



SUBSTANCE ABUSE AND SEXUAL ASSAULT

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ABOUT THE INSTRUCTOR

Dr. Robert A. Shearer is a retired professor of Criminal Justice, Sam Houston State University. He received his Ph.D. in Counseling and Psychology from Texas A & M University, Commerce. Prior to teaching Criminal Justice, he taught Educational Psychology at Mississippi State University on campus and in the extension program across rural Mississippi during the civil rights era.

He has been teaching, training, consulting and conducting research in the fields of Criminal Justice, human behavior, and addictions for over thirty-six years. He is the author of over sixty professional and refereed articles in Criminal Justice and behavior. He is also the author of *Interviewing: Theories, techniques, and practices*, 5th edition published by Prentice Hall. Dr. Shearer has also created over a dozen measurement, research, and assessment instruments in Criminal Justice and addictions.

He has been a psychotherapist in private practice and served as a consultant to dozens of local, state, and national agencies. His interests continue to be substance abuse program assessment and evaluation. He has taught courses in interviewing, human behavior, substance abuse counseling, drugs-crime-social policy, assessment and treatment planning, and educational psychology. He has also taught several university level psychology courses in the Texas Department of Criminal Justice Institutional Division, led group therapy in prison, trained group therapists, and served as an expert witness in various courts of law.

He has been the president of the International Association of Addictions and Offender Counseling and the editor of the *Journal of Addictions and Offender Counseling* as well as a member of many Criminal Justice, criminology, and counseling professional organizations prior to retirement.

Substance Abuse and Sexual Assault: Updated Evidence on Drug-Facilitated Assault, PTSD-SUD Comorbidity, and Treatment

The framework this course provides for understanding the relationship between substance abuse and sexual assault, covering typologies, the role of alcohol, the PTSD and substance abuse cycle, drug-facilitated sexual assault, and treatment implications, has been substantiated and extended by recent research. Studies published since this course was written have documented the characteristics of drug-facilitated sexual assault with forensic precision, quantified the role of alcohol in university sexual violence at population scale, identified specific psychological mechanisms linking sexual assault to hazardous substance use, examined treatment preferences among survivors with co-occurring PTSD and substance use disorders, and documented the stigma experiences that prevent sexual assault survivors who use substances from accessing care.

The drug-facilitated sexual assault dimension this course addresses, which focuses primarily on GHB, Rohypnol, and ketamine as the principal substances of concern, was updated by a 2026 observational study at a Danish sexual assault center that examined 643 female victims between 2021 and 2023. The analysis found that ethanol, cocaine, and THC were the most frequently detected substances in DFSA cases, not the classic "date-rape drugs" this course emphasizes. DFSA victims were typically younger than non-DFSA victims, and attacks occurred more frequently on weekends and at night, often by perpetrators met that same day. Injuries were more commonly documented when forensic examinations occurred within 24 hours of the assault (Rasmussen et al., 2026). For substance abuse counselors using this course's DFSA framework, the Rasmussen et al. finding shifts the clinical picture: the most common drug-facilitated sexual assault does not involve a surreptitiously administered exotic substance. It involves alcohol, often consumed voluntarily before the assault becomes non-consensual, supplemented in some cases by cocaine or cannabis. Screening for sexual assault history in substance abuse treatment should not focus exclusively on clients who report being "drugged" but should include all clients whose substance use has placed them in situations of sexual vulnerability.

The relationship between alcohol and sexual violence, which this course covers as a contributing factor, was documented at population scale in a 2026 multicenter cross-sectional study of 2,803 university students across six institutions in Catalonia, Spain. Seventy-nine percent of respondents had experienced some form of sexual violence, with strong associations between sexual violence experiences and alcohol consumption. The researchers concluded that "alcohol facilitates rather than causes sexual violence" (Berenguer-Simon et al., 2026). For the substance abuse-sexual assault framework this course presents, the Berenguer-Simon et al. finding clarifies the causal relationship: alcohol does not cause sexual assault. Perpetrators cause sexual assault. But alcohol creates conditions that reduce victims' capacity to resist and increases perpetrators' disinhibition. This distinction matters for substance abuse counselors because it shapes how the topic is discussed with clients: attributing assault to alcohol consumption risks blaming the victim, while acknowledging alcohol's facilitative role helps clients understand their vulnerability without accepting responsibility for another person's criminal behavior.

The psychological mechanisms linking sexual assault history to sustained hazardous substance use were examined in a 2025 study of 133 sexual assault survivors with probable PTSD who engaged in hazardous drinking. The analysis found that anxiety sensitivity, the tendency to fear anxiety-related bodily sensations, was associated with severe mental health problems, while pain-related anxiety

correlated with alcohol consumption patterns. The authors concluded that "specific transdiagnostic constructs may be important to understanding mental health and alcohol use processes" among sexual assault survivors (Pathak et al., 2025). For the PTSD-substance abuse cycle this course describes, the Pathak et al. findings identify specific therapeutic targets: survivors who drink to manage anxiety about their own physical sensations such as hyperarousal, racing heart, and muscle tension may benefit from interoceptive exposure interventions that reduce the fear of these sensations rather than from standard relapse prevention approaches that focus on external triggers.

The treatment preferences of individuals with co-occurring PTSD and substance use disorders, directly relevant to this course's discussion of treatment implications, were examined in a 2026 study of 426 veterans. Nearly half preferred trauma-focused treatment approaches for their PTSD rather than non-trauma-focused alternatives. Higher baseline PTSD severity and non-white ethnicity predicted preference for trauma-focused treatment. Notably, a history of childhood sexual assault predicted lower expectations for non-trauma-focused treatment, suggesting that survivors of sexual trauma may specifically seek out and respond to interventions that directly address their traumatic experiences rather than approaches that focus exclusively on symptom management (Alpert et al., 2026). For the treatment implications this course discusses, the finding challenges programs that defer trauma processing until substance use is stabilized. Survivors with sexual assault histories may be most engaged by integrated approaches that address trauma and substance use simultaneously.

The stigma dimension of the substance abuse-sexual assault intersection, which this course does not explicitly address, was documented in a 2026 qualitative study of 17 adults who use opioids and have experienced sexual violence. Researchers identified five themes: pervasive judgment and rejection from family and friends, stigmatizing experiences within healthcare systems, internalized shame, structural marginalization, and resistance strategies. The authors concluded that addressing opioid stigma in this population requires integrated harm reduction, trauma-informed approaches, and systemic reform (Bhuptani et al., 2026). For substance abuse counselors working with sexual assault survivors, the Bhuptani et al. finding documents a double stigma: these clients carry the shame of both substance use and sexual victimization, and the healthcare system's response to either identity can reinforce the other. Counselors who address substance use without acknowledging sexual assault history, or who screen for trauma without recognizing how substance use stigma prevents disclosure, are working with an incomplete clinical picture.

Alcohol, Incapacitation, and the Question of Consent

The relationship between alcohol and sexual assault is not only about intoxication as a risk factor. It also raises a legal question that counselors should understand, because their clients live inside it. Teravskis, Grossman-Kahn, and Gulrajani (2022) reviewed criminal sexual conduct statutes across all fifty states and the District of Columbia and found a troubling pattern. Nearly half of the jurisdictions surveyed require that a victim be involuntarily intoxicated to be considered legally incapacitated. In practice, this means that a person who chose to drink, and was then assaulted while incapacitated, may fall outside the legal definition of an incapacitated victim in many states. This voluntary intoxication caveat places a legal obstacle in front of exactly the survivors counselors most often encounter, those whose assault involved their own drinking. The clinical importance is twofold. First, it helps explain why many clients believe, wrongly, that what happened to them does not count because they had been drinking. Second, it underscores that the counselor's message to a client, that responsibility for an assault

lies with the person who chose to commit it, may run directly against what the client absorbed from the legal system and the surrounding culture.

Alcohol and Sexual Assault on Campus

Young adults in college settings face a particularly concentrated version of this risk. Gilmore and colleagues (2023) surveyed 3,243 college students between the ages of 18 and 25 at two minority-serving universities and found that 47 percent reported a history of sexual assault since the age of 14. Alcohol use tracked closely with assault severity. Each additional drink per week was associated with greater severity of sexual assault, and the strength of that association was significantly larger for cisgender women, for gender-minority students, and for Black students than for other groups. The finding does not imply that drinking causes victimization or that responsibility shifts to the person who drank. It shows that alcohol operates as a risk environment, and that the risk is not distributed evenly. Students who already carry marginalized identities face a steeper version of it. For counselors working with college-age clients, the practical implication is that substance use and sexual victimization are frequently intertwined in this population, and that treatment which addresses drinking without asking about sexual trauma will miss a connection the data show is common.

Why Survivors Freeze: Tonic Immobility

One of the most damaging myths about sexual assault is that a real victim would fight back, and that the absence of physical resistance implies consent. The research on tonic immobility dismantles this myth directly. Möller, Söndergaard, and Helström (2017) studied 298 women who attended an emergency clinic after rape and found that 70 percent reported significant tonic immobility during the assault, while 48 percent reported extreme tonic immobility. Tonic immobility is an involuntary, reflexive state of paralysis, a freezing response generated by the nervous system under extreme threat, and it is not a choice the person can override. The consequences were measurable. Women who experienced tonic immobility were far more likely to develop PTSD at six months, with an odds ratio of 2.75, and severe depression, with an odds ratio of 3.42. For the counselor, this evidence is clinically essential. A client who did nothing during an assault was not consenting and was not weak. The client's body did what bodies frequently do under overwhelming threat. Naming tonic immobility, and explaining that it is common and involuntary, can relieve the shame and self-blame that keep many survivors from disclosing and from healing.

Substance Use as Coping: The Self-Medication Pathway

For many survivors, substance use begins or intensifies after an assault, as a way to manage what the trauma left behind. Ullman and colleagues (2013) studied 1,863 adult women who had experienced sexual assault and traced the pathway from trauma to problem substance use. They found that using substances to cope fully accounted for the relationship between PTSD and problem drug use, and partly accounted for the relationship between PTSD and problem drinking. It was not simply the presence of PTSD symptoms that drove problematic use, but the specific strategy of reaching for substances to

manage those symptoms. The study also found that the severity of interpersonal and childhood sexual trauma predicted coping-motivated substance use beyond what PTSD symptoms alone explained. The clinical lesson is that substance use in a survivor is often functional, an attempt to regulate unbearable internal states, rather than a separate problem to be treated in isolation. Treatment that removes the substance without offering another way to manage the underlying trauma leaves the client without the tool they had been relying on, which helps explain why trauma-blind substance treatment so often fails.

Trauma in the Treatment Room: The Case for Screening

Given how often sexual trauma and substance use travel together, the failure to screen for trauma in substance use treatment is a serious gap. Belfrage and colleagues (2023) studied 114 patients with polysubstance use disorder in a Norwegian cohort, drawn from the STAYER study, and found that childhood maltreatment, later-life traumatic experiences, and symptoms of concurrent PTSD were all highly prevalent in this treatment-seeking population. The researchers found no significant overall difference in trauma burden between people who were currently using substances and those who had recovered, which suggests that trauma histories do not simply resolve when the substance use stops. One gender pattern did emerge, in that among those who had recovered, men reported a lower prevalence of PTSD symptoms than women. While this study measured trauma broadly rather than sexual trauma specifically, it makes the screening case plainly. A substantial share of people in any substance use program carry significant trauma histories, and without routine screening those histories remain invisible to the very clinicians trying to help. The practical takeaway is that trauma screening should be a standard part of intake rather than a special step reserved for clients who volunteer a history. Many survivors will not disclose unless they are asked directly, safely, and more than once.

The Male Survivor

The framing of sexual assault as something that happens only to women leaves male survivors doubly isolated, first by the assault and then by a culture that struggles to recognize them. Moret, Choe, and Anderson (2023) studied 69 men who sought medical care within three months of a sexual assault and documented high rates of co-occurring substance use and distress. Sixty-five percent reported weekly binge drinking, 29 percent reported illicit drug use in the past month, and 10 percent reported daily polydrug use. Seventy percent met the clinical threshold for PTSD and 64 percent for depression. These numbers describe a population in acute need that rarely appears in the sexual assault literature and rarely presents openly in treatment. For the counselor, the lesson is to hold open the possibility of sexual victimization for male clients as well as female ones. A man presenting with heavy drinking and depression may be carrying an assault history he has never told anyone, in part because he assumed no one would believe that it happens to men.

Integrated Treatment for PTSD and Substance Use

The recognition that trauma and substance use are intertwined has produced treatment models designed to address both at once, rather than insisting that a client resolve one before the other. Sherman and colleagues (2023) conducted a meta-analysis of seven randomized controlled trials of Seeking Safety, a present-focused model for co-occurring PTSD and substance use, delivered across settings that included veterans' clinics, community outpatient programs, residential facilities, and correctional institutions. Seeking Safety produced a medium-sized reduction in PTSD symptoms at six months and meaningful reductions in substance use at three months, and abbreviated versions performed comparably to full-length ones on long-term outcomes. The authors noted that the model appears somewhat more effective at reducing PTSD than substance use. The value of this evidence is that it validates integrated, trauma-informed care as a legitimate and effective approach. A survivor with a substance use disorder does not have to choose which problem to treat first, and a program does not have to require sobriety before it is willing to address the trauma that is often driving the use.

Revictimization and the Cycle Over Time

The relationship between sexual assault and substance use is not a single event but often a cycle that unfolds across years. Bragard, Armeli, and Tennen (2026) followed a group of young adults from college into their thirties, with detailed drinking records at each stage, and examined how sexual victimization interacted with the normal developmental process by which most people reduce heavy drinking as they leave college. They found that a history of sexual victimization and revictimization was associated with continued heavy episodic drinking and with drinking specifically to cope, across the full span of the study. In effect, victimization appeared to interrupt the natural maturing out of problem drinking that most young adults experience. For the counselor, this longitudinal view reinforces a clinical reality seen one client at a time. Sexual trauma can lock a person into a pattern of coping-motivated substance use that would otherwise have faded, and each new victimization can deepen it. Breaking that cycle is part of what substance use treatment for survivors is really doing.

