount of substances he uses before or during sex. Does the route of administration pose an HIV risk: for example, does he inject drugs?

Finally, ask Mitch what his wife knows about his sexual activities or substance use and what he would like her to know. Ask whether she has ever been tested for HIV. Ask what kind of support you can offer Mitch if he would like to talk to his wife.

What behaviors does Mitch feel put him most at risk for HIV and what would he like to do differently? Ask him about any barriers to these changes and sources of support for them. Support attempts he has made in the past to decrease his or his partners’ risk, and affirm that he can continue to be sexually active and lower his risk and his partners’ risk for HIV. Help Mitch explore different options for reducing risk.

Mitch would be well served with support outside the counseling session. Offer Mitch referrals to a mental health provider, substance abuse treatment or harm reduction programs, and support groups for men who have sex with men. Help him identify any natural supports for reducing isolation or risk.

services. Be aware that some clients use in order to self-medicate depressive, anxiety, or post-traumatic stress disorders. Also be prepared to make referrals, independent of HIV risk, for example, for potential substance-related effects such as dehydration, heatstroke, psychosis, and medical conditions.14

Even for clients who accept referrals for drug and alcohol treatment or mental health treatment, be prepared to present options for a range of other harm reduction interventions.14 Encourage clients to be screened and treated for other STDs. Particularly in the case of clients who use methamphetamine, which can result in longer, rougher sexual encounters, encourage clients to use an appropriate water-based lubricant. Discuss the option of ejaculation outside the body; barrier use, including “male condoms”, “female condoms”, and dental dams; and other types of sex (such as oral sex) and positions (such as anal-insertive for HIV-negative clients engaging in anal sex) that are less likely to lead to HIV transmission. For clients who have oral sex, discuss oral hygiene, including avoiding brushing or flossing before sex, having cavities filled and gum disease treated, and maintaining the health of the lips.

The complicated relationship between substance use, sexual risk, and HIV remains one of the most important and challenging issues for HIV prevention providers. By facilitating an open discussion about the client’s experience of substance use and sexual risk, counselors can help clients make links—as Zinberg suggests—between substances (drug), personal factors (set), and context (setting) that place them at greatest risk. Through this process, clients can develop a plan that addresses individual risk factors and needs and lowers their risk of contracting or transmitting HIV.
**Test Yourself**

**Review Questions**

1. “Drug, set, and setting” refers to: a) the factors a substance user takes into account when trying to buy drugs; b) the key factors related to an HIV prevention plan; c) the ways physiological, psychological, and contextual factors interact to influence sexual risk; d) the factors necessary to make a case against illegal drug use.

2. True or false: In general, substance use enhances both sexual desire and performance.

3. “Sensation seekers” are people who: a) have more developed senses, including taste and smell; b) have the ability to focus their senses; c) tend to seek novel, varied, complex, and intense experiences; d) tend to have extra sensory perception.

4. True or false: Research suggests that beliefs about a substance’s effects on sexual behavior may cause people to engage in behaviors that may lead to HIV transmission.

5. Circuit parties are a good example of how physiology, psychology, and context interact to lead to higher rates of sexual risk because: a) people attend with the motivation and expectation to have sex and use substances; b) many substances are easily available; c) attendees who use more substances are much more likely to engage in behaviors that may lead to HIV transmission; d) all of the above.

6. True or false: Harm reduction and abstinence are two competing models of substance use treatment.

7. Among the key principles of harm reduction are: a) active drug users have the right to sensitive treatment; b) users can and do participate in their own treatment; c) success is related to both a user’s self-efficacy and a provider’s belief in the user’s self-efficacy; d) all of the above.

**Discussion Questions**

1. Why is it difficult to determine if substance use increases a client’s risk-taking behaviors?

2. How can the setting in which clients socialize and the sexual and drug-using networks to which they belong impact HIV risk?

3. What are some useful questions for a counselor to ask when assessing the role of substances in a client’s HIV risk?

4. How can HIV counselors stay neutral when discussing substance use with their clients?

5. What are some specific harm reduction recommendations that could be offered to clients who use substances prior to or during sex?

6. How does “drug, set, and setting” explain the experience a person has while under the influence of a substance?

**Answers to Test Yourself**

1. c.

2. False: Different substances have different effects on desire and performance, and these effects may be further influenced by the purity of the substance used, by the way a person uses, and by many other physiological, psychological, and contextual factors.

3. c.

4. True.

5. d.

6. False: Abstinence-based substance abuse treatment is one point on the spectrum of approaches to harm reduction, which includes a range of options such as cleaning or exchanging injection equipment, reducing amount or frequency of use, or avoiding activities that may be more likely to lead to risk while using.

7. d.
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