

PREVENTION OF ADOLESCENT ABUSE OF ALCOHOL, TOBACCO, AND OTHER DRUGS (ATOD)

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Essentially all twelfth-grade students have tried an alcoholic beverage and over 30% have had at least one experience in their lifetime with an illegal drug. Approximately 13% of the U.S. population qualifies for a diagnosis of drug abuse or drug dependence by age 29. These findings, based on epidemiological surveys, illustrate the pervasiveness of drug use in contemporary society. The consequences of drug and alcohol consumption are astounding. Currently, tobacco is responsible for 2,000 deaths each day in the U.S. Approximately 400 alcohol-related deaths occur each day.

Historical Background

The basic motivation underlying drug or alcohol use for non-medical purposes is to either experience euphoria or to obtain relief from a physically distressful or emotional state. In almost every society, drugs having addictive potential are consumed. The use of opium in Asia, cannabis in Africa, alcohol in Europe, cocoa in South America, and tobacco in North America has been traditionally woven into the fabric of everyday living, festive occasions, and cultural rituals.

Historically, compounds having addictive potential have been derived from plants. Synthetically prepared compounds (e.g. amphetamines, PCP) have become increasingly available and pose a major burden on society because of their strong potency and the number of different substances that can be produced quickly, cheaply, and in great quantity. Whether derived from plants or manufactured, most drugs having addictive potential also have been used for medical purposes. Heroin and cocaine, for example, were legal, readily available, and aggressively advertised in this country for their medicinal benefits until the second decade of this century. Until recently, alcohol was believed to have medicinal

properties and today is still a constituent of many over-the-counter preparations (e.g. cough syrup, mouthwash, etc.).

Although it has been documented since ancient times that excessive habitual use of addictive substances occasionally occurred, it was not until the industrial revolution that widespread alcohol and drug abuse became a matter of social concern. Three factors account for the increased prevalence of addiction.

(1) The introduction of drugs that were novel or alien to an indigenous population resulted in poorly regulated patterns of intake. For example, Europeans introduced alcoholic beverages to Native Americans. However, there were neither formal nor implicit social mores available to regulate alcohol consumption among Native Americans. Consequently, consumption leading to severe intoxication was commonplace, and the prevalence of alcoholism among Native Americans is still of epidemic proportions.

(2) Advances in technology have resulted in the manufacture of addictive compounds that have ever-increasing potency. Consequently, the drug product requires a smaller effective dose to achieve the same pharmacological effect, thereby potentiating the risk for addiction. Distilled beverages (e.g. spirits) generally have higher ethanol concentrations than fermented beverages (e.g. wine). Heroin and crack/cocaine have greatly magnified potency compared to opium and cocoa. Purified substances also enable changing the route of drug administration so that the desired effect is quickly attained. For example, heroin is typically injected whereas opium is smoked, and snorting cocaine is more efficient than chewing cocoa. This increased potency, combined with more efficient administration methods, increases the risk for addiction.

(3) Because laboratory purification isolates the addictive compound in its concentrated

form, it is easy to transport vast quantities in small packages. Thus, drug distribution is very easy. It is particularly quick and cheap since the advent of worldwide air transportation. Because the opportunity for huge profit is available, personal risks will be taken to transport drugs despite severe legal consequences. For example, it costs about \$5 to manufacture a kilogram of heroin in Asia. The street value of a kilogram of heroin is about \$90,000 in the U.S. Under these conditions of vast profit, it is unlikely that the supply of addictive drugs, such as cocaine and heroin, can be completely halted. Similarly, it should be noted that the export by U.S. manufacturers of alcohol and tobacco also produces huge profits. The blunt fact is that addictive drugs, whether legal or illegal in a particular country, are a part of the world marketplace. It is noteworthy that the illegal import of alcoholic beverages in Islamic countries poses as much concern there as does heroin and cocaine in this country. This situation is compounded by the plethora of pharmaceutical compounds, particularly the benzodiazepines and analgesics, which have addictive potential. Not only are addictive drugs ubiquitous, there is an implicit acceptance in contemporary society that coping with stress and unsettling emotions can be accomplished by consuming a chemical. The consequence is that there is a large array of easily available and inexpensive psychoactive compounds.

The Problem

Tobacco is usually the first substance containing an addictive chemical that is consumed by youth outside of the home. Tobacco is cheap, easily available, and contains nicotine, which has been shown in behavior pharmacology research to be addictive. Indeed, some research suggests that nicotine is more addictive than heroin. Nicotine use frequently precedes other forms of addiction. Also, nicotine addiction often occurs in conjunction with addictions to other drugs. Whether nicotine

consumption primes a youngster for other types of drug abuse is, however, not known. Significantly, in contrast to the recent general trend of diminishing tobacco use, rates for youth, especially young females, are increasing.