Bringing the Evidence Together

Read as a whole, the studies gathered here revise several assumptions that once shaped how counselors approached the overlap of substance use and sexual assault. The older picture treated drug-facilitated sexual assault as the work of exotic, surreptitiously administered substances, treated the absence of physical resistance as a puzzle, and treated substance use as a problem to be stabilized before trauma could be addressed. The current evidence points in a different direction on each of these points.

On the substances involved, the forensic data now show that alcohol, not the classic date-rape drugs, is the substance most often present when an assault is facilitated by intoxication (Rasmussen et al., 2026; Berenguer-Simon et al., 2026). This does not mean covert drugging never happens. It means that a counselor who screens only for the dramatic case will miss the ordinary one, in which a client drank voluntarily and was then assaulted while unable to consent. The legal system compounds this blind spot, because nearly half of states still require involuntary intoxication for a victim to be considered legally

incapacitated (Teravskis et al., 2022). A client who absorbed that standard may have concluded that what happened to her does not count.

On the question of resistance, the research on tonic immobility settles an old debate. Most women in one emergency sample experienced significant reflexive paralysis during their assault, and that paralysis predicted later PTSD and depression (Möller et al., 2017). Freezing is not consent and not weakness. It is a nervous system response the person cannot override, and naming it can lift a heavy weight of self-blame.

On the relationship between trauma and substance use, several studies converge on a single clinical insight. Substance use in a survivor is frequently a coping strategy rather than a separate disorder. Using substances to manage symptoms accounts for much of the link between PTSD and problem use (Ullman et al., 2013), victimization can interrupt the ordinary process by which young adults reduce heavy drinking as they age (Bragard et al., 2026), and the specific anxieties a survivor carries about her own bodily sensations shape how and how much she drinks (Pathak et al., 2025). Trauma histories remain highly prevalent even among people who have stopped using (Belfrage et al., 2023), which means the trauma outlasts the substance and will resurface if it is never addressed.

On treatment, the case for integration is now supported rather than assumed. Seeking Safety, delivered across clinics, community programs, residential settings, and correctional facilities, reduced both PTSD and substance use, and shorter versions worked about as well as longer ones (Sherman et al., 2023). Veterans with co-occurring PTSD and substance use disorder frequently prefer trauma-focused care, and a history of childhood sexual assault predicts lower confidence in approaches that avoid the trauma (Alpert et al., 2026). Taken together, these findings undercut the sequential model in which sobriety must come first. For many survivors, the trauma is driving the use, and a program willing to treat both at once will hold clients that a sobriety-first program loses.

From Evidence to the Intake Room

The clearest practical message running through this research is that sexual trauma and substance use are so frequently entangled that treating either one in isolation is a clinical error. That principle translates into a few concrete practices.

Screen everyone, not only the obvious cases. Because the most common form of drug-facilitated assault involves alcohol the client drank voluntarily, and because male survivors rarely disclose without being asked, the counselor cannot rely on clients to raise the subject. Gilmore and colleagues (2023) found that 47 percent of a large college sample reported a sexual assault history, and Moret and colleagues (2023) documented severe substance use and PTSD among men who had been assaulted. These are not rare populations. They are sitting in ordinary caseloads, often unidentified.

Frame the client's history without blame. The distinction that alcohol facilitates rather than causes sexual violence (Berenguer-Simon et al., 2026) gives the counselor language that acknowledges a client's vulnerability without assigning her responsibility for another person's crime. The same care applies to freezing and to voluntary drinking, both of which clients tend to read as evidence of their own fault.

Treat the substance use and the trauma as connected. When substance use functions as self-medication, removing the substance without offering another way to manage the underlying distress leaves the client without the tool she had been using to survive (Ullman et al., 2013). Integrated, trauma-informed care that addresses both at once is not a luxury but the approach the evidence supports (Sherman et al., 2023; Alpert et al., 2026).

Finally, recognize the double stigma these clients carry. A survivor who uses substances faces judgment for both identities, and the healthcare system's response to one can reinforce the shame attached to the other (Bhuptani et al., 2026). A counselor who meets both with steadiness rather than judgment removes one of the largest barriers standing between the client and disclosure.

Substance Abuse and Sexual Assault (SASA)

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2010

Substance Abuse and Sexual Assault (SASA)

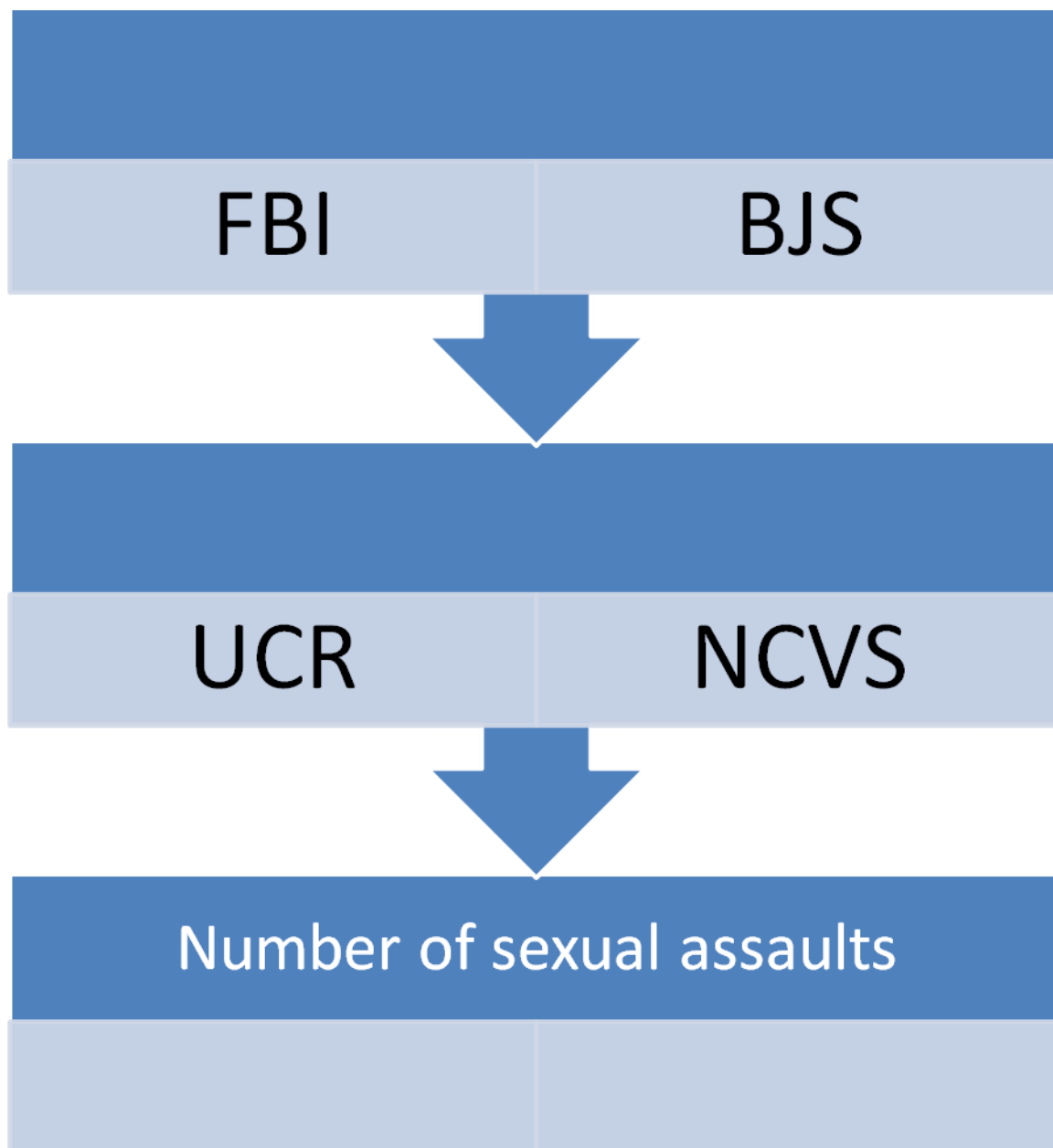
Introduction

In recent years, there has been increased interest in the relationship between substance abuse and sexual assault. This increased interest seems to be driven by both media reports and national monitoring mechanisms that have detected alarming increases in the popularity of some dangerous substances. These substances are known collectively as “club drugs” because they are often used by young adults at all-night dance parties, such as “raves” or “trances,” dance clubs and bars. But in the past few years, these drugs have been found increasingly in more mainstream settings. This course has been designed and developed for substance abuse counselors and other addiction professionals. Substance abuse counselors need to be aware of this recent complex substance abuse phenomenon and its prevalence and impact on the clients and possible victims they work with. The primary focus of this course is drug facilitated sexual assault (DFSA) where a victim ingests a substance that weakens resistance to and perhaps even consciousness of a subsequent sexual assault. In this case the “club drug” has become a “date-rape” drug. Much of the material in this course is based on the work of Norris (2008) and Negrusz & Gaensslen. (2006)

Sexual Assault

Sexual assault is a problem significantly studied in the scientific literature. According to a 1998 survey, one in five women will be sexually assaulted in their lifetime. RAINN (www.rainn.org) estimates that an American is sexually assaulted every two minutes. In recent years, researchers have noticed a decline in the number of reported violent crimes in the United States, including rape and sexual assault (Table I). However, estimates of sexual assault incidence and prevalence are widely divergent for several reasons, but mainly in part because of underreporting of the crime. The Department of Justice uses two different programs to estimate the number of sexual assaults that happen each year in the U.S. and the numbers presented can vary widely between the programs. When using data provided by each of these programs, it is best first to examine how the two methods differ. While the methods for gathering data on specific crimes are internally consistent within each program, for the purposes of this work, only data on sexual assault is noted. The programs are the Uniform Crime Reports (UCR) conducted by the Federal Bureau of Investigation (FBI) and the National Crime Victimization Survey (NCVS) conducted by the Bureau of Justice Statistics (BJS)

Figure 1 presents a graphic representation of these two programs.



UCR began in 1929 and collects information about crimes based on their being reported to law enforcement. Each month, law enforcement agencies submit a report to the FBI that details how many sexual assaults have been reported in the previous month. In 2001, law enforcement agencies submitting to UCR represented 89.6% of the total population in the U.S. It should be noted that states which do not follow precise FBI guidelines in reporting are not represented in the final tallies. UCR's main goal is to present the number of crimes that were reported to all submitting law enforcement agencies. Thus, if the crime is not reported, UCR does not measure it. To adjust for changes in the size of the population, the UCR also calculates rates of reported offenses, e.g., the number of sexual assaults per 100,000 inhabitants. The absolute numbers and the rates can diverge. In Table I, for example, the lowest absolute number of reported sexual assaults occurred in 1999, but the lowest rate of sexual assault in the years shown occurred in 2001.

Table I. TWELVE YEAR UCR SURVEY OF NUMBER AND RATE OF SEXUAL ASSAULTS IN THE U.S.

Year	Number of Sexual Assaults	Rate/100,000
1990	102,560	41.1
1991	106,590	42.3
1992	109,060-Highest	42.8-Highest
1993	106,010	41.1
1994	102,220	39.3
1995	97,470	37.1
1996	96,252	36.3
1997	96,153	35.9
1998	96,144	34.5
1999	89,411-Lowest	32.8
2000	90,178	32.0
2001	90,491	31.8-Lowest
2002	95,136	33.0

NCVS began in 1973 and was initiated to complement the information presented by UCR. The sampling method for the NCVS involves polling of households across the U.S. rather than law enforcements agencies. Each year, about 160,000 interviews are conducted with a carefully devised statistical sample of the general public. These interviews collect information regarding, if any, crimes the interviewee has been a victim of in the past year. If the interviewee has been the victim of a crime, it is further determined if the crime was reported and if not, the reason why it wasn't reported. The NCVS works in conjunction with UCR by attempting to measure crimes that weren't reported to law enforcement agencies.

There are several major differences between UCR and NCVS that need to be addressed before analyzing data from either program. First, sexual assaults perpetrated on males are not included by UCR's reporting, but are included by

NCVS. It is commonly assumed that most sexual assaults are committed against females, however sexual assaults involving males is a reality. Therefore, the NCVS results could be more accurate in estimating total sexual assaults.

Second, UCR's data are based on reporting from a large percent of law enforcement agencies across the U.S. and any estimates for nonparticipating agencies represent a small percent of the total. NCVS estimates are based on a much smaller (160,000 interviews out of about 300,000,000 people) and thus any sampling error could bias the results.

Despite NCVS's small sample, it may provide better estimates for sexual assault due to the underreporting of sexual assault. There are several reasons why victims of a sexual assault may be unwilling to report the crime to a law enforcement agency. The main reason is that sexual assaults violate someone both physically and psychologically. Not only do victims suffer these effects during the assault, many have significant problems for years after the assault took place. In one study it was found that 71.3% of sexual assault complainants expressed one or more fears following the alleged assault. The most common fear, retaliation, is expressed when the complainant knows the perpetrator and worries that by filing a police report, the perpetrator will further cause them harm. RAINN estimates that two-thirds of sexual assault victims knew the assailant. A comparable rate of 71% was found in the previous study. Many complainants also may not want friends and family to find out about the assault, so they do not report it. Some complainants also believe that the assault is their fault or that they will not be believed.

