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YOUNG ADULT DRINKING

Too often today's headlines bring news of yet another alcohol-related tragedy involving a young person—a case of fatal alcohol poisoning on a college campus or a late-night drinking–driving crash. People ages 18 to 25 often are in the news, but are they really at higher risk than anyone else for problems involving alcohol?

Some of the most important new data to emerge on young adult drinking were collected through a recent nationwide survey, the National Epidemiologic Survey on Alcohol and Related Conditions (NESARC). According to these data, in 2001–2002 about 70 percent of young adults in the United States, or about 19 million people, consumed alcohol in the year preceding the survey.

It's not only that young people are drinking but the way they drink that puts them at such high risk for alcohol-related problems. Research consistently shows that people tend to drink the heaviest in their late teens and early to mid-twenties (1,2). Young adults are especially likely to binge drink and to drink heavily[1] (3). According to NESARC data, about 46 percent of young adults (12.4 million) engaged in drinking that exceeded the recommended daily limits[2] at least once in the past year, and 14.5 percent (3.9 million) had an average consumption that exceeded the recommended weekly limits.[3]

Such risky drinking often leads to tragic consequences (5)—most notably alcohol-related traffic fatalities (6). Thirty-two percent of drivers ages 16–20 who died in traffic crashes in 2003 had measurable alcohol in their blood, and 51 percent of drivers ages 21–24 who died tested positive for alcohol (7). Clearly, then, young adult drinkers pose a serious public health threat, putting themselves and others at risk.

[1] In this study, binge drinking was defined as consuming five or more drinks in a row at least once in the past month. Drinking heavily was defined as consuming five or more drinks in a row on at least five occasions in the past month (3).

[2] The recommended daily limits for moderate alcohol consumption are no more than two drinks for men or one drink for women per day (4).

[3] According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), men may be at risk for alcohol-related problems if their alcohol consumption exceeds 14 standard drinks per week or 4 drinks per day, and women may be at risk if they have more than 7 standard drinks per week or 3 drinks per day. A standard drink is defined as one 12-ounce bottle of beer, one 5-ounce glass of wine, or 1.5 ounces of distilled spirits.

AN AGE OF EXPLORATION

Young adulthood is a stage of life marked by change and exploration. People move out of their parents' homes and into dormitories or houses with peers. They go to college, begin to work full-time, and form serious relationships. They explore their own identities and how they fit in the world. The roles of parents weaken and the influences of peers gain greater strength. Young adults are on their own for the first time, free to make their own decisions, including the decision to drink alcohol.

Young adulthood also is the time during which young people obtain the education and training they need for future careers. Mastery of these endeavors is vital to future success; problems with school and work can produce frustration and stress, which can lead to a variety of unhealthy behaviors, including increased drinking. Conversely, alcohol use during this important time of transition can impede the successful mastery of these developmental tasks (8), also increasing stress.

ALCOHOL AND THE MATURING BRAIN

Research shows that the brain continues to develop throughout adolescence and well into young adulthood. Many scientists are concerned that drinking during this critical developmental period may lead to lifelong impairments in

brain function, particularly as it relates to memory, motor skills, and coordination (9). Young adults are particularly likely to binge drink[4] and to suffer repeated bouts of withdrawal from alcohol. This repeated withdrawal may be a key reason for alcohol's harmful effects on the brain (10).

Even though research shows that drinking early in life can lead to impairment of brain function in adulthood, findings also show that not all young people who drink heavily or become alcohol dependent will experience the same level of impairment, and some may not show any damage at all (11). This is because factors such as genetics, drinking patterns, and the use of other drugs also influence risk.

Factors That Influence Use

Outside influences as well as individual characteristics help determine whether a person will begin drinking and how much he or she will consume. Some of these factors increase a person's risk for problems with alcohol, whereas others serve to protect him or her from harm, as outlined below.