Tobacco is an excellent case example for learning about the causes of addiction and its consequences. Considering its toxicity and addiction potential, it is remarkable that it is not only legal, but that it is readily available and its consumption is actively promoted. Advertisement, including sponsorship of athletic and entertainment events aimed at youth, repetitively conveys the positive benefits of use. Tobacco products can be inhaled, sniffed, or chewed and are also sold in fixed doses in the form of cigarettes. It is an ideal product for easy distribution. Based on what is known about tobacco, the most common, voluntarily-consumed, toxic and addictive substance in the world, how should prevention of drug abuse be conducted?

An integrative model that connects evaluation with prevention has been previously described (Tarter, 1990, 1991). This individualized approach involves the detection and quantification of problem severity in ten domains of everyday functioning. These ten domains, which are well-established to be associated with the risk for drug abuse, and associated prevention strategies are described below.

Risk Factors and Prevention Programs

Characteristics of the person that predispose him or her to drug abuse are referred to as vulnerability factors inasmuch as they are encompassed within the person. Characteristics of the environment that augment the likelihood of drug abuse are referred to as risk factors. Risk factors combine with vulnerability factors to determine the person's liability status. This liability refers to the

probability that the person will develop a drug abuse disorder. The following discussion reviews the major domains of vulnerability and environmental risk factors that conjointly determine the liability to severe drug abuse.

1. Alcohol, tobacco, and other drug experimentation (ATOD)

The experimental use of drugs having addictive potential leads to patterns of abuse and physiological dependence in some individuals. Over 95% of the U.S. adult population have had at least one exposure in their lifetime to alcohol or drugs. From this population, only about 24% of men and 5% of women develop alcoholism. Approximately 8% of men and 5% of women develop other types of drug abuse, excluding tobacco.

A drug's pharmacological properties and the person's particular reactions to specific classes of drugs are important determinants of the liability for addiction. Individuals differ with respect to their sensitivity to ATOD. For example, some people cannot fall asleep if they drink a cup of caffeinated coffee in the evening. Some individuals are highly tolerant to the effects of alcohol and, therefore, can drink large amounts without obvious adverse effect. Furthermore, drugs that are rapidly metabolized and produce quick and strong effects in the brain tend to be more addictive than slower acting drugs. To cite one example, snorting cocaine has greater addictive potential than drinking caffeine.

No standardized procedure has been developed that is tailored to the prevention of the abuse of specific drugs. Although some research has been directed at teaching individuals to regulate alcohol intake and to be sensitive to internal cues so as to stop consumption prior to intoxication, the primary societal strategy for prevention has been to control production, sale, and distribution as well

as to regulate the concentration of the addictive compound in licit substances (e.g. alcohol concentration in beer).

2. Family

Family factors associated with the liability for ATOD abuse include the lack of positive parental role modeling, consistency of rearing and discipline practices, openness of parent-child communication, and good quality emotional bonding between parents and offspring. Also, single-parent families, two working parents, family stress derived from unemployment, and homelessness comprise major risk factors for children. When children do not have strong affectionate bonds with their parents, disengagement from parental authority, affiliation with delinquent peers, and weak commitment to socially normative behavior are more likely. A poor family environment not only fosters drug experimentation but also other deviant behaviors, such as early sexual intercourse, school truancy, and crime.

Preventions that offset family risks reduce the child's liability for drug abuse. For example, parents taught how to effectively communicate with their children, how to apply appropriate discipline, and how to shape children's behavior toward a normative social adjustment may help prevent ATOD abuse.

3. School

Poor relations between the child and the school is associated with an increased risk for ATOD abuse. Whereas the family is the dominant environment for the first five years of the child's life, the school environment assumes increasingly greater importance over the next 10-12 years.

Several aspects of school adjustment are pertinent to understanding the liability for developing ATOD abuse. Poor grades predispose youth to affiliate with other underachievers, who may be into problem behaviors, including ATOD use at a young age. Furthermore, academic failure produces dissatisfaction and alienation with the school environment and the learning process. The motivation to obtain rewards outside of the school, perhaps from deviant activity, is thereby increased. Consequently, underachieving youth may quit school or are frequently truant. Once removed from the school environment, the opportunities for deviant behavior and drug use increase.