Another factor in the underreporting of sexual assault could be if the complainant was using alcohol or drugs at the time of the alleged assault. Fear of prosecution may dissuade them from reporting the assault. One study reported that complainants who were using alcohol or drugs were more likely to either delay reporting the assault or not report it at all. Another study found that 41.7% of the alleged victims studied had been using alcohol when victimized. It has been noted that when sexual assault complainants do report to the hospital, only 68% are certain that they want to file a police report. When all of these factors are combined, it becomes clear that underreporting of sexual assaults is a reality. What is not known is to what degree sexual assaults are underreported.

Another common characteristic of sexual assaults is reluctance among the complainants to follow-up their initial visit to the hospital. It is strongly suggested that sexual assault victims should be reassessed within 6 weeks of the assault. This follow-up will evaluate the mental health of the victim (i.e. presence of post-traumatic stress) and to confirm that HIV or other sexually transmitted diseases were not contracted during the assault. One retrospective study of 389 sexual assault complainants found that only 31% of the complainants returned for the recommended follow-up visit. This study also found that if the complainant had admitted to using drugs or alcohol, this negatively influenced whether they returned for the follow-up visit. They also found that 42.6% of the alleged victims expressed a fear of retaliation from the alleged assailant. This fear, along with the fear of having to see the alleged assailant or deal with the trauma again,

could explain the low follow-up visits. The rate continues to be low even when the follow-up is unobtrusive and convenient, for example by telephone.

The issue of underreporting is one reason known to affect national data on sexual assaults. Another major factor is that even after a complainant seeks treatment from a clinic, there is no guarantee that a criminal case will develop as many complainants refuse to press charges. One study found that only 62% of the complainants reporting a sexual assault to the clinic were willing to also report to the police. Another study found that of 888 sexual assault complainants, 132 of 15% of the alleged perpetrators were released. The remaining 85% of the perpetrators were either found guilty or entered a plea before the trial. An 85% conviction rate does sound promising; however, the sexual assault cases that progress to trial are a small percent of all sexual assaults. For example, in Hennepin County, Minnesota, 2% of sexual assault cases reported to the clinic in 1997 eventually went to trial; for the rest of the cases, the prosecution either did not want to pursue charges, or the offender entered a plea.

One addition to the clinical setting that may help decrease underreporting is sexual assault nurse examiners (SANE's). SANE's are specially trained to conduct sexual assault examinations with an attention to complainant's well-being and to find and document important forensic evidence. A SANE may also be qualified as an expert at the trial, further strengthening any testimony they provide. The original SANE's began working in the late 1970's, but their achievements were not officially recognized until 1995, when the American Nurses Association made SANEs a nursing specialty. Another study found that

of the 38% of alleged victims that did not report the crime before presenting to the hospital, 12% did report after talking to a SANE. Only 3% were certain that they would never report, with the remaining 23% still undecided. This demonstrates that specialized nurses may be able to increase the amount of sexual assaults reported to law enforcement agencies.

Substance Abuse and Sexual Assault Typologies

There are five types of connections between substance abuse and sexual assault. Figure 2 presents a visual array of these five types.

- Type 1: In the first type the victim who is typically, but not in all cases, female is secretly, without her knowledge, drugged and then sexually assaulted. This type is known as DFSA 1 or proactive DFSA.
- Type 2: The second type consists of a situation of sexual assault with someone who is profoundly intoxicated on alcohol by his or her own actions to the point of near or actual unconsciousness. This type is known as DFSA 2 or opportunistic DFSA. The type 2 relationship presents the most common form of DFSA.
- Type 3: The third type is the same as type 2 except that prescription drugs are misused prior to the sexual assault: DFSA 2.

- Type 4: The fourth type is the same as 2 and 3, except illegal drugs were used prior to the sexual assault: DFSA 2.
- Type 5: In the fifth type, substance abuse follows or is a result of a sexual assault. This is drug abuse resulting from sexual assault (DRSA 1). As will be presented in a later section, post traumatic stress disorder, major depression, further victimization, in addition to substance abuse, can follow the victimization.

Figure 2: SUBSTANCE ABUSE AND SEXUAL ASSAULT TYPOLOGIES

Type 1: The victim was surreptitiously drugged and subsequently sexually assaulted (DFSA 1)

Type 2: The victim voluntarily used or misused alcohol prior to the sexual assault (DFSA 2)

Type 3: The victim voluntarily misused prescription drugs prior to the sexual assault (DFSA 2)

Type 4: The victim voluntarily used illegal drugs prior to the sexual assault (DFSA 2)

Type 5: The victim was sexually assaulted and substance abuse and/or PTSD was a result of the event (DRSA 1)

Alcohol Consumption and the Risk for Sexual Victimization

Sexual assault, regardless of whether the victim was drinking at the time, has been associated with negative consequences such as post traumatic stress disorder (PTSD) and problem drinking. Sexual assault victims who experience both of these outcomes simultaneously have reported greater self-blame, belief that alcohol reduces tension, drinking to cope with negative affect, more negative reactions from others, and a history of other trauma, compared to sexual assault victims who have reported only PTSD symptoms. Drinking to decrease negative feelings has been found to mediate the relationship between severity of sexual assault and general level of drinking. In other words, the positive relationship between sexual assault severity and drinking amount can at least in part be explained by using alcohol to decrease feelings such as anxiety and stress that may result from the assault.

Relatively little research has specifically examined effects of being sexually assaulted while intoxicated. It appears that problematic drinking may serve as both a risk factor for being raped while intoxicated and a consequence of it. That is, victims who had been raped after drinking had been heavier drinkers before the event, increased their drinking afterward, and experienced more negative consequences of drinking afterward than non-victims. Moreover, women's risk of future sexual victimization increases as level of previous sexual assault severity and drinking practices increase. Women who have both a history of previous sexual assault and who are heavy drinkers may

have a greater likelihood of being re-victimized than women with lower levels of either of these risk factors.

Although lower alcohol consumption may reduce the risk of being sexually assaulted, a woman who is sexually assaulted when intoxicated should not be blamed for the assault. A man's sexual aggression is his responsibility and he should be held accountable for taking advantage of a vulnerable person and committing an act of violence. The "punishment" for getting drunk should not be getting raped. Women need to know that they have a right to say no at any point during a sexual encounter with a man: A woman does not "owe" a man anything in return for his attentions or for having engaged in some consensual sexual activity with him.

How does alcohol consumption raise a woman's risk of being sexually assaulted? The most obvious way concerns extreme intoxication: When a woman becomes severely debilitated from excessive drinking, she cannot effectively resist an assault. Some women have been raped when they were unconscious from alcohol consumption. Predatory men look for vulnerable women to rape, and drinking women are often viewed as sexually available. Several studies have connected increased risk of being sexually assaulted with heavy drinking at the time. Not surprisingly, these women tend to be heavy drinkers in general. But women who are light drinkers may be particularly vulnerable to being sexually assaulted if they engage in heavy drinking on a particular occasion. This may be because they do not have a high tolerance for alcohol and may experience its debilitating effects rather

quickly. Often this is the case among young women who drank in high school and increase their alcohol consumption when they reach college and live away from home for the first time.

The social environment that someone spends time in can also come into play in these situations. Attending colleges that have reputations as “party schools” where heavy drinking is associated with fraternities or sororities have been related to increased risk of alcohol-involved sexual assault. Women are often sexually assaulted after drinking in bars or at parties, especially by men who are relatively unknown to the victim. Settings that promote heavy drinking may encourage lack of restraint in other areas as well, including sexually. This may partially account for the connection between the number of sex partners a woman has had an increased risk for being sexually assaulted when intoxicated, since intoxication may increase women’s exposure to potential assailants. Frequency of drinking before sex has also been associated with alcohol-involved sexual assault.

There is a dearth of research on risk factors for alcohol-involved sexual assault across ethnic groups, or even to what extent there may be differences in prevalence rates. Some studies have found higher rates of rapes among African-American women in general; however, others have found no differences in the prevalence of rape between African-Americans and other groups. A nationally represented survey found the highest rates of rape reported Native American women and the lowest among Asian-Americans. African-American women were more likely to report that neither they nor their

assailants had consumed alcohol prior to the assault, yet predictors of alcohol-involved sexual assaults were the same for both groups. These included: women's frequency of drinking during a sexual assault, frequency of drinking during consensual sex, and number of dating partners.

Many men believe that getting a woman drunk is just an easy way to increase their chances of having sex. The poet Ogden Nash's oft-quoted aphorism, "Candy is dandy, but liquor is quicker" indicates how deeply ingrained this belief is. However when a woman drinks to such an extent that she can no longer give consent, a man who continues to pursue having sex with her commits a sexual assault and should be adjudicated. Unfortunately this rarely occurs.

Alcohol can also raise the risk of sexual assault at lower levels of consumption. a major complicating factor in the association between alcohol consumption and sexual assault is the frequent use of alcohol as a social lubricant. As noted earlier, many individuals expect alcohol to have beneficial effects and often drink to obtain them, especially in social situations.

Although in most instances these associations are not problematic, some researchers have found stronger expectancies for tension reduction and sexual enhancement for victims of attempted and completed rape, including those who were intoxicated, than in non-victims. Also indicative of the influence of the expectancies, the victimized women reported more sexual activity after drinking in general. In another study that compared alcohol- and drug-involved sexual assault victims to non-victims and those who had not

consumed any psychoactive substances prior to being sexually assaulted, the alcohol/drug victims were most likely to report greater alcohol effects on social and physical pleasure, aggression, social expression, impairment, and careless unconcern. In short, some women might drink to enhance their sociability, sexual enjoyment, or to “let loose” and have a good time. In doing so, these expectations could lead to excessive drinking: some women might think that if a little bit of alcohol helps, then a whole lot might be even better. As discussed above, excessive alcohol consumption substantially raises the risk for sexual assault. Thus, expectancies could indirectly increase some women’s vulnerability to sexual assault.

A method has been developed to measure alcohol expectancies related specifically to sex, aggression, and sexual vulnerability. It was found that both women and men tended to endorse gender stereotypic expectancies when judging alcohol effects on others but not themselves. Intoxicated male targets were perceived as having higher sex drive and aggression than female targets were seen as more sexually vulnerable after drinking. The researchers point out that these expectancies mirror typical sexual assault scenarios and might result in victim blaming. After all, if a man cannot control his sex drive and a woman does not resist, then can it really be a sexual assault? Just as disturbing are findings that women who were the heaviest drinkers and held the highest alcohol expectancies related to sexual vulnerability for themselves also reported the most severe sexual victimization. Other researchers have similarly found that women with the

strongest sexual vulnerability expectancies tend to also be the heaviest drinkers. It is important to note that none of these studies can establish that women's alcohol expectancies cause their sexual assault. Do women who have been raped after drinking develop high sexual vulnerability expectancies because of their rape experience, or does having strong sexual vulnerability expectancies lead to less assertive resistance and a greater likelihood of being raped after drinking? While the answer to this question is not clear, it can be important for mental health providers to question alcohol-involved sexual assault victims about their alcohol beliefs in order to understand the experience from the woman's perspective and help her to work through it.

Men and women commonly drink when socializing together and most of these occasions do not result in sexual assault. However, alcohol-involved sexual assault is more likely to occur in the context of socializing with men who are not well-known than with intimate partners. Thus in such situations women are faced with having to process conflicting cues and other types of information from the setting, resulting in what has been termed "walking a cognitive tightrope". On the one hand, traditional gender roles encourage women to be attractive to men by dressing and acting sexy, and yet to be the gatekeeper for any sexual activity, specifically to assume responsibility for their own safety. Thus when a man responds positively to a woman, it is normally taken as a sign of mutual attraction and the couples interaction might escalate into some amount of consensual sexual activity. Depending on how aggressive a man is and what his intentions are, their interaction

might be completely satisfactory. But what if the man's actions and intentions are not completely clear? Many risk cues, such as being led to an isolated setting and consuming alcohol, can be ambiguous because they can also be a typical part of socializing and sexual flirtation. After drinking even a small amount, it can be difficult to detect and feel uncomfortable with ambiguous risk cues, especially when alcohol itself serves as a cue for consensual sex. Moreover, after drinking, women may be more likely than when sober to anticipate benefits from and engage in behaviors that might put them at higher risk for sexual assault, such as letting a potentially risky man into their apartment, kissing him, and drinking with him. These effects likely occur because of alcohol's myopia and stress reduction effects. That is, the setting, her initial interactions with the man, and the association between alcohol and consensual sex lead a woman to see the situation in a positive light. Because of this focus on the pleasurable aspects of an interaction, an intoxicated woman may not recognize that a man has become sexually aggressive until his actions have become quite overt. Hence, fear that might otherwise motivate a woman to extract herself from a potentially dangerous situation is not evoked.

Once a woman recognizes that a man has become sexually aggressive, alcohol may affect both the type and strength of resistance that she displays. Some studies have shown that alcohol consumption increases passive resistance or immobility, such as going along without wanting to or feeling paralyzed, and "polite" resistance, such as verbal negotiation or distraction,

but decreases assertive resistance, such as yelling or hitting and kicking. As a woman becomes increasingly intoxicated, she may fail to respond more assertively as the man's aggression escalates whereas less intoxicated or sober women may increase their resistance concurrent with increased sexual aggression.

Stress response dampening might play a role in the way in which alcohol lowers assertive sexual assault resistance. One study found that perceived severity of a sexual assault, as indicated by how fearful and helpless women felt, mediated the impact of alcohol consumption on victims' panic reactions during the assault, such as shortness of breath, increased heart rate, and sweating. That is, the more intoxicated a woman was during the attack, the less fearful and helpless she felt. The lower these feelings were, the less likely she was to feel panicked. In a similar vein, it has been found that risk perception mediated the effect of alcohol on women's resistance intentions after reading a sexual assault scenario. The more intoxicated the women were, the less likely they perceived the situation as risky, which led to lower assertive resistance intentions. Thus, lowering fear reactions and perceived risk appears to be one mechanism by which alcohol can prevent women from assertively resisting a sexual assault.