Gender—Men are much more likely than women to drink in ways that are harmful. As shown in a recent national survey of 19- to 30-year-olds, 45 percent of men and 26.7 percent of women reported heavy drinking (defined in that study as five or more drinks on one occasion) in the past 2 weeks, and 7.4 percent of men and 3 percent of women reported daily drinking (12).

Race/Ethnicity—Racial, ethnic, and cultural differences in drinking and alcohol-related problems also have been documented. In general, White and Native American young adults drink more than African Americans and Asians, and drinking rates for Hispanics fall in the middle. In addition, while drinking among Whites tends to peak around ages 19–22, heavy drinking among African Americans and Hispanics peaks later and persists longer into adulthood (13). Researchers suggest that these ethnic differences result, in part, from the fact that Whites see heavy drinking as part of a youthful lifestyle, whereas Hispanics tend to see heavy drinking as a "right" they earn when they reach maturity.

College vs. Noncollege Status—Many people think that the college campus environment itself encourages heavy drinking (14). Alcohol use is present at most college social functions, and many students view college as a place to drink excessively. Yet several studies have found that heavy drinking and related problems are pervasive among people in their early twenties, regardless of whether they attend college or not (15,16). In fact, a recent survey shows that college students drink less frequently than their noncollege peers (that is, 3.7 percent of students report daily drinking vs. 4.5 percent of nonstudents). However, when students do drink, such as at parties on the weekends, they tend to drink in greater quantities than nonstudents[5] (17). On the other hand, students tend to stop these drinking practices more quickly than nonstudents—perhaps "maturing out" of harmful alcohol use before it becomes a long-term problem (16). Rates of alcohol dependence diagnosis appear lower for college students than for 18- to 24-year-olds in the general population (15). And people in their thirties who did not go to college reported a higher prevalence of heavy drinking than people who did go to college (18).

Employment—Being employed full-time after high school was associated with a slight increase in current drinking and a slight decrease in heavy drinking. Unemployed men, but not women, especially tended to reduce their drinking. Homemakers reduced both their current and heavy drinking, but this may have been because of increasing responsibilities stemming from marital and parental roles rather than the result of being a homemaker (19).

Military Service—Young adults in the military are more likely to drink heavily (i.e., consume five or more drinks per typical drinking occasion at least once a week) than older enlistees. In 2002, 27 percent of adults ages 18 to 25 in the military reported heavy drinking, compared with only 8.9 percent of those ages 26 to 55 (20). The reasons for heavy drinking rates in the military include a workplace culture that supports alcohol use and the increased availability of alcohol both in and around military bases (21).

Peer Influences—People entering college or the workforce may be especially vulnerable to the influence of peers because of their need to make new friendships. And they may increase their drinking in order to gain acceptance by peers. Borsari and Carey (22) contend that peer influence is exerted directly (in the form of drink offers or urges to drink) and indirectly (by modeling perceived social norms).

The phenomenon of perceived social norms—or the belief that "everyone" is drinking and drinking is acceptable—is one of the strongest correlates of drinking among young adults, and the subject of considerable research (15). Many college students think campus attitudes are much more permissive toward drinking than they really are and believe other students drink much more than they actually do (22–24). Recent research has shown that addressing these misperceptions can help reduce drinking (24). Then again, the relationship between drinking practices and peer groups may not be so clear. That is, a young person may opt to join a peer group based on that group's drinking practices rather than change his or her drinking behavior to fit in with a particular peer group (25).

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[4] NIAAA defines binge drinking as consuming about four drinks for men or three drinks for women in about 2 hours.

[5] In this study, 41.7 percent of college students vs. 37.1 percent of young adults reported drinking five or more drinks during the last 2 weeks (17).

Marriage and Parenthood—Just as the move to adulthood leads to greater exploration of the world and experimentation with alcohol, assuming adult roles and responsibilities consistently curbs alcohol use. This reduction in drinking may be a result of limitations that adult roles place on social activities in general or may reflect a change in these young adults' attitudes toward drinking.