Prevention programs in the school setting are generally only modestly successful. Several reasons account for this discouraging situation:

- **In the majority of programs, prevention strategies, regardless of specific content, are confined to the transmission of information about the harmful properties of ATOD, and knowledge alone about the dangerous effects of ATOD is not an effective deterrent to use.**
- **School-based programs often emphasize interventions that are unrelated to the liability for drug abuse.** For example, there is substantial evidence from the research literature demonstrating that self-esteem is not by itself a cause of ATOD abuse. Therefore, enhancing self-esteem is an ineffective prevention for ATOD abuse. Yet, modifying self-esteem remains the main objective of many interventions.
- **School-based programs target the whole population when, in fact, only a relatively small percentage are at risk for developing drug abuse or drug dependence.** The vast majority of youth who experiment with drugs or occasionally use an addictive drug do not develop drug abuse or physical dependence. From the policy perspective, this fact raises the question of whether it is cost-effective to allocate prevention resources to the whole population even

though only a relatively small proportion will develop drug abuse or dependence.

- **School-based intervention programs have traditionally not been intensive.** Typically, the prevention program spans only a few classroom periods. Considering the complex and often long-standing and severe problems that may precede first drug use, it is not surprising that superficial interventions are ineffective. Indeed, it is not uncommon for an intervention program to be limited to only one session in which either a police officer or a school counselor discusses the dangers associated with drug abuse. Typically, a film is also shown and buttons, stickers, or brochures are distributed to the students.

- **School-based prevention programs do not typically recognize the important developmental differences between students in different grades.** For example, students in the ninth grade have very little in common with students in the twelfth grade. To date, grade- and age- specific drug prevention procedures have not been developed --- it's one size fits all.

4. Peers

Affiliation with unconventional peers and acceptance of deviancy predisposes to drug use and abuse. In effect, individuals having particular characteristics (e.g. non-normative behavior) seek out friends who have similar characteristics, who then reward and encourage those individuals often in undesirable ways.

Family influences interact dramatically with peer influences on the propensity of youth to initiate ATOD use. Specifically, weak family bonds foster early age disengagement from parental authority to the peer influence sphere. Where the family is disrupted or dysfunctional, the risk for affiliation with non-normative peers is augmented.

In this vein, youth mature sexually at different rates and begin and complete the pubertal process at different ages. Youth who commence puberty at a young age are at higher risk than other youth to initiate ATOD use, drop out of school, have legal problems, and become pregnant. The heightened risk for these outcomes appears to be due to the fact that early sexual maturation changes the youngster's physical appearance so as to make him or her appear older than chronological age would indicate. Such youth are prone to affiliate with older peers who expose the youngster to ATOD as well as other situations having high risk for adverse outcomes. Lacking the maturity and social skill to resist these influences by older peers, early maturing youth are thus placed in social contexts, such as parties, where drugs and alcohol are consumed. As can be seen in this brief discussion, ATOD use in adolescents is the product of the interplay among biological, behavioral, and social factors. Effective prevention, therefore, requires systematic analysis of these factors so as to target interventions to the person's specific circumstances.

For drug abuse prevention to be effective, the person must refrain from identification with peers who harbor socially non-normative values and refrain from affiliation with those who behave deviantly. The conditions need to be created so that same- and opposite-sex friendships are established in which ATOD use is negatively sanctioned.

Several different types of prevention programs focusing on peer influence on ATOD use have been implemented. These approaches generally emphasize teaching youth how to say "no" to drug offers. Other approaches aim at fostering social interdependence in the accomplishment of desired goals, for example, group problem solving in outdoor wilderness programs and group construction projects. A related peer influence procedure involves mentors providing positive role modeling. This typically consists of a "buddy" relationship in which one youth with socially desirable attributes is

linked to another youth who is disadvantaged or otherwise has limited social integration with non-deviant friends.

To date, peer influence methods of prevention, although based on sound rationale, have not yet been demonstrated to be effective in the long-term.

5. Psychiatric Disturbance

Children with depression, conduct disorder, hyperactivity, and anxiety disturbances are at elevated risk for substance abuse. Furthermore, psychiatric illness in the parents augments the risk of substance abuse in offspring.

Prevention programs do not currently screen for psychopathology nor are specific interventions for psychopathology generally considered within the overall matrix of liability factors. This is a major shortcoming in prevention programming, because epidemiological research suggests that up to 20% of children in the population may have an undiagnosed psychiatric disorder.