Resistance responses may additionally be influenced by thoughts and feelings about the man and the situation. These thoughts and feelings have been labeled "psychological barriers to resistance". As a woman becomes more intoxicated, she may feel more conflict and uncertainty about what is

happening in the situation, as well as embarrassment, which in turn can lead to unassertive resistance. This can occur both because of cognitive impairment and the expectancy that alcohol is associated with consensual sex, thus causing confusion about the man's actions. On the other hand, in some situations alcohol consumption may result in less concern about harming the woman's relationship with the man or being injured, and she might feel less self-conscious about resisting. This might occur because intoxication has focused the woman on sexual aggression cues, thus potentially aiding her in mounting an assertive resistance. Drinking women may also recognize that alcohol consumption can serve as a barrier to resistance, which may serve as a self-fulfilling prophecy. That is, believing that she is too drunk to resist might actually lead the woman not to resist as assertively as she might when sober.

A previous history of adult sexual assault (ASA) has also been related to lessened assertive resistance to later sexual assault experiences. ASA has also been associated with psychological barriers, such as embarrassment and the belief that alcohol impedes resistance, which in turn has been related to lessened resistance. A study that developed separate profiles of sexual assault victims found that women who had had the highest level of alcohol consumption during a sexual assault, as well as the highest level of previous ASA, reported high powerlessness, recognized that alcohol made them vulnerable and impeded their resistance, and experienced the second highest level of completed rape, compared to others in the study. In contrast, women

who were below average in both prior ASA and alcohol use at the time of the sexual assault noticed the man's controlling behavior, were above average in concern about injury and assertively resisting, and had experienced the lowest rate of completed rape.

Ironically, when discussing alcohol's effects on resistance outside of an actual sexual assault situation, women are often overconfident that they can maintain control of a situation, even when drunk, and express the belief that other women are at greater risk than they are. However, heavy drinkers seem to recognize that they are at higher risk for being sexually assaulted than light or moderate drinkers. It has been found that women who reported drinking at least once a week and typically were binge drinkers (drinking at least four drinks within a relatively short period of time) rated their risk of being sexually assaulted significantly higher than the other groups. This study also found that a previous history of sexual assault did not predict risk perception. Future research should address why heavy drinking women recognize their heightened risk for being sexually assaulted, yet do not moderate their drinking to lower their risk. Interventions should be developed to emphasize this connection and teach women how to stay in control while still having a good time.

The Cycle

Women with alcohol dependency, heavy alcohol use and other drug use, particularly hard drug use, are at high risk of being assaulted. This, in turn, increases the risk of subsequent alcohol dependence or heavy use. Consequently, there seems to be a vicious cycle that appears to be maintained between victimization, post-traumatic stress syndrome (PTSD), and substance abuse in women. Use and abuse after a crime (assault) may be a means for a victim to lessen the intensity of the pain or trauma brought on by a crime. Victims who abuse drugs and/or alcohol may be at a higher risk for victimization, causing a cycle of repeat violence that, without intervention, becomes increasingly destructive. Figure 3 presents a graphic representation of this cycle.

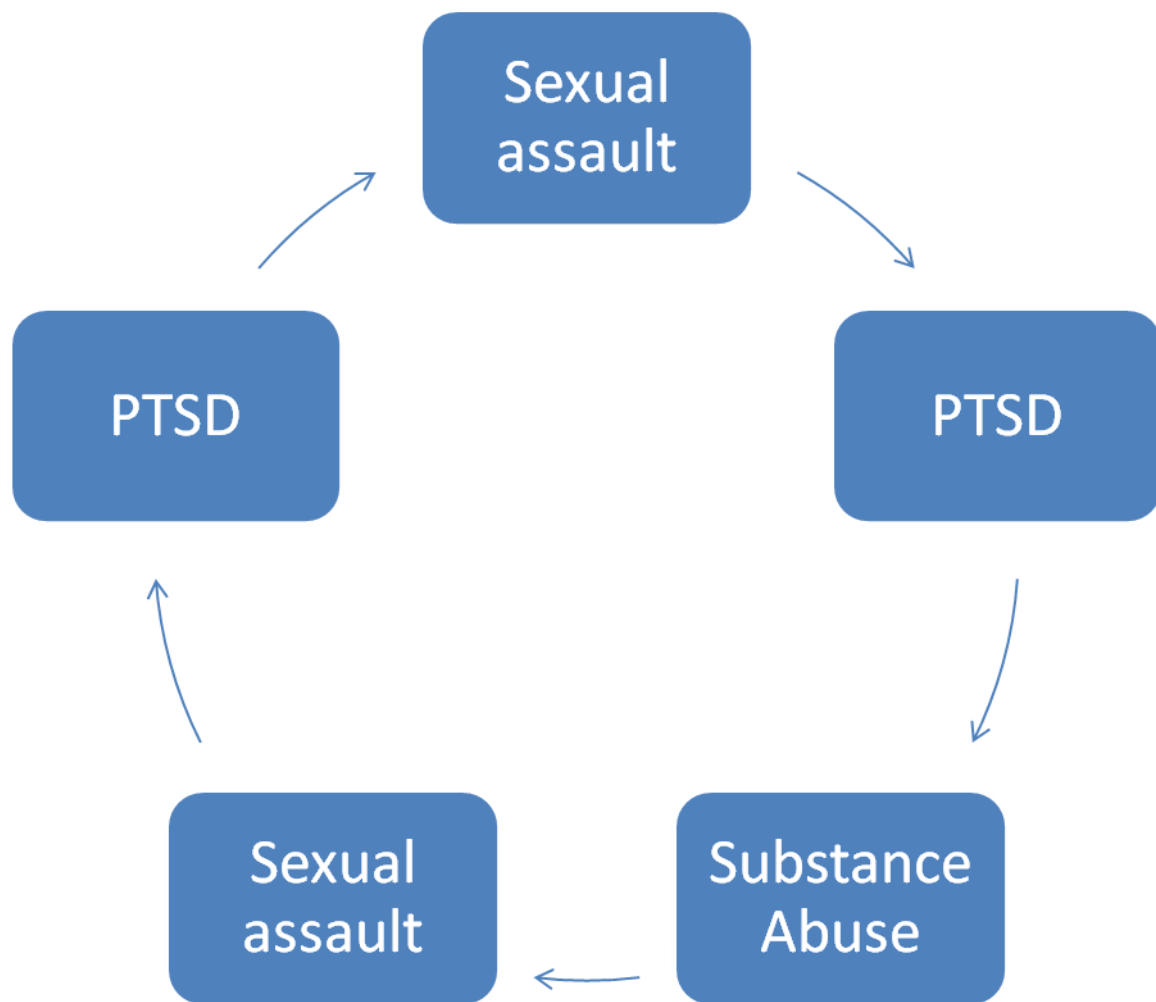


Figure 3: The cycle of sexual assault, substance abuse, and PTSD

Some of the post-victimization factors that cause assault victims to abuse drugs and alcohol are:

- Emotional trauma and psychological pain associated with the crime
- Physical pain resulting from injuries received during a victimization
- Stress from navigating the criminal justice system and/or exposure to the media
- Cycle of violence from which they cannot escape (e.g., domestic violence, child/adolescent abuse)
- Fear of repeat victimization
- PTSD, including anxiety, insomnia, nightmares, and depression
- Lack of outlets to talk about victimization when it is kept secret; shame or fear that prevents victims from discussing it
- Little memory of childhood victimization and no clear understanding of what caused the harm
- Expectation by others that victims “get over” the victimization and “be happy”
- Extreme levels of psychological distress and helplessness after witnessing violence
- Anger and no way to express it

Some of the correlating factors are between excessive use of drugs and alcohol and sexual assault.

- Clinically significant distress or impaired functioning.
- Poor judgement. Although a crime is never considered a victim's fault, victims might have made different choices about their whereabouts, with whom they were talking, and how much alcohol and other drugs they were consuming.
- Increased vulnerability to crime (i.e., victims may be less aware of what is going on around them and less able to protect or extricate themselves from a dangerous situation).
- Increased vulnerability to predators who are more likely to take advantage of individuals who are obviously high on drugs or alcohol.
- Passivity induced by the dulling effects of substance abuse, combined with a fatalistic attitude about crime, which may create resignation that leaves victims vulnerable to repeat victimization.
- Environments in which substance abuse is permitted or encouraged and that may tolerate or attract criminal behavior (e.g., binge drinking and sexual assaults on college campuses).
- Environments in which purchasing illegal drugs is condoned, which may attract other criminal activity.
- Domestic violence shelters may refuse access to women who abuse substances, leaving them at continued risk.

Some of the societal stigmas faced by individuals who abuse substances when they are victims of sexual assault are:

- Blame for their own victimization
- Belief that substance-abusing victims are less deserving of help.
- Cultural stereotyping as drunks, addicts, and ne'er-do-wells, which could result in a lack of sympathy and care needed to recover from their victimization.
- Attitude that support is a waste of resources until substance abuse ceases, leaving victims without assistance.

Some of the symptoms of PTSD that a victim of sexual assault might experience after a traumatic event are:

- Nightmares, flashbacks, and intrusive images.
- Persistent re-experiencing of the event.
- Persistent avoidance of things associated with the event
- Reduced ability to be close to other people and have loving feelings.
- Persistent episodes of increased anger, difficulty concentrating, and paranoia.
- One month of any of the above symptoms

Victims of sexual assault suffering from PTSD may have problems with substance abuse. Some of the factors that might affect their health and relationships in a negative way are:

- Greater difficulty recovering from trauma; insomnia, lack of concentration, and other effects of PTSD that worsen.
- Disruptive personal relationships, intimacy problems, and family conflicts.
- Poor parenting, unresponsiveness to children, and risk of losing custody of children
- Deterioration of workplace relationships that endangers job stability.

Some of the ways recovery from PTSD is complicated by substance abuse are:

- Effectiveness of PTSD treatment is reduced
- Sleep disturbances may increase.
- The cycle of avoidance and inability to process the trauma-inducing event continues.

Drug-facilitated Sexual Assault (DFSA)

The idea of using a drug to incapacitate someone in order to victimize him or her is not novel. Chloral hydrate, historically referred to as a “Mickey Finn”, is one of the best-known examples of a drug that can be added into someone’s drink to induce unconsciousness. Alcohol is the best-known incapacitating drug found in sexual assaults, and the most studied. It is commonly accepted that there is a high degree of correlation between alcohol intoxication and the risk of being sexually assaulted. However, in recent years there has been increased attention in the literature of people using other drugs to render their victims unconscious or lower their level of resistance with the intent to sexually assault them.

A common scenario might involve a young woman out at a bar. She meets a man who buys her a drink and she then proceeds to consume the beverage. The drink is normally alcoholic and she may have already had several drinks before meeting this man. But this drink is different; it has been spiked with a drug that will disorient and confuse her, facilitating the man’s attempt at getting the woman out of the bar and into a secluded location. Because the woman is in a bar and has been seen drinking alcohol, other patrons would not find it odd that she is now having a hard time standing and must rely on the man to walk. He then leaves the bar with her and takes her some place where he can sexually assault her. During the assault, the woman may be completely unconscious or going in and out of consciousness. The next day when she wakes up, she may

be in unfamiliar surroundings or at home confused as to how she got there. She may also feel sore in her vaginal or anal regions and wonder what happened to produce these pains. She may be wondering if she was sexually assaulted, but has no recollection of the event happening. Many people in this situation may not immediately go to the police or hospital to report a sexual assault. If they do not remember the sexual assault, they might believe that it did not take place or that they have no case against the perpetrator.

This differs from sexual assaults that do not involve drugs because the complainant remembers the entire event and can describe exactly what took place to the proper authorities. Reporting of sexual assaults has been shown to be limited. If data from 1995 is examined when only 36% of sexual assaults were reported, how will this number change if DFSA is increasing? This question has not currently been answered. There is no known estimated of the number of DFSA's that take place every year. There have been many anecdotal and news reports o DFSA, but no scientific study has been conducted to examine this problem.

Two studies have examined which drugs were present in sexual assault complainants. One study showed that two-thirds of the specimens collected (N=2003) were positive for alcohol and/or drugs. Another study involved 1,179 specimens and 60.3% of their specimens tested positive for at least one drug. The two best-known so-called “date-rape” drugs, GHB and flunitrazepam, were found in less than 4% of the specimens in both studies. The first study is in conjunction with the second study's laboratory, and is unclear if the 2,003

specimens contain the 1,179 specimens analyzed in the second study.

However, both studies had a major bias in the samples included. The specimens were submitted from forensic laboratories or SANE units across the U.S. in conjunction with Hoffman-La Roche Laboratories, the makers of flunitrazepam. Any center that treated suspected sexual assault victims was encouraged to send urine specimens to the second study's laboratory for a toxicological analysis. However, both studies only accepted specimens from complainants who either had a history of drug use, or where drugs were suspected following a physical examination. Thus, their results are only important in a subset of sexual assault complainants and the prevalence of DFSA among all sexual assaults cannot be calculated. The work reported later provided a better estimate of the prevalence of DFSA among all sexual assault complainants.

The GHB analysis in the previous study also raises questions. In the second study, a LOD for GHB is never given and GC/MS method being used is an in-house SOP. In the first study a GHB LOD is given but each paper fails to specify a cut-off limit. As discussed below, GHB is found endogenously in urine and reporting all values as positive does not take this into account. Thus, both studies reporting of positive GHB specimens of 16 and 25, respectively, does not clearly show where these specimens were positive because of the alleged victim taking GHB or endogenous levels of GHB. The disregard for endogenous levels of GHB is not the only flaw in either study. In addition, there was a perceived conflict of interest with Hoffman-LaRoche funding the studies.