Young married women have the greatest decreases in drinking behavior, and married men, compared with men in all other categories of living arrangements (i.e., living with parents, in a dormitory, alone, or in other arrangements) have the fewest increases. The data also indicate that becoming engaged (i.e., making a commitment to a relationship) has a similar but less powerful effect on drinking compared with marriage, whereas becoming divorced leads to increased drinking behavior (19).

Being a parent also is related to lower alcohol use for both men and women, although a large part of this effect may simply be a result of getting married. Most women who became pregnant eliminate their alcohol use, although most of their husbands do not (19).

Young adults with serious alcohol problems—that is, who fit the diagnostic criteria for alcohol dependence—may not be as likely to choose stable roles such as marriage and parenthood, or these milestones may not affect their drinking behavior to the same extent that they affect people with less problematic drinking practices (26).

Personality Characteristics—A number of personality traits have been associated with drinking greater amounts of alcohol and drinking more often, including impulsivity, risk-taking, and sensation-seeking—or the tendency to seek out new and exciting experiences (27). Sensation-seeking and impulsivity also have been linked to deviant behavior and nonconformity, both of which are predictors of heavy drinking and related problems among youth (28).

Then there are other personality traits, such as a feeling of invincibility, that are common among young adults (27) and which can influence drinking. Many young people simply do not see themselves as vulnerable to any negative consequences that might occur because of drinking, such as having an accident or becoming dependent on alcohol. This optimistic bias makes young adults more

Screening and Brief Intervention

Because young adults do not tend to identify themselves as having alcohol problems, proactive screening is recommended (1). Such screening is especially effective in locations where young adults are likely to seek treatment for alcohol-related injuries or illness. Among 18- to 24-year-olds, these settings may include hospital emergency departments, college counseling centers, or worksites. Screening also may be conducted as part of college-sponsored judicial review programs for alcohol-related infractions of campus policies.

Traditional alcohol education programs, which provide information about the risks of alcohol use, take a variety of forms (e.g., individual sessions, lectures, multisession groups). However, these approaches have not resulted in reduced drinking, either in nonstudent or student populations (2,3). Given the variety of drinking patterns evident in the young adult population and the minimal effect of traditional alcohol education programs, more targeted, systematic approaches are needed to help young adults recognize and reduce their hazardous drinking.

Studies show that young adults who are drinking in ways that are harmful or risky may respond better to brief, intensive interventions (4) than to traditional long-term treatments, which originally were designed for adults with longer histories of alcohol use and alcohol-related problems (5). Brief interventions typically consist of one to four sessions with a trained interventionist (e.g., physician, psychologist, counselor), with each session ranging from several minutes to up to an hour in length. These interventions are especially useful for people who do not have severe drinking problems, which require more intensive treatment (6).

An updated guide is now available from NIAAA to help clinicians identify and help patients at risk for alcohol problems. For a free copy of *Helping Patients Who Drink Too Much: A Clinician's Guide*, visit the NIAAA Web site (www.niaaa.nih.gov).

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likely to take risks and perhaps to drink excessively, although risk-taking may not be a direct cause of drinking. That is, research shows that the decision to drink is influenced more by the perceived benefits of drinking than by the perceived risks (29).

Negative moods, feelings of depression, and anxiety disorders also may influence alcohol use (15). Research has suggested that some people drink to relieve feelings of stress. In support of this, Cooper and colleagues (30) found that drinking to cope with negative feelings was a good predictor of heavy drinking as well as drinking problems in 19- to 25-year-olds. Again, though, research also shows that young adults are more likely to drink for "positive" or celebratory reasons than to drink to cope with negative feelings (31).

Alcohol Expectancies—Positive alcohol expectancies, or the belief that drinking will lead to positive, pleasurable experiences, play a key role in the drinking behavior of young adults. What a person expects from drinking not only predicts when he or she will begin drinking but also how much he or she will drink throughout young adulthood. As people age through adolescence and into young adulthood, they increasingly expect benefits from drinking and become less convinced of the risks (32,33).