A strong case can be made for incorporating routine psychiatric screening of youth for early intervention. Screening for psychopathology can be efficiently implemented in the school setting. Interventions can encompass counseling, behavioral modification, and pharmacotherapy depending on the type and severity of disturbance. By resolving emotional and behavioral problems, the youngster can function more normatively to optimize his or her potential and receive peer acceptance. Although early treatment of psychopathology falls within the rubric of secondary prevention, it is a necessary component for comprehensive programs aimed at reducing the risk of ATOD abuse.

6. Social Skills

Youth who abuse alcohol and other drugs have poor or deficient social and coping skills.

In effect, they cannot effectively manage social stress. Thus, rather than surmount the stress using adaptive problem-solving strategies, drugs and alcohol are taken because sedation is easy and quick. Because stress is not permanently resolved, habitual consumption ensues, which in turn may lead to addiction.

Research has shown that deficiencies in such social skills, such as in the ability to be assertive, express refusal to drug offers, and give compliments to others, are associated with an increased risk for substance abuse. Poor capacity to exercise these social skills, which are essential for everyday living, induces feelings of inadequacy that in turn causes social interactions to be stressful, and, in extreme circumstances, to be personally threatening.

While some prevention programs incorporate social skill enhancements that improve self-efficacy and self-confidence, the impact of these interventions on ATOD abuse is unknown.

Enhancing interpersonal skills and improving the capacity to cope with stress undoubtedly improves the overall quality of social adjustment, but such programs alone have not yet been demonstrated to prevent ATOD abuse in the long term.

7. Recreational Supervision

Participation in leisure and recreational pastimes that are unstructured or devoid of adult supervision are associated with an increased risk for ATOD abuse. For example, leisure time spent in shopping malls, playing in video game arcades, or “hanging out” fosters the conditions and circumstances to be offered drugs or alcohol and to affiliate with youth who are similarly not

engaged in productive activity. One of the unfortunate trends during the past three decades has been the depletion of structured recreational facilities in the urban environment. The loss of the neighborhood center has resulted in the disappearance of a focal community meeting place where adults and youth mingle, youngsters have the opportunity to experience positive peer interactions, and supervised recreation and community cohesiveness can be fostered. It is ironic, perhaps, to witness the reluctance of elected office holders to invest in the construction and staffing of community recreational facilities as a means of primary prevention while hundreds of millions of dollars are allocated for rehabilitation and prison facilities.

The community encompasses a variety of features that can augment or diminish the risk for alcohol and drug abuse. Billboards advertising alcohol and tobacco typically appeal to youth, and this type of advertising is more concentrated in disadvantaged neighborhoods. In some neighborhoods, drug dealing is the main economic activity. The number of bars and liquor stores is directly related to the opportunity to consume alcohol as well as the prevalence of accidents and crime. The neighborhood that possesses social capital--- that is, citizens who are invested in maintaining the quality of the neighborhood---has protection from exploitation and decay.

Although appealing in principle, community-based interventions have not been shown to have long-term effectiveness. Where positive effects have been demonstrated in research studies, the magnitude of impact is at best modest relative to the cost. During the past decade, many community-based drug prevention programs have been implemented. These programs emphasize citizen mobilization, such as the “Fighting Back” campaign sponsored by the Robert Wood Johnson Foundation. A distinguishing feature of these programs is the integration and cooperation of diverse community agencies.

8. Health

ATOD use is associated with an increased risk for numerous diseases, but it is not known whether poor health fosters drug abuse in youth or the reverse. In older adults, however, it is well established that health problems, such as chronic pain, fatigue, and insomnia, increase the risk for substance use.

Although the contribution of poor health to the liability for substance abuse has not been researched, it is nonetheless reasonable to incorporate health promotion programs into drug abuse prevention programs. Because health behavior among youth is often poor, it would appear to be valuable to integrate drug abuse prevention with prevention of other unhealthy outcomes. These outcomes include sexually transmitted diseases, early pregnancy, HIV infection, organ system disease, and nutritional disorders. Eating disorders, especially in females, are commonly associated with ATOD abuse.

With respect to health promotion, it is also important to note that psychoactive compounds are often used because of their expected “medicinal” benefit. Alcohol, for example, is mistakenly perceived by many individuals to be an effective analgesic, aphrodisiac, and sedative. Consequently, youth learn incorrect information and act on this information. Also, ATOD are thought to be social lubricants. False beliefs are learned by youth that ingestion could enhance their social popularity and improve their enjoyment of life. Beer commercials, for example, do not demonstrate intoxication or any of alcohol’s pharmacological effects. Rather they emphasize social benefits and pleasures. Our cultural traditions transmit expectancies to youth about alcohol and other drugs that are capitalized on by advertisers to promote consumption. As part of health promotion, it is recommended that youth should be educated about the actions of drugs on the body, that for some compounds there is overlap

between their medicinal and addictive properties, and that advertisers are manipulating them about the expected social benefits of use.