DFSA also presents challenges for successful prosecution in court. In order to analyze a sexual assault complainant's urine for drugs, the complainant must first give their consent for the analysis to happen. If they were using illegal drugs on their own accord, they may be worried about being prosecuted. The complainant may also believe that the presence of cocaine or marijuana in their system will weaken their story and cause the authorities to not believe that an assault happened. However, to conduct a thorough investigation of the alleged assault it is very important that investigators know exactly what was in the complainant's system. Finding drugs in a sexual assault complainant does not always hurt their case.

Another study of 132 sexual assault trials found that amnesia about the alleged assault negatively influenced the legal outcome, while alcohol or drug use had no effect. This is due to the fact that finding drugs with the ability to produce amnesia in the alleged victim may strengthen their case and provide a reason why they are unable to remember the assault. Another study found that cases involving alcohol were three times more likely to result in conviction, but as the alleged victim's age increased, the likelihood of a conviction decreased. This was thought to be due to a generalized perception that older women are more sexually experienced.

Date Rape Drugs

Any drug that is given to a sexual crime complainant before they are assaulted could be classified as a "date-rape drug". However, we are only interested in

drugs that could be given to the complainant in order to render them unable to consent to sexual activities. There are two well-known drugs that have been implicated in DFSA. Flunitrazepam, or Rohypnol®, is probably the best known example of a “date-rape” drug and has received the most attention in the literature. Flunitrazepam is a member of the benzodiazepine family, and is ten times more potent than diazepam (Valium®). Flunitrazepam binds to the GABA receptor in the CNS. GABA is an inhibitory neurotransmitter and when it binds to its receptor, chloride conductance increases leading to neuronal hyperpolarization resulting in less synaptic transmission. Flunitrazepam binds non-selectively to the omega receptors on the GABA receptor complex, enhancing the ability of GABA to bind to its receptor. There are several subtypes of the omega receptor with omega-1 responsible for the sedative effects and omega-2 responsible for amnestic effects. Flunitrazepam binds to both subtypes; however, it binds preferentially to the omega-2 receptor and thus exhibits more amnestic properties than other benzodiazepines.

Flunitrazepam produces anterograde amnesia, which affects the ability to remember anything after taking the drug. This leaves the complainant with no recollection of the assault ever taking place. It has been shown that flunitrazepam interferes with the formation of new memories by disrupting the encoding of memories. Secondly, flunitrazepam begins to produce an effect very quickly (i.e. 20 to 30 minutes) and does not require a large dose to produce a state of unconsciousness (e.g. 1 to 2 milligram tablet is given). There are several anecdotal stories of people on benzodiazepines, like flunitrazepam, who are able

to function normally but have no memory of anything they did. Friends and co-workers do not realize anything is wrong until the medicated individual begins to replicate their actions (e.g. reports to work after already having been there for four hours) or asks questions that have already been answered. When combined with alcohol's sedative effects, flunitrazepam becomes an ideal drug for quickly incapacitating the complainant and leaving no memory of the event.

Flunitrazepam is illegal in the U.S. (because of its use as a "date-rape" drug), but is legal in Europe and Mexico where it is used as a sleep aid for severe cases of insomnia.

The trafficking of flunitrazepam through Florida and Texas via Mexico or Columbia has been shown to be very easy. Hoffman-LaRoche, the manufacturer of flunitrazepam, has received so many complaints about its use in DFSA, that they have changed the formulation of the drug to include a dye that will cloud a drink if it is surreptitiously added. They have also offered free urine testing for any sexual assault complainant who believes they were drugged with flunitrazepam. The DEA made flunitrazepam a Schedule IV drug to comply with the United Nations Psychotropic Convention; however, it is currently investigating if flunitrazepam should be Schedule I, further establishing the dangerousness of the drug. The finding of this drug in the complainants urine does not necessarily mean that it was given surreptitiously as flunitrazepam has been shown to be used recreationally and for the purposes of self-medication among the depressed. Thus, it is difficult for toxicologists to determine if a drug was given

surreptitiously of taken recreationally by the user and this issue is discussed below.

Flunitrazepam is so powerful, that its illicit use could be life threatening. This most often occurs when it is combined with other CNS-depressants, such as alcohol. An Australian study found that while flunitrazepam only accounts for 2.4% of all benzodiazepines prescriptions, it had the highest prevalence of death associated with its use. The mechanism by which it causes death is difficult to discern, and could be either a respiratory depression, or respiratory obstruction due to unconsciousness.

GHB is the second well-known date-rape drug and has recently gained attention from the media and the forensic toxicology community. GHB is naturally occurring and is structurally very similar to the neurotransmitter GABA. GHB is a CNS depressant and its interaction is thought to involve a GABA receptor. In the 1980's, GHB use among bodybuilders increased due to its purported ability to increase muscle mass and its presence in herbal supplements increased its use as a sedative. However, GHB eventually moved to recreational users for its intoxicating effects and then to criminals who find its sedation and the potential for amnesia desirable. GHB is easily synthesized from precursors and is also available in Europe where it is prescribed for ethanol withdrawal.

Samantha Reid is probably the best known victim of GHB misuse. Samantha, a fifteen-year old Detroit resident, was given the drug surreptitiously at a party. Soon after finishing her drink she became unresponsive and was rushed to a hospital. There, she fell into a coma and later died. The four young men who

gave the drug to her, were convicted of involuntary manslaughter, representing the first case of a GHB related death being successfully prosecuted. In February of 2000, the “Hillary J. Farias and Samantha Reid Date-Rape Drug Prohibition Act of 2000” was enacted which made GHB a Schedule I drug. This made the drug illegal and increased the penalties for anyone found with GHB. In 2002, the FDA approved GHB to be prescribed for extreme cases of narcolepsy. The brand name is Xyrem®, and it has been made a Schedule II compound. However, illicit use of Xyrem® will result in Schedule I penalties and the prescribing physician monitors its use closely.

Due to GHB’s suspected use in DFSA, its inclusion in this study is of the utmost importance as it is unknown if GHB is widely used as a “date-rape” drug. There is one caveat for the analysis of GHB. Because it is an endogenous compound in humans, any interpretation of GHB levels in urine or hair will have to be compared to previously reported levels of endogenous quantities.

Legal Aspects of Drug-Facilitated Sexual Assault

Successful convictions of DFSA’s are difficult due to several reasons. First, if we assume that 50% of sexual assault complainants report the crime, half of all sexual assailants are free from prosecution. Second, sexual assault complainants who do report the crime may wait too long, and thus eliminate any chance of detecting a “date-rape” drug in their urine. If a perpetrator is discovered, there are still many difficulties for a successful conviction. One common defense the perpetrator could use during a criminal or civil trial is that

the complainant consented to engage in the sexual activity. However, most states have laws stating that someone is unable to give their consent if they are unconscious, of diminished mental capacity (i.e. intoxicated), or mentally handicapped, and that any sexual activities with them are correspondingly illegal. One could also argue that if both parties are drunk, then neither is capable of giving their consent. Many courts uphold that whoever initiates the sexual acts is responsible for insuring that their partner is capable of giving consent. In DFSA, the prosecution needs to prove that the complainant had been knowingly given a drug or had been recreationally using a drug that diminished their mental capacity to an extent where they were unable to give their consent to sexual activities. If illegal drugs that are not commonly suspected in DFSA are found, the counsel for the defendant could use this evidence against her to diminish the validity of any testimony she provided.

Explanation of Selected Drugs and Their Pharmacology

As previously noted, it is difficult to describe DFSA in terms of only several drugs. Any drug that diminishes the mental or physical capacity of a potential victim could be identified as a drug used in DFSA. To handle the intricacies of this problem, SOFT developed a special committee charged with producing a list of all drugs that have been used or could be used in DFSA (Table II). Drugs that were included in this study are marked with a star in Table II. The reason the drugs were selected is described below.

TABLE II. DRUG-FACILITATED SEXUAL ASSAULT COMMITTEE’S LIST OF DRUGS THAT HAVE BEEN, OR COULD BE USED IN DFSA

1,4-Butanediol	Dextromethorphan *	Methamphetamine *
Alprazolam *	Diazepam *	Morphine *
Amitriptyline *	Diphenhydramine *	Oxazepam *
Amobarbital *	Doxepin *	Oxycodone *
Amphetamine *	Doxylamine *	Paroxetine *
Butalbital *	Ethanol *	PCP *
Carisoprodol *	Flunitrazepam *	Pentobarbital *
Choloral Hydrate	Fluoxetine *	Phenobarbital *
Chlordiazepoxide *	GHB *	Propoxyphene *
Chlorpheniramine *	Hydrocodone *	Scopolamine *
Citalopram *	Hydromorphone *	Secobarbital *
Clonazepam *	Imipramine *	Sertraline *
Clonidine *	Ketamine *	THC *
Cocaine *	MDMA *	Triazolam *
Codeine *	Meprobamate *	Valproic Acid *
Cyclobenzaprine *	Methadone *	Zolpidem *

Drugs of Abuse

This section contains the drugs that comprise the SAMSHA drugs of abuse.

This list includes: amphetamines, marijuana, cocaine, PCP, and opiates. Each drug will be described pharmacologically as well as whether it could be used effectively as a “date-rape” drug. While some of these drugs do not have pharmacological properties that would be desirable for incapacitation someone with the purpose of sexually assaulting them, their inclusion in this study is very

important. Having the knowledge of all drugs that are in a complainants system can provide a better background into the circumstances of the assault. It is important to know if sexual assault complainants are more or less likely to have illegal drugs of abuse in their system for several reasons. One reason is that in a criminal investigation, a crime laboratory will routinely analyze for all drugs, and our research should reflect the normal protocol for sexual assault complainants. Secondly, it helps to provide information as to whether or not the complainant was involved in risky behavior that could have placed them in a dangerous position which could have led to sexual assault. Lastly, because each complainant completes a questionnaire detailing their drug history, it is important to determine how truthful the complainants are in their self-reporting. Self-reporting is notoriously known to be different from what is actually found in someone's system. However, it is unknown how truthful sexual assault complainants are in their self-reporting. Our hypothesis is that sexual assault complainants will be more truthful than the general public in self-reporting illegal drug use. Analyzing for illegal drugs and comparing the results to the drug-use questionnaires will evaluate the validity of self-reporting among sexual assault complainants.

Amphetamines

The amphetamines being analyzed in this study include: *d*-amphetamine, *d*-methamphetamine, MDMA, and MDA. Amphetamines belong to the class of drugs known as sympathomimetic amines. Amphetamines act both peripherally

and centrally with the largest effect from their action in the CNS. Peripherally, amphetamines raise blood pressure, increase the breathing rate, and cause tachycardia. At higher doses, this can lead to cardiac arrhythmias. Another smooth muscle markedly affected by amphetamines is the bladder. By increasing the contraction of the bladder sphincter, amphetamines can stop urine from being released. This pharmacological effect has been used for the treatment of subjects with the inability to control their urine release, such as in enuresis and incontinence.

Centrally, amphetamines are some of the most potent stimulators available. This makes their actions desirable to someone looking for an increase in their mental alertness. Truck drivers and pilots that work long hours have been known to abuse amphetamines due to the increased wakefulness and lessened sense of fatigue that they receive after taking an amphetamine. Elation and euphoria have also been known to occur while abusing amphetamines, and this is partially responsible for amphetamine's suppressants, and thus may be abused by dieters as a way to control how much they eat.

These pharmacological effects are mainly due to amphetamine releasing norepinephrine and dopamine presynaptically. Amphetamines also block re-uptake of dopamine and norepinephrine and inhibit monoamine oxidase, the enzyme responsible for the metabolism of amphetamines. All three mechanisms serve to drastically increase the amount of norepinephrine and dopamine available to bind to receptors. Very high doses of amphetamines are believed to

release 5-HT in the mesolimbic system, and this is believed to cause the psychotic disturbances seen in amphetamine overdoses.

Methamphetamine is very similar structurally with the exception of the addition of a methyl group to the amino moiety. This addition of the methyl group increases methamphetamine's lipid solubility and allows it to cross the blood-brain-barrier much more easily. Thus, methamphetamine's actions are mainly central rather than peripheral. However, at higher doses the peripheral effects are still seen.

MDMA and MDA are analogs of methamphetamine and amphetamine, respectively. They are commonly known by their street name Ecstasy and their use among attendants of raves and parties has been well documented. MDMA and MDA are structurally similar to the above-mentioned amphetamines; however most of their pharmacological effect is a result of an increase in serotonin. Both are classified as empathogens and are responsible for an increase in mood and heightened perceptions. They may also cause bruxism, hyperthermia, cardiac arrhythmias, and at high doses, death.

Clinically, amphetamines are used in the treatment of narcolepsy, anorexia, and attention deficit/hyperactivity disorder. MDMA and MDA are both Schedule I drugs, and thus have no clinical applications. Amphetamines mainly have stimulant properties and thus their use as a "date-rape" drug is most likely minimal. However, the psychotropic properties of MDMA and MDA may distort a victim's reality to a degree where sexually assaulting them would be easier than a sober person. Their inclusion in this study is mainly to determine a

complainant's background drug use and to determine how truthful they were in describing their amphetamine use.