Family Influences—During young adulthood parents may have less direct influence on their children's drinking behavior, but they still play a major protective role (32). The example set by parents with their own drinking has been shown to affect their children's drinking throughout their lifetime (34). Young people model their behavior after their parents' patterns of consumption (including quantity and frequency), situations and contexts of use, attitudes regarding use, and expectancies. The family's structure and aspects of the parent–child relationship (e.g., parenting style, attachment and bonding, nurturance, abuse or neglect, conflict, discipline, and monitoring) also have been linked to young people's alcohol use (34).

Genetics—Alcohol problems seem to "run" in some families (34). This family connection to alcoholism may be the result of a genetic link and/or may reflect the child's modeling of drinking behavior. Siblings also can influence drinking through modeling and by providing access to alcohol (32). It's unclear whether children of alcoholics have different drinking patterns and problems in young adulthood than those who do not have a family history of alcoholism (15). Research does show, however, that people with a family history of alcoholism are less likely than those with no family history to mature out of heavy drinking as they approach young adulthood (35).

To better understand the role of genetics in alcohol abuse and alcoholism, scientists are looking at differences (or variants) in particular genes to see if they can be linked to drinking behavior. One study examined how gene variants linked to the regulation of serotonin—a key brain chemical involved in mood, appetite, emotion, and addiction, among other processes—influenced drinking behavior in college students. This study found that White students with a particular version of this gene engaged in binge drinking more often, drank to intoxication more often, and consumed more alcoholic drinks per drinking occasion than did students with other variants of the gene (36).

Another study focused on the gene that helps to form an enzyme (aldehyde dehydrogenase or ALDH) that is important for breaking down alcohol in the body. This study reported that Asian American college students who carried a particular version of the ALDH gene which results in less efficient alcohol breakdown were less likely to be regular drinkers and engage in binge-drinking episodes; they also reported a lower number of maximum drinks consumed in a 24-hour period than Asian students with other ALDH variants (37).

These studies are being complemented by large-scale efforts to identify genes that contribute to alcoholism. One of these projects, funded by the National Institute on Alcohol Abuse and Alcoholism, is the Collaborative Study on the Genetics of Alcoholism (COGA). COGA researchers recently published reports of several genes associated with alcohol dependence in adults (38–40), and some of these findings already have been replicated by other investigators (41–43). The next step will be to determine whether these same genes are relevant to drinking behavior in adolescents and young adults.

By identifying specific genes influencing alcohol abuse and alcoholism, scientists can begin to tease apart the complex interplay that exists between genetic and environmental influences.

Tracking the Course

Young adulthood is a time when many people establish lifelong patterns of alcohol use (or nonuse). Others take a different course, maybe drinking heavily in their late teens or young adult years, then maturing out of risky alcohol use as they begin to assume more adult roles. By identifying common tracks or trajectories of alcohol use and abuse across adolescence and young adulthood, researchers are hoping to better understand how problems with alcohol begin and how they are likely to develop over time in order to plan effective prevention and intervention programs (44–46).

Studies of alcohol use trajectories have yielded several important findings. For example, although the majority of young adults report drinking some alcohol, anywhere

from one-third (47) to two-thirds (48) report that they never drink heavily.[6] And most people tend to reduce their drinking by their mid-twenties as they start to acquire adult roles, such as becoming a spouse, parent, and worker.

The age when people begin drinking (especially heavy drinking) has proven to be an especially good predictor of problems with alcohol later in life. Interviews of adults consistently confirm a strong association between an early initiation of drinking and later alcohol-related problems. People who binge drink also are at higher risk for later alcohol problems. And young adults who drink heavily are at particular risk for behavioral problems and may have trouble adjusting to adult roles (18).