9. Work

Youth who work are more likely than their peers to consume drugs. The reasons for this are not clear, but it may be due to a set of factors, including more fiscal resources, premature assumption of adult-like behavior, and the influence of peers. Also, most jobs performed by youth are tedious and monotonous; drug use may thus be an escape from the cumulative effects of such circumstances.

10. Personality and Behavior

Prevention programs do not generally take into consideration the personality makeup of the person. As yet, prevention programs have not addressed the unique problems of youth. Aggressiveness, sensation seeking, impulsivity and shyness are among the traits associated with increased likelihood of ATOD abuse. While habitual patterns of behavior or personality style may be very difficult to modify, recent advances in behavior modification techniques offer promise for their application to drug abuse prevention.

Comprehensive Individualized Intervention

It should be evident from the above discussion that numerous factors contribute to ATOD abuse. Indeed, each individual who develops ATOD abuse has a unique matrix of causal factors. Consequently, interventions, whether considered as prevention or treatment, require an individualized

focus. The central task, therefore, is to be able to efficiently and accurately profile each person's strengths and weaknesses so as to tailor interventions that maximally utilize the person's resources while ameliorating their shortcomings.

An integrated approach to assessment and intervention has been proposed recently that emphasizes the unique needs of each individual (Tarter, 1990). In this approach, the Drug Use Screening Inventory (DUSI) is first administered to quickly identify and quantify the severity of problems in the ten domains described above: (1) substance use, (2) behavior disorder, (3) psychiatric disorder, (4) health, (5) family, (6) work, (7) school, (8) social skills, (9) peer relations, and (10) leisure and recreation. Following administration of this self-report questionnaire, which takes about 20 minutes, severity of problems are ranked from highest to lowest across these ten areas. A profile is obtained that can then facilitate decisions about the problem areas in need of intervention. For example, among some youth the liability to ATOD abuse may be due to psychiatric problems whereas for others it may be primarily due to family, work, or school problems. From this information, the resources required to ameliorate the problem are readily identified. For instance, a social worker may be utilized when the main liability is family coping with finances and society, whereas a psychologist may be more effective in treating an individual who is deficient in social skills. However, it should be recognized that under most circumstances there is more than one liability factor present in the individual. Consequently, it is important to marshal resources into a consortium, which is often made difficult by categorical funding for specific services. Interventions that focus only on part of the person's problem will accordingly be only partially effective in preventing or treating ATOD abuse.

Program Evaluation

A central component of prevention or treatment should be the systematic documentation of the magnitude and direction of change occurring during the course of the intervention. Employing the DUSI as an intervention, monitoring, and follow-up tool enables easy measurement of the nature and magnitude of change. In the emerging climate of increasing accountability by social service agencies and health service providers, this information is crucial for objectively demonstrating effective impact of the intervention program.

Whether the focus is on the individual, an intervention program, or on public policy, it is essential to be cognizant of the well-established fact that ATOD abuse among youth does not typically occur in isolation from other problems. Youth at risk for ATOD abuse disorders are also at risk for school dropout, antisocial activity, pregnancy, HIV infection, traumatic injury, sexually transmitted diseases, and psychiatric disorders. The overlap of these problems underscores the need to adopt a comprehensive approach to treating maladjustment among youth. With respect to service provision, whether prevention or treatment, this entails the need for coordination among professionals and agencies in the community to detect high-risk youth. For example, ATOD abuse may be obscured, but it is nonetheless highly prevalent among youth seeking treatment for venereal disease. Likewise ATOD abuse is extremely high, almost universal, among youth in detention centers. Indeed, drug and alcohol abuse is ubiquitous across the spectrum of health and social facilities that provide services to youth. Thus, it is important that staff are trained to screen for ATOD problems and learn how to make an appropriate referral. At the community level, the importance of interagency coordination cannot be overemphasized, and lawmakers must avoid the tendency to tie funds to specific categories or types of services. And, from the standpoint of program evaluation, it is essential

to broaden the range of outcome measurements to include not only ATOD abuse but other maladaptive behaviors that also have deleterious or life threatening consequences over the long term.

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