Marijuana

Marijuana is still the most commonly abused illegal drug in the U.S. THC, the active moiety in marijuana, is a member of the family of cannabinoids obtained from the flower of the herb *Cannabis*. *Cannabis sativa* has several different agronomic varieties depending on growing conditions. *Cannabis* contains psychoactive compounds called cannabinoids that are found in the highest concentration in the flowering tops of the plant. There are over 60 different cannabinoids in marijuana, but THC is the most psychoactive, and thus the cannabinoid most often analyzed for the identification of marijuana. Marijuana is known to produce sedation, loss of aggressive behavior, and a decrease in motor skills; however it may also cause stimulation. The exact mechanism of action of THC is unknown, but there are several theories as to how it exerts its effect. One theory suggests that THC may affect prostaglandin synthesis, but whether it is through up-regulation or down-regulation is unknown.

Marijuana exerts its main effect in the CNS causing changes in mood, motor skills, self-perception and euphoria by binding to its receptor (CB1) in the brain. CB1 is coupled to a G protein, and when activated, modulates neurotransmitter release. "Temporal disintegration" is a term developed for marijuana's ability to alter one's sense of time along with a change in the ability to recognize one's

own self. High doses of marijuana may produce hallucinations and paranoid feelings.

In 1938, a propaganda film was released titled *Reefer Madness* which suggested that the abuse of marijuana leads to wanton sexual activity and murder. Recently there have been television ads produced by the Partnership for a Drug Free America® proclaiming that smoking marijuana may lead to being sexually assaulted. While this has not been explicitly proven, marijuana may cause sedation. When combined with alcohol, the sedative effects could be additive. The lost sense of time may also diminish the user's ability to identify a possible predator, and thus put them in a risky situation that they might have avoided if they were not using marijuana. Marijuana is included in this study due to its high degree of abuse, the possibility of sedation and to validate self-reporting of its use.

Cocaine

Cocaine is used clinically as an anesthetic agent, but it is used illicitly for its psychotropic effects. Cocaine is a strong CNS stimulant that works by inhibiting the re-uptake of neurotransmitters, most notable, dopamine. Dopamine is very important in the reward center of the brain, and use of Cocaine activates the reward center and makes the use of Cocaine addictive. Cocaine also increases norepinephrine which raises blood pressure and increases the heart rate. Cocaine's effects on serotonin cause an increase in body temperature and a decrease in one's appetite. Cocaine is most commonly used by insufflation or by

smoking the free base form known as “crack”. Cocaine users report effects very similar to those described for amphetamines, and in laboratory tests, cocaine users are unable to distinguish between Cocaine and amphetamine.

Like the amphetamines, Cocaine would probably not be a suitable choice for use as a “date-rape” drug due to its stimulant properties. However, Cocaine use may be correlative to the abuse of other drugs that could be used as “date-rape” drugs and may also suggest risky behavior of the complainant. Its analysis is also important to validate self-reporting among sexual assault complainants, thus its inclusion in this study.

PCP

PCP is a member of the group of compounds known as arylcyclohexylamines. It was originally used clinically as an anesthetic when it was classified as a “dissociative anesthetic”. It received this name due to PCP’s ability to cause anesthesia without loss of consciousness in the subject. The subject could feel no pain due to their dissociation from the environment around them. PCP’s mechanism of action is not completely known. The currently accepted theory is that PCP blocks the cation channel for the NMDA receptor, inhibiting the activity of glutamate. PCP has also been shown to affect serotonin, GABA, dopamine, norepinephrine and acetylcholine.

PCP causes a feeling of intoxication similar to alcohol in small doses. The “fight or flight” mechanism is also activated which causes the user to become

unmanageable. As the dose increases, there is marked anesthesia and amnesia may occur. The dissociative effects when combined with amnesia make PCP a good candidate for use as a “date-rape” drug. However, the psychosis that can develop with large doses of PCP may make a potential victim too unpredictable for a sexual assault to take place.

Opiates

There are several opiates that have been included in the analysis for “date-rape” drugs. These include: heroin, morphine, codeine, hydrocodone, hydromorphone, and oxycodone. Heroin is the only opiate that currently is a Schedule I drug, indicating that it has a high potential for abuse and *no* accepted medical use in the U.S. Morphine, the prototypical opiate, comes from the poppy plant, *Papaver somniferum*. Codeine is methoxymorphine and heroin is morphine with two acetyl groups attached to the hydroxyl moieties on Morphine. Hydrocodone, hydromorphone, and oxycodone are all synthesized by modifying the structure of morphine. Each of these drugs has different physiochemical properties (heroin is more lipid soluble than morphine) but all have relatively the same pharmacological properties as morphine. Thus, only morphine will be described in detail. Morphine exerts its main effect by binding to the μ opioid receptor in the CNS causing analgesia and constipation. It also has some affinity for the κ and δ opioids receptors, which are responsible for the neuroendocrine effects and both supraspinal and spinal analgesia. The main response of morphine, analgesia, occurs through the inhibition of nociceptive neurons. By

blocking the signal relayed by nociceptive neurons, the subject does not feel pain. The pain is still present, but the signal to perceive pain is blocked. Euphoria is also reported following morphine administration. This euphoria is not always present, as vomiting and nausea may also occur following administration of morphine. Opioids could be used as “date-rape” drugs due to the sedation and analgesia that they cause. However, prescriptions for opioids are strictly regulated and their availability may be lower than other potential “date-rape” drugs.

Prescription and OTC Drugs

The prescription and OTC drugs being screened have been carefully selected due to certain properties that would make them attractive in DFSA. They all share similar characteristics that make them desirable to someone that wants to incapacitate another person for the purpose of committing a sexual assault. The drugs are normally depressants or have depressive qualities that help to incapacitate the complainant from fighting back during the assault. Some of the drugs are also used due to their amnestic properties. When taken, these drugs can cause anterograde amnesia in the complainant that prevents them from remembering what happened during the assault or what events led them to being in a compromising situation. The drugs with the anterograde amnestic properties are the most insidious because the complainant usually does not remember anything and a successful conviction of the perpetrator becomes challenging. Another quality of these drugs that makes them desirable is that they have

additive sedative effects when taken with ethanol. In a nightclub, the dark, noisy conditions make it an ideal environment for a potential sexual offender to add a drug to someone's drink and have them consume it without their knowledge or consent. The alcoholic beverage can mask the taste of the drug, and then the depressant properties of alcohol combine with the drug's to incapacitate the complainant faster.

Tricyclic Antidepressants (TCA)

We have analyzed five drugs that belong to the class of compounds called tricyclic antidepressants (TCA). They are amitriptyline, desipramine, doxepin, imipramine, and nortriptyline. Tricyclic antidepressants are used to treat depression and panic disorders. They work by blocking the reuptake of norepinephrine and serotonin into the presynaptic neurons, which causes an increase in the levels of these neurotransmitters able to act on the postsynaptic neuron. This neurotransmitter increase is believed to be partly responsible for the antidepressant effects; however other mechanisms may be present. It has been well established that TCAs can cause sedation in naïve users by blocking histamine (H1) receptors in the brain. Only after several weeks of treatment do the sedative effects diminish. TCAs are also contraindicated with the use of alcohol. Although alcohol and TCAs work by different mechanisms, their combined sedative qualities could be dangerous. In DFSA, the drug could be added to the complainant's drink or given to the complainant under false

pretenses. If the complainant is not taking TCAs regularly and/or has been drinking, they could become unresponsive and unable to stop a sexual attack.

Imipramine and its active metabolite, desipramine, are dibenzazepines which were first discovered in the 1940's as effective sedative and hypnotic agents. Studies of Imipramine demonstrated that it was effective in treating depressed subjects and it became the first TCA to be used. These drugs decrease the number of times a subject wakes up and thus have been used as hypnotics for subjects exhibiting depression with the inability to fall asleep. Each TCA affects 5-HT and norepinephrine reuptake to a different degree. Desipramine is more selective for norepinephrine reuptake than 5-HT. It is theorized that desipramine is the active compound when Imipramine is given, but this has still not been completely proven.

Amitriptyline and its active metabolite, nortriptyline, belong to the group of compounds known as dibenzocycloheptadienes. They were developed after searching for compounds that were chemically related to Imipramine.

Amitriptyline has been shown to have equal efficacy in blocking both norepinephrine and 5-HT, however, its activity is about 20 times less potent than desipramine. TCAs also block muscarinic cholinergic receptors, which may explain why side effects such as confusion are seen. Amitriptyline blocks these receptors about 100 times more effectively than desipramine, and thus sedation is more pronounced with amitriptyline.

Doxepin is a dibenzoxein compound that closely resembles amitriptyline in blocking both norepinephrine and 5-HT equally. However, doxepin demonstrated

the highest degree of sedation due to its blocking H1 receptors more than the other TCAs. Thus, doxepin's ability to effectively block both cholinergic and histaminic receptors gives it the highest level of sedative qualities of all of the TCAs.

Selective Serotonin Reuptake Inhibitors (SSRI)

SSRI's are a relatively new class of drugs that have been indicated for the treatment of depression, anxiety, obsessive-compulsive disorder, bulimia nervosa, and sometimes premenstrual dysphoric disorder. SSRI's work in a similar manner to TCAs, but are targeted to serotonin with little to no effects on norepinephrine. By selectively targeting serotonin, many of the side effects seen with TCAs are not seen with SSRIs. While it is commonly accepted that SSRIs produce more activation than sedation as compared to TCAs, a recent meta-analysis of 36 clinical trials for TCAs and SSRIs determined **both** TCAs and SSRIs produced more sedation than activation. SSRIs are contraindicated with the use of alcohol, especially in naïve users. Before the subject knows how SSRIs affect them, they are cautioned against the use of alcohol or other depressants. In DFSA, complainants that are not on SSRIs are more likely to feel the sedative effects, especially if they have been using alcohol or other sedatives. Our analysis looked for citalopram, fluoxetine, paroxetine, and sertraline. Due to the large number of prescriptions that are written for these drugs (some estimates place worldwide usage at over 40 million people), we

have been cautious in the interpretation of our results since some of the complainants may have valid prescriptions.

Citalopram is the most selective of the SSRIs, mainly inhibiting serotonin uptake. All SSRIs have little activity blocking histaminic receptors and this probably represents why sedation is not seen as often in SSRIs as in TCAs. A literature search revealed that fluoxetine and sertraline have more activation properties whereas paroxetine and citalopram have more sedative properties. Their inclusion as possible “date-rape” drugs is important since they have demonstrated sedative properties, especially in naïve users. When combined with alcohol, prominent sedation may be demonstrated.

Muscle Relaxants

Muscle relaxants are powerful drugs that are used to help subjects deal with pain from muscular injuries and post-operative pain. These drugs work by blocking the signals that are sent from nociceptive neurons to the brain. By blocking these pathways, the pain signal is unable to reach the brain to be processed and thus, the subject is unaware of the pain. Carisoprodol, cyclobenzaprine, and meprobamate are the muscle relaxants screened for in this study. These drugs are contraindicated with antihistamines, sedative-hypnotics, and alcohol and are not normally prescribed to someone with a history of addiction. Prescriptions of these drugs may not be completely used, leaving the subject with extra pills in case of further pain. This creates the problem of family and friends having access to a potential “date-rape” drug. A potential

complainant could be given a muscle relaxant surreptitiously or take it voluntarily with the hopes of further intoxication. However, if they are mixing these drugs with alcohol, they will most likely become extremely tired and may even pass out. This puts the complainant in a dangerous situation where they could be sexually assaulted while they are unconscious.

Carisoprodol is currently an unscheduled drug, but its active metabolite, meprobamate is schedule IV. Meprobamate has been shown to be addictive and some experts have suggested that using carisoprodol may lead to addiction. One study showed that subjects using carisoprodol, especially those with addictive tendencies, may abuse it if the drug is administered for more than three months. Cyclobenzaprine is not as addictive as carisoprodol and is structurally related to TCAs such as imipramine and amitriptyline, therefore, all side-effects mentioned above for the TCAs may be applied to cyclobenzaprine.

Benzodiazepines and Barbiturates

Benzodiazepines and barbiturates are classes of drugs that are used in the treatment of anxiety and for induction of sleep. Benzodiazepines are prescribed over barbiturates because benzodiazepines are safer and more efficacious. According to the NFLIS, barbiturates currently represent about 0.15% of all drugs seized by law enforcement agencies. However, there is still access to barbiturates and their inclusion in the analysis is important.

Both drug classes work by different mechanisms to enhance the action of GABA neurons. GABA is a very important inhibitory neurotransmitter and the

enhancement that these drugs provide allows better inhibition of neuron firing and the resulting decrease in neuronal activity. All of these drugs have sedative properties and their combination with alcohol is very drastic and sometimes lethal. Table III shows the relative duration of action for the benzodiazepines and barbiturates. The screening process employed by USDTL is capable of detecting most benzodiazepines and barbiturates; however there are several that may be missed in their screening. The immunoassay detects oxazepam and any benzodiazepine that is not metabolized to oxazepam has very low cross-reactivity. Therefore, the analysis conducted at UIC selectively looked for any drugs that may be missed in the USDTL screening.

Amobarbital and butalbital comprise the two barbiturates that were screened for selectively. Alprazolam, chlordiazepoxide, clonazepam, flunitrazepam, and triazolam are the benzodiazepines that were selectively screened. While all benzodiazepines have some amnestic properties, flunitrazepam is widely known to have severe amnestic qualities. Anecdotal accounts of flunitrazepam use in DFSA have indicated that the complainant had no knowledge of the assault even though they may have been awake during the assault. (31). There are also accounts of the complainant only learning of the assault after seeing it on a videotape confiscated from the suspect. These two classes of drugs have all of the properties that a DFSA assailant would want. With the incapacitation that they provide, their synergy with alcohol, and their amnestic properties, they can easily be used to sexually assault someone without fear of being caught. It has also been noted that routine drug analyses will often miss many benzodiazepines

due to their low cross-reactivity with immunoassay techniques and low concentrations following a single dose.