***Maturing Out of Alcohol Use*—**About 21 percent of young adults met the diagnostic criteria for alcohol dependence or abuse in 2004 (3). Yet as they enter their mid-twenties, studies show that many of those same young adults will stop or moderate their drinking (35).

Despite the fact that young adults' alcohol use is in some sense "normal," it still can be dangerous. Statistics show that illness and death among young adults primarily result from lifestyle choices and behaviors, including excessive alcohol use (49). Even one night of heavy drinking can have serious consequences that persist well beyond adolescence and young adulthood, such as alcohol-related car crashes, unintended pregnancies, and physical assaults leading to arrest or jail (50).

Prevention and Intervention

What researchers have learned about the different trajectories that drinkers follow as they progress through young adulthood has important implications for prevention. Studies have shown that (1) people follow a variety of pathways across the adolescent and young adult years, (2) alcohol use behaviors change differently for different people, and (3) factors that predict alcohol use patterns emerge and disappear at different ages. One approach to prevention simply will not fit every need. Recognizing the varied and ever-changing trajectories that alcohol use can take offers scientists a solid developmental foundation on which to build effective interventions (32).
One way to prevent alcohol-related problems—among young people or the population as a whole—is to establish policies that reduce overall alcohol consumption rates or reduce the rates of high-risk drinking. Alcohol control policies influence the availability of alcohol, the social messages about drinking that are conveyed by advertising and other marketing approaches, and the enforcement of existing alcohol laws (51).

[6] The large variability cited here is attributed to differences in each study's characteristics, such as the sample of young adults tested and the definition of heavy drinking used.

Most alcohol control policies target either young people under the legal drinking age of 21 or the drinking behavior of the population as a whole, rather than specific subpopulations such as young adults. Nevertheless, some of these policies have a larger effect on young adult drinkers compared with the rest of the population—for example, measures that address drinking in bars and clubs, because young adults are more likely than other age groups to patronize these establishments.

***Prevention on College Campuses*—**In recent years, an increasing number of colleges have implemented policies to reduce alcohol consumption and alcohol-related problems (14). Examples include establishing alcohol-free college residences and campuses, prohibiting self-service of alcohol at campus events, prohibiting beer kegs on campus, and banning sales or marketing of alcohol on campus. Though research on the success of these programs is limited, studies have shown that students living in substance-free residences are less likely to engage in heavy episodic or binge drinking (five or more drinks in one sitting for men, four or more for women), and underage students at colleges that ban alcohol are less likely to engage in heavy episodic drinking and more likely to abstain from alcohol (52,53). College alcohol policies are less likely to have an effect on students who live off campus than on, however.

***Prevention in the Military*—**Current strategies to prevent alcohol problems among military personnel are similar to strategies being used with other populations of drinkers, including instituting and enforcing policies that regulate alcohol availability and pricing, deglamorizing alcohol use, and promoting personal responsibility and overall good health (54).

***Prevention Among the General Population*—S**ome of the principal strategies for influencing the drinking behavior of the general population are raising taxes on alcoholic beverages, limiting the number of alcohol establishments in a particular geographic area, training the staff of bars and stores to sell alcohol responsibly, and restricting alcohol marketing and advertising.

Of these strategies, the effects of raising alcohol prices have been the most extensively studied. The most common method of raising prices is to increase Federal, State, or local taxes on alcoholic beverages. Studies show that underage youth are particularly sensitive to increased prices, decreasing their alcohol consumption by a greater amount than older drinkers (55). A few studies have looked at how alcohol prices affect drinking among college students and young adults (55). One study showed that college students faced with higher alcohol prices were less likely to transition from being abstainers to moderate drinkers and from moderate to heavy drinkers (56). Another study found

that low sale prices were associated with higher rates of heavy episodic drinking among college students (57).

***Prevention of Drinking and Driving*—**Traffic crashes are the leading cause of death among teens, and more than half of drivers ages 21–24 who died in traffic crashes in 2003 tested positive for alcohol (7).