**TABLE III - DURATION OF ACTION OF SOME COMMON
BENZODIAZEPHINES AND BARBITURATES**

	Short Duration	Medium Duration	Long Duration
Benzodiazepines	Alprazolam Lorazepam Oxazepam Triazolam	Estazolam Temazepam	Clorazepate Chlordiazepoxide Clonazepam Diazepam Flunitrazepam Flurazepam Quazepam
Barbiturates	Thiopental	Amobarbital Pentobarbital Secobarbital	Butalbital Phenobarbital

Zolpidem

Zolpidem is a member of the imidazopyridine class of compounds and is a sedative-hypnotic similar to benzodiazepines. While structurally different from benzodiazepines, zolpidem interacts with the same receptor with one main difference. Benzodiazepines interact with three distinct receptors, omega-1, omega-2, and omega-3, while zolpidem selectively interacts only with omega-1.

Omega-1 is responsible for the sedative effects and omega-2 is responsible for impairments in memory and cognitive function. By selectively activating only the omega-1 receptor, zolpidem only causes sedation without the deleterious side effects and is more desirable than benzodiazepines. However, because it does cause sedation, it is included as a possible “date-rape” drug.

Antihistamines

Antihistamines are a class of drugs that most people would not associate with DFSA. These drugs are used in the treatment of allergies by blocking histamine in our bodies, the substance responsible for allergic reactions. One of the main side effects with the use of antihistamines is sedation. When combined with alcohol or other sedatives, the effects will be additive and may put the complainant at risk for a sexual assault. We have screened for chlorpheniramine, diphenhydramine, and doxylamine, all first generation antihistamines. The first generation antihistamines have more undesirable side effects than second generation antihistamines (most notably sedation), but the first generation are still used because they are inexpensive and effective. Diphenhydramine has also been shown to be a potent cholinergic inhibitor which increases its sedative qualities. All of these drugs are contraindicated with alcohol and are available over-the-counter. This increases the chance of their use in DFSA due to their wide availability. Typical toxicological screens are not set-up for the detection of antihistamines and their inclusion in this study was

important. However, those with allergies commonly use these drugs and any interpretation of the results has taken this into account.

Clonidine

Clonidine is a direct-acting agonist of α_2 receptor is located pre-synaptically and its activation leads to feedback inhibition and a decrease in the amount of norepinephrine released. Clonidine can produce sedation and one study demonstrated its effectiveness as a sedative for subjects who require mechanical ventilation. Clonidine has also been shown to cause amnesia through activation of a G-protein. It is possible for clonidine to act synergistically with other sedatives and thus its inclusion in this study.

Scopolamine

Scopolamine is an anti-muscarinic agent of the belladonna alkaloid family, of which atropine is a member. However, scopolamine differs from atropine in that scopolamine blocks the formation of short-term memories due to its higher affinity in the CNS. Scopolamine also produces a higher degree of sedation than atropine, again due to the higher degree of penetration into the CNS. Therapeutically, scopolamine is used to prevent motion sickness, but its amnestic qualities have made it desirable for criminals wishing to “erase” the memories of their victims. In South America, where it is known as burundanga, criminals have been using it to rob and kidnap victims for decades. A literature

search did not reveal any extensive illegal use of scopolamine in the U.S., however, its use for DFSA could become popular and thus its inclusion.

Valproic Acid

Valproic acid is an anticonvulsant used to control most types of seizures. Its exact mechanism is not completely understood, but it is assumed that Valproic acid works with GABA to decrease neuronal activity. Thus it has the sedative qualities seen in barbiturates, benzodiazepines, and GHB which all act on the GABA receptor. It is molecularly very similar to GHB and a dual analysis with GHB was conducted. Valproic acid is known to cause sedation and will enhance the effects of alcohol and other sedatives.

Research Conclusions

Recently a multiple site study was conducted to further identify if DFSA is as prevalent as the news media has stated. Previous studies on the prevalence of DFSA have been marred by biased sampling methods or have been lacking toxicological analyses to support sexual assault complainant statements. This study has attempted to correct both of these problems by accepting all sexual assault complainants and analyzing their urine and hair for a multitude of drugs. This sampling method is in accord with the epidemiologically correct definition of prevalence. The drugs were chosen based on a report by a committee assigned to the task of determining drugs that have either been implicated in DFSA, or whose pharmacology readily lends it to be used to incapacitate a potential victim.

The complicated task of identifying those subjects in this study who were victims of DFSA was further broken into two definitions. The first is more conservative and states that a subject was the victim of DFSA only of surreptitiously given a drug. The second includes the first, but also takes into account the subject's own illegal drug use and prescription drug misuse.

A total of 144 subjects were enrolled in this study. The return (second visit) rate for the subjects was considerably lower than desired; however, previous studies have shown that a large percentage of sexual assault complainants do not return even for a follow-up clinical visit as is usually suggested. Only two of the four sites enrolled the targeted number of subjects, which suggests that the recruitment of sexual assault complainants into research studies following the assault is difficult. This may be due to the complainant still being in shock from the assault or for other unstated reasons. Most studies on sexual assault complainants are done on case files and do not require the actual involvement of the complainant. In this study, we needed the complainant to answer very personal questions regarding their drug habits, which may have discouraged some from enrolling in the study.

The main hypothesis for this study was that the prevalence of the classic “date-rape” drugs (flunitrazepam, clonazepam, GHB, ketamine, and scopolamine) would be low for the enrolled subjects. This was proven as only 4.9% of the enrolled subjects were positive for the above drugs. Of these drugs, clonazepam was only found in subject's who admitted to having a prescription for it. GHB, Ketamine, and Scopolamine were never found in any subject, while

Flunitrazepam was found in several subjects, some of whom were positive on both visits. Therefore, most of the subject's positive for these drugs had taken them by their own accord and not received them surreptitiously. However, as stated above, due to GHB having endogenous levels in the body, it was difficult to determine if GHB was given to subjects who reported greater than 12 hours after the alleged assault. It is possible that some of the subjects who believed they were given a drug were given GHB, but did not report to the clinic quickly enough for our analysis to detect quantities above previously established endogenous levels. This is a problem in DFSA that is not unique to this study and thus should not affect the results from this study.

The self-reporting of drug use by sexual assault complainants was able to be evaluated in this study. There have been no previous studies on how truthful sexual assault complainants are in reporting their drug usage before the assault. One of our hypotheses was that sexual assault complainants would be more honest in admitting the use of illegal drugs than has been previously been shown for other populations. However, this hypothesis was disproved by the high number of subjects who did not truthfully report their drug usage. Our combined estimates demonstrate that only 40% of the subjects in this study in whom the drugs were detected truthfully admitted to using illegal drugs. Further work needs to be done on the social science aspect to determine the reasons for the underreporting. We have been unable to determine in this study if the subjects believed that the results would harm their case or if by admitting to using drugs, the examining nurse would change the way in which they interacted with the

subject. The subjects may have felt threatened by possible laboratory findings even though it was made clear that our testing was anonymous and for research purposes only. Jurisdictions need to consider their drug screening / drug testing protocols with sexual assault complainants. Some now test for, and report, all drugs of abuse. This is often only able to be done after the complainant signs an additional consent form for the drug test. Complainants may feel that their recreational use of illegal drugs could negatively affect the course of the sexual assault prosecution and refuse to consent to the drug test. However, it needs to be clearly explained that the finding of illegal drugs will not hurt their case. At the same time, only through a truthful recounting of the events of the assault can the toxicologist make an educated decision about whether the subject was incapacitated.

Our second hypothesis was that sexual assault complainants would have similar drug profiles as compared to the general public and previous studies. It was shown that when compared to an earlier work on sexual assault complainants, the prevalence of drugs in our study was similar to their results. Their study accepted subjects with a reported drug history or who believed that a drug was given to them. This study accepted all subjects, regardless of history, and analyzed for more drugs. Due to a different sampling method and toxicology analysis, the fit between the two overall drug profiles is fortuitous. However, when the subjects in this study are compared to a national drug monitoring service (MTF), sexual assault complainants demonstrated a higher number of drugs in their system. The caveat in comparing our results to MTF data is that

MTF only uses self-reporting of drug use and does not conduct analytical tests on the respondents. Because self-reporting has been shown to be low, it is not surprising that our subjects had such a larger amount of drugs in their system than the general public admits to using.

Although this work is the first to combine both toxicology results with subject reporting, there is still more work to be accomplished. The total number of subjects enrolled was fewer than expected and more will need to be studied to determine if the results for this sample size correspond to a much larger population. It is also important to analyze a more regionally diverse population including clinics from the east coast and in areas with a higher percent of minorities. The questionnaire devised will also have to be updated to include OTC drug usage, subject/assailant relationship, and time interval for reporting. It is also important to again stress the need for the questionnaire to be completed at the initial visit to the clinic, as the return rate for the second visit is low.

More research is also needed by the social sciences to understand why sexual assault complainants underreport their illegal drug usage to such a large extent. This work has shown that is difficult to believe the subject's account when they are not truthful in their drug history. The nursing staff may need to be educated in methods for extracting truthful drug histories by stressing that illegal drug usage may not hinder a successful prosecution of the subject's case, but rather help in the determination of surreptitious drugging versus recreational drug usage.

Finally, the two definitions for DFSA presented herein, DFSA 1 and DFSA2, need to be further examined by the toxicology and legal communities. A consensus needs to be reached as to what comprises DFSA and how to handle the successful prosecution of these cases. Most laws dealing with sexual assault place surreptitious drugging as an aggravating factor to the crime. However, recreational drug usage by the victim that led to their physical or mental incapacitation may also need to be included as an aggravating factor. As demonstrated in this study, the subject's own drug usage was more likely a factor in facilitating a sexual assault rather than surreptitious drugging.

Treatment Implications

There are a number of profound treatment implications for victims of DFSA. These implications suggest the need for effective treatment strategies to reduce psychological distress and to promote successful functioning. Substance abuse counselors and other addiction professionals are likely to encounter clients with symptoms resulting from DFSA. Of course, not all victims of DFSA will develop significant problems. However, many will seek professional help or the post-trauma symptoms will emerge during the process of substance abuse counseling.

Substance abuse counselors may be involved with the assessment process, direct delivery of counseling, after-care services, referral procedures, or community support services. In any case, as has been shown in this course,

counselors are likely to encounter the strong relationship between substance abuse and sexual assault.

- **Assessment.** Clients who are confirmed or suspected as being a victim of sexual assault need to be assessed for:
 1. Physical health, including STD's and HIV
 2. Psychological health, including anxiety, panic disorder, phobic anxiety, dissociative experiences, depression, suicidal feelings, shame, guilt, self-blame and anger.
 3. Post-traumatic stress disorder and acute stress disorder.
 4. Psychosexual dysfunction.
- **Support services.** Clients who have been victims of sexual assault are likely to need:
 1. Legal services
 2. Medical services
 3. Social services
 4. Re-victimization prevention
- **Counseling.** There are a number of counseling strategies recommended for victims of sexual assault. Most of these techniques follow the principles of cognitive-behavioral therapy (CBT).

1. Strategies for managing physiological arousal and anxiety.
 - a. progressive muscle relaxation
 - b. breathing control skills
 - c. guided imagery
2. Strategies for managing problematic cognitions
 - a. cognitive restructuring
 - b. guided self-dialogue
3. Strategies for managing ineffective behavior
 - a. role play
 - b. covert modeling
4. Strategies to confront external stimuli and situations reminiscent of the traumatic event.
 - a. *in vivo* exposure
 - b. imagined exposure
5. Strategies to accept normal psychological processes
 - a. acceptance and commitment therapy (ACT)
 - b. acceptance of clients' histories, emotions, and thoughts while engaging in behavioral change

Clients in substance abuse treatment may be abusing substances because of a drug –facilitated sexual assault (DFSA). In either case, for substance abuse counselors, the following points serve as a conclusion of this course:

- Clients who suspect they may have been sexually assaulted while under the influence of drugs may not remember the event and may experience distress at not remembering the event.
- These same clients may experience some level of PTSD or other psychopathy.
- Most victims are reluctant to report a sexual assault, and a delay in reporting, because of confusion, may further reduce reporting.
- Individuals reporting sexual assault may be reluctant to have a toxicology test in case the test identifies other substances that the person may have taken, fearing his/her own arrest.
- The victim's own drug usage was more likely a factor in facilitating a sexual assault rather than surreptitious drugging.

Drug Facilitated Sexual Responsibility Scale

(DFSARS)

The DFSARS is a self-administered and self-scored instrument for self-exploration of attribution of responsibility and blame for sexual assault under a variety of situations. In addition to self-exploration, the DFSARS can be used as a stimulus for group discussion or in-service training. The DFSARS is not a research instrument, so there are not any available normative scores for the instrument. The student is free to use the instrument for any of the other above applications. The DFSARS and scoring instructions appear in the Appendix.

The DFSARS is adapted from the work of Girard & Senn (2008). In their study of 280 undergraduate students, they found that the participants attributed an average of 80-90% of the responsibility for the outcome of the incident to the perpetrator across all five situations. The highest attribution for responsibility (91%) was for the perpetrator when the victim was involuntarily drugged. The highest average levels of attribution for responsibility and blame for the victim were for the situation when both individuals voluntarily took a date-rape drug (21% and 17%).

DRUG FACILITATED SEXUAL ASSAULT RESPONSIBILITY SCALE (DFSARS)

Directions: For each of the following five situations in which a sexual assault has been committed by a male perpetrator on a female victim, indicate the level of responsibility and blame that should be attributed to each individual. Regardless of whether they could anticipate the consequences, indicate whether you think the perpetrator and victim were *totally responsible* (TR), *mostly responsible* (MR), *slightly responsible* (SR), *slightly not responsible* (SNR), *mostly not responsible* (MNR), or *totally not responsible* (TNR).

For blame, indicate whether you think the perpetrator and victim were *totally to blame* (TB), *mostly to blame* (MB), *slightly to blame* (SB), *slightly blameless* (SBS), *mostly blameless* (MBS), or *totally blameless* (TBS).

Remember, in each situation, a sexual assault has been committed. Make your selections by circling the appropriate letter sets. Again, the letters stand for the following levels of responsibility and blame:

totally responsible mostly responsible slightly responsible slightly not responsible
 TR MR SR SNR

mostly not responsible totally not responsible
 MNR TNR

And for blame:

totally to blame mostly to blame slightly to blame slightly blameless mostly blameless
 TB MB SB SBS MBS

totally blameless
 TBS

1. Both of the individuals were sober.

Perpetrator responsibility: TR MR SR SNR MNR TNR

Victim responsibility: TR MR SR SNR MNR TNR

Perpetrator blame: TB MB SB SBS MBS TBS

Victim blame: TB MB SB SBS MBS TBS

2. Both of the individuals were voluntarily drinking the same amount of alcohol.

Perpetrator responsibility: TR MR SR SNR MNR TNR

Victim responsibility: TR MR SR SNR MNR TNR

Perpetrator blame: TB MB SB SBS MBS TBS

Victim blame: TB MB SB SBS MBS TBS

3. Both of the individuals voluntarily took a “date rape” drug while drinking.

Perpetrator responsibility: TR MR SR SNR MNR TNR

Victim responsibility: TR MR SR SNR MNR TNR

Perpetrator blame: TB MB SB SBS MBS TBS

Victim blame: TB MB SB SBS MBS TBS

4. The male perpetrator makes a regular drink for himself, but slips a drug into her drink.

Perpetrator responsibility: TR MR SR SNR MNR TNR

Victim responsibility: TR MR SR SNR MNR TNR

Perpetrator blame: TB MB SB SBS MBS TBS

Victim blame: TB MB SB SBS MBS TBS

5. The male perpetrator purposely mixes her drinks much stronger (triple strength) than his.

Perpetrator responsibility: TR MR SR SNR MNR TNR

Victim responsibility: TR MR SR SNR MNR TNR

Perpetrator blame: TB MB SB SBS MBS TBS

Victim blame: TB MB SB SBS MBS TBS

DFSARS Scoring Key

Directions: The DFSARS produces four scores, two for the perpetrator and two for the victim. Each also has a blame and responsibility score. The circled items are scored 5, 4, 3, 2, 1, 0 from *totally responsible* (5) and *total blame* (5) to *totally not responsible* (0) to *totally blameless*(0). You have three options in scoring the DFSARS. You can either average the raw scores, total the scores, or average the totals. If you total the scores:

Perpetrator responsibility scores range from 25 to 0.

Perpetrator blame scores range from 25 to 0.

Victim responsibility scores range from 25 to 0.

Victim blame scores range from 25 to 0.

The higher the score, the more responsibility and blame you attribute to the perpetrator and victim.

% Perpetrator responsibility score _____

% Perpetrator blame score _____

% Victim responsibility score _____

% Victim blame score _____

If you average the scores:

An average of 5=100% responsibility and blame

“	4= 80%	“	“
“	3= 60%	“	“
“	2= 40%	“	“
“	1= 20%	“	“
“	0= 0%	“	“

If you total the scores or average the total scores:

A total of 25=100% responsibility and blame

“	20= 80%	“	“
“	15= 60%	“	“
“	10= 40%	“	“
“	5= 20%	“	“
“	0= 0%	“	“

Note: Refer to the previous discussion of the DFSARS on the last page of the course to compare your scores with some normative information.

APPENDIX

LIST OF ABBREVIATIONS

AMPS	-	Amphetamines
BZ	-	Benzodiazepines
BSTFA	-	Bis(trimethylsilyl)trifluoroacetamide
CNS	-	Central Nervous System
DEA	-	Drug Enforcement Agency
DFSA	-	Drug Facilitated Sexual Assault
DOA	-	Drug of Abuse
FBI	-	Federal Bureau of Investigation
GABA	-	Gamma Aminobutyric Acid
GC/MS	-	Gas Chromatography/Mass Spectrometry
GHB	-	Gamma-hydroxybutyrate
IRB	-	Institutional Review Board
LOD	-	Limit of Detection
MBHFBA-	-	Methylenedioxy-n-methylamphetamine
MDMA	-	Methylenedioxy-n-methylamphetamine
MG	-	Milligram
ML	-	Millimeter
MTBSTFA-	-	N-(tert-butyldimethylsilyl)-N-methyltrifluoroacetamide
MTF	-	Monitoring the Future
NAD	-	Nicotinamide Adenine Dinucleotide
NCVS	-	National Crime Victimization Survey

NFLIS	-	National Forensic Laboratory Information System
NG	-	Nanogram
NIDA	-	National Institute of Drug Abuse
NIJ	-	National Institute of Justice
OTC	-	Over the Counter
PCP	-	Phencyclidine
RAINN	-	Rape, Abuse, & Incest National Network (www.rainn.org)
SAMSHA-		Substance Abuse and Mental Health Services Administration
SIM	-	Selected Ion Monitoring
SOFT	-	Society of Forensic Toxicologists
SOP	-	Standard Operating Procedure
SSRI	-	Selective Serotonin Reuptake Inhibitor
TCA	-	Tricyclic Antidepressant
THC	-	Tetrahydrocannabinol (marijuana)
TMCS	-	Trimethylchlorosilane
UCR	-	Uniform Crime Reports
UCT	-	United Chemical Technologies
USDTL-		United States Drug Testing Laboratories

List of Street Terms

Rohypnol is also known as:		
Circles	R-2	Rope
Forget Pill	Rib	Rophies
LA Rochas	Roach	Ruffies
Lunch Money	Roach-2	Trip-and-Fall
Mexican Valium	Roches	Whiteys
Mind Erasers	Roofies	
Poor Man's Quaalude	Roopies	

GHB is also known as:		
Bedtime Scoop	G-Juice	Liquid X
Cherry Meth	Gook	PM
Easy Lay	Goop	Salt Water
Energy Drink	Great Hormones	Soap
G	Grievous Bodily Harm (GBH)	Somatomax
Gamma 10	Liquid E	Vita-G
Georgia Home Boy	Liquid Ecstasy	

Ketamine is also known as:		
Black Hole	Jet	Psychedelic Heroin
Bump	K	Purple
Cat Valium	K-Hole	Special K
Green	Kit Kat	Super Acid

Methylenedioxymethamphetamine (MDMA) is also known as:		
Ecstasy	X	Clarity
XTC	Adam	Lover's Speed

Lysergic Acid Diethylamide (LSD) is also known as:		
Acid	Boomers	Yellow Sunshine

Methamphetamine is also known as:		
Speed	Meth	Crank
Ice	Crystal	Fire
Chalk	Crystal Meth	Glass

Appendix A: Post Test and Evaluation for the Course Title

Directions: To receive credits for this course, you are required to take a post test and receive a passing score. We have set a minimum standard of 80% as the passing score to assure the highest standard of knowledge retention and understanding. The test is comprised of multiple choice and/or true/false questions that will investigate your knowledge and understanding of the materials found in this CEU Matrix – The Institute for Addiction and Criminal Justice distance learning course.

After you complete your reading and review of this material, you will need to answer each of the test questions. Then, submit your test to us for processing. This can be done in the following manner:

Submit your test via the Internet. All of our tests are posted electronically, allowing immediate test results and quicker processing. First, you may want to answer your post test questions found at the end of this appendix. Then, return to your browser and go to the Student Center located at:

<http://www.ceumatrix.com/studentcenter>

Once there, log in as a Returning Customer using your Email Address and Password. Then click on 'View Lesson Quiz' and you will be presented with the electronic exam.

To take the exam, simply select from the choices of "a" through "e" for each multiple choice question. For true/false questions, select either "a" for true, or "b" for false. Once you are done, simply click on the submit button at the bottom of the page. Your exam will be graded and you will receive your results immediately. If your score is 80% or greater, you will receive a link to the course evaluation. You will also receive a link to the Certificate of Completion. This is the final step in the process, and you may save and / or print your Certificate of Completion.

If, however, you do not achieve a passing score of at least 80%, you will need to review the course material and return to the Student Center to resubmit your answers.

NOTE: THE EXAM QUESTIONS AND /OR ANSWERS MAY BE IN A DIFFERENT ORDER IN THE ONLINE EXAM

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Answer the following questions by selecting the most appropriate response.

**POST-TEST QUESTIONS
For
SUBSTANCE ABUSE AND SEXUAL ASSAULT**

1. RAINN estimates that an American is assaulted every:
 - a. hour
 - b. thirty minutes
 - c. two minutes
 - d. two hours
 - e. fifty-two minutes

2. The two programs that estimate the number of sexual assaults each year are the _____ collected by the _____ and the _____ collected by the _____.
 - a. UCR, DEA, NCVS, NIJ
 - b. UCR, BJS, NCVS, FBI
 - c. UCR, FBI, NCVS, BJS
 - d. UCR, NIJ, NCVS, NIJ
 - e. UCR, RAINN, NCVS, NIJ

3. The UCR calculates the number of sexual assaults per:
 - a. million
 - b. 100,000
 - c. 500,000
 - d. 50,000
 - e. ten million

4. In the twelve year UCR survey, the year showing the highest number of sexual assault complaints was:
 - a. 1990
 - b. 2000
 - c. 1996
 - d. 2002
 - e. 1992

5. The most common fear expressed by sexual assault complainants was:
 - a. rejection
 - b. scorn
 - c. embarrassment
 - d. retaliation
 - e. humiliation

6. Sexual assault victims should be reassessed within _____ of the assault.
- a. 2 weeks
 - b. 6 weeks
 - c. 2 months
 - d. 6 months
 - e. one year
7. SANE stands for:
- a. sexual assault nurse examiner
 - b. sex-anxiety-neurosis-expectancy
 - c. substance abuse neurosis expert
 - d. sexual assault national expert
 - e. substance abuse non-reporting event
8. DFSA 1 is also known as:
- a. reactive
 - b. opportunistic
 - c. DRSA
 - d. proactive
 - e. retroactive
9. The best known incapacitating drug found in sexual assaults and the most studied is:
- a. marijuana
 - b. cocaine
 - c. alcohol
 - d. meth
 - e. heroin
10. The two best-known “date-rape” drugs are flunitrazepam and:
- a. BHG
 - b. HBG
 - c. GGB
 - d. GHB
 - e. BHG
11. LOD stands for:
- a. limit of drugs
 - b. lower order detection
 - c. lethal overdose on drugs
 - d. lab of detection
 - e. limit of detection

12. GHB is found _____ in urine.
- endogenously
 - endomorphically
 - exogenously
 - exothermically
 - endermically
13. As an alleged victims' age increases, the likelihood of a conviction _____.
- increases
 - stays the same
 - is unknown
 - decreases
14. Rohypnol is _____ times more potent than valium.
- three
 - ten
 - two
 - four
 - six
15. Flunitrazepam produces:
- excitement
 - depression
 - agitation
 - amnesia
 - a trance
16. Most states have laws stating that someone is unable to give their consent to engage in sexual activity if they are:
- unconscious
 - intoxicated
 - mentally handicapped
 - diminished mental capacity
 - all of the above
17. The amphetamines analyzed in the study were:
- DMMA and AMD
 - MDMA and MDA
 - MAMD and AMD
 - DAMM and DAM
 - DMAM and MDAA

18. Peripherally, amphetamines raise blood pressure, increase the breathing rate, and affect the:
- a. feet
 - b. eyes
 - c. kidneys
 - d. colon
 - e. bladder
19. The use of amphetamines as a “date-rape” drug is:
- a. maximal
 - b. common
 - c. minimal
 - d. frequent
 - e. impossible
20. The term developed for marijuana’s ability to alter one’s sense of time is:
- a. spatial disintegration
 - b. temporal integration
 - c. spatial integration
 - d. temporal disintegration
 - e. cognitive disintegration
21. In laboratory tests, cocaine users were unable to distinguish between cocaine and:
- a. LSD
 - b. alcohol
 - c. marijuana
 - d. amphetamine
 - e. heroin
22. PCP causes a feeling of intoxication similar to:
- a. marijuana in small doses
 - b. alcohol in large doses
 - c. alcohol in small doses
 - d. marijuana in large doses
 - e. THC

23. Which of the following best explains how morphine works on pain?
- a. the pain is present, but the signal to perceive pain is blocked
 - b. the pain is gone, and the signal is gone
 - c. the pain is gone, and the signal is present
 - d. the signal to perceive pain is rerouted
 - e. the pain—morphine connection is unknown
24. TCA is an (a):
- a. antidepressant
 - b. anti-anxiety agent
 - c. antipsychotic agent
 - d. histamine
 - e. anti-neurotic agent
25. SSRI's have been used to treat:
- a. depression
 - b. anxiety
 - c. OCD
 - d. bulimia
 - e. all of the above
26. According to the NFLIS, barbiturates currently represent what percent of all drugs seized?
- a. 15
 - b. .15
 - c. .93
 - d. 20
 - e. .05
27. In the study for the prevalence of the classic "date-rape" drugs, what percent proved positive?
- a. 10
 - b. 8.9
 - c. .50
 - d. 4.9
 - e. 3.3
28. What percent of the subjects in the study in whom drugs were detected admitted to using illegal drugs?
- a. 10
 - b. 60
 - c. 25
 - d. 40
 - e. 50

29. Most of the counseling strategies recommended for sexual assault are based on:
- a. NAD
 - b. RR
 - c. EMDR
 - d. TA
 - e. CBT
30. Rohypnol is also known as:
- a. fire
 - b. soap
 - c. trip-and-fall
 - d. Georgia home boy
 - e. G-juice