Raising the minimum legal drinking age (MLDA) to 21 has produced significant reductions in traffic crashes among 18- to 20-year-olds, and it appears to have had a spillover effect on the drinking behavior of 21- to 25-year-olds. One study found that college students who had been high school seniors in States when the MLDA was 18 drank more while in college than their counterparts who had been high school seniors in States with an MLDA of 21. High school graduates of the same age who were not attending college also drank more on average if they had been seniors in States with an MLDA of 18 (58).

Another effective strategy to reduce drinking–driving is to lower the legal limit for allowable blood alcohol content (BAC) for drivers. In the past two decades, all States in the United States have adopted a BAC limit of 0.08 percent for adult drivers and a BAC limit of zero, or slightly higher, for youth under age 21. These often are referred to as "zero tolerance" laws.[7]

Studies have found that laws setting the legal allowable BAC at 0.08 percent have resulted in 5-percent to 8-percent reductions in alcohol-related fatal traffic crashes among all drivers (59–62). Laws setting the limit at 0.02 percent have led to a 19-percent reduction in drinking–driving and a 20-percent reduction in fatal traffic crashes among young drivers (63,64).

***Comprehensive Community Prevention Approaches*—**Perhaps the best way to reduce harmful drinking and alcohol-related problems in young adults is through comprehensive approaches that rely heavily on community action. Whether they are working, attending college, or in the military, young adults typically are part of a community. And young people's usual sources of alcohol—retail outlets, restaurants, bars, and social settings such as parties—also operate within the environment of the community.

To be effective, community prevention interventions require a mix of research-tested programs and policy strategies, along with strong enforcement of those laws. Three NIAAA-sponsored community trial projects have been extensively studied and are showing promise: The Saving Lives Project (65), the Community Trials Project (66), and Communities Mobilizing for Change on Alcohol (67). These trials provide strong evidence for the positive effects of research-based local prevention efforts that take a comprehensive approach using a variety of strategies.

[7] Most laws use a 0.02-percent limit rather than an absolute zero limit to allow for small measurement errors in BAC test instruments and to avoid challenges from youth who claim they have taken medication with small amounts of alcohol.

Conclusion

Research consistently shows that people tend to drink the heaviest in their late teens and early to mid-twenties. This high level of alcohol use comes at an age when people are moving away from parental restrictions but before they take on the full responsibilities of adult life. As young people begin to assume more adult roles—full-time employment, marriage, and parenthood—they often reduce their drinking. This reduction in alcohol use may be a result of the limitations that adult roles place on social activities or may reflect a change in young people's attitudes toward drinking.

Young adults who drink in ways that are especially harmful—those who fit the diagnostic criteria for alcohol dependence—may have predisposing personality characteristics and other factors that place them at greater risk for problems with alcohol.

Prevention strategies that may be especially useful in curbing young adult alcohol use are those that focus on restricting the availability of alcohol. Such measures include raising the cost of alcohol through taxes, limiting when and where alcohol can be consumed, and enforcing policies that help to reduce problems such as drinking and driving.

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Resources

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For more information on young adult drinking, see also:

- **NIAAA's recently redesigned Web site, www.collegedrinkingprevention.org. The site targets college students, high school students, their parents, and school administrators. It features findings from the NIAAA Task Force on College Drinking and interactive tools, such as calculators for determining the cost of alcohol, the amount of calories in a drink, and for measuring blood alcohol concentration. The "Interactive Body" allows viewers to trace alcohol's flow through the body and its effects on vital organs. E-cards also are offered, for mailing to friends or to someone who might need a "wakeup" call about the harmful effects of heavy drinking.**

- ***A Family History of Alcoholism: Are You at Risk?,* a brochure with basic information for anyone who is concerned about a family history of alcoholism. It lists organizations that can help relatives or friends of alcoholics. Available from www.niaaa.nih.gov.**

Full text of this publication is available on NIAAA's World Wide Web site at http://www.niaaa.nih.gov

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