Binge Drinking and the American College Student: What's Five Drinks?

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The use of the term binge drinking and the 5/4 measure have helped to advance the understanding of college alcohol use over the past 10 years. The present article discusses the importance, relevance, and utility of this measure.

Measuring the consumption of large quantities of alcohol has been a common practice among researchers conducting large-scale epidemiologic studies of college students since Straus and Bacon's (1953) classic study. The Harvard School of Public Health College Alcohol Study (CAS; Wechsler, Davenport, Dowdall, Moeykens, & Castillo, 1994) reintroduced the term binge drinking in this context, defining it as the consumption of a sufficiently large amount of alcohol to place the drinker at increased risk of experiencing alcohol-related problems and to place others at increased risk of experiencing secondhand effects. Binge drinking was measured as the consumption of five or more drinks in a row at least once in the past 2 weeks for men, and four or more drinks in a row for women.

A significant advantage of a five-drink measure is that it is extensively used in population-based research, making results comparable across studies. In addition to the CAS, almost all major national databases covering college students or youth use a version of this measure, including the Monitoring the Future survey (Johnston, O'Malley, & Bachman, 1999), the National College Health Risk Behavior Survey (Douglas et al., 1997), the Core Alcohol and Drug Survey (Presley, Meilman, & Cashin, 1996), and the National Household Survey of Drug Abuse (Substance Abuse and Mental Health Services Administration, 2000). In fact, the 2-week time period in the CAS definition was first used in the Monitoring the Future study. To date the CAS is the only study to use a gender-specific measure to take into account differences in problem levels between males and females associated with intake. Women were found to experience alcohol-related problems at lower drink levels than men even when body mass was controlled, perhaps because of gender differences in the metabolism of alcohol (Wechsler, Dowdall, Davenport, & Rimm, 1995).

Use of the Term Binge Drinking

Clinicians have historically used the term binge to refer to the drinking behavior of a person in the chronic phase of alcoholism, for whom a drinking binge is a prolonged period of intoxication or excessive heavy drinking that can last for days or weeks (Jellinek, 1952). Jellinek (1952) referred to these experiences as benders.

Some clinicians and researchers have objected to the use of the word binge to refer to college student drinking behavior, because among that group binge drinking involves a comparatively smaller number of drinks in a shorter time span. However, the word binge is not the exclusive domain of clinicians. A more common definition of binge is a period of unrestrained, immoderate, excessive, or uncontrolled self-indulgence. This definition is not bound by a specific time span. A shopping binge does not require a weekend; an eating binge refers to heavy caloric intake in a short period of time. The term binge describes the type of heavy episodic drinking that is characteristic of college students (Wechsler & Austin, 1998).

Other designations have been suggested for this type of drinking behavior, but they generate additional problems. High risk or dangerous drinking could denote the drinking of very small amounts, or any alcohol before driving or operating heavy machinery, during pregnancy, or while taking medications. What these terms lack is a specific reference to volume consumed, which, after all, is the reason such drinking is dangerous. Heavy drinking may be interpreted just as easily in the context of full-blown alcoholic drinking, making five drinks seem comparatively small. Yet five drinks, or four for that matter, is large enough to increase the risk of problems at college.

In part because of extensive media coverage of the three CAS surveys (Wechsler, Dowdall, Maenner, Gledhill-Hoyt, & Lee, 1998; Wechsler et al., 1994; Wechsler, Lee, Kuo, & Lee, 2000), the term binge drinking is now widely used to refer to the heavy drinking behavior of college students. Frequent stories in the electronic and print media highlight the problem of binge drinking among college students. The term was initially introduced in the 1990s to describe college student alcohol use in a study of Massachusetts colleges (Wechsler & Isaac, 1992). Since then, its usage has increased dramatically (see Figure 1), and the term has become the primary way this form of drinking by college students is identified.

Since 1993, the problem of binge drinking on college campuses has received increased attention. Many college administrators have recognized the serious consequences of binge drinking among their students and called for action to address the problem. Public health and governmental agencies have also recognized the problem. The U.S. Surgeon General has established a 50% reduction in college binge drinking by the year 2010 as one of the health goals...

Relation to Alcohol Problems and Secondhand Effects

Measures of alcohol consumption should be selected in the context and the social consequences of alcohol use (Mikkel, 1996; Midanik, Tam, Greenfield, & Caetano, 1996; Rehm & Bondy, 1996; Room, 1996). The gender-specific (five/four) measure of binge drinking classifies the drinking behavior of college students on the basis of self-reports to CAS questions: Men who consumed five or more drinks, or women who consumed four or more, on one occasion during the previous 2 weeks, are designated as binge drinkers. Those who engaged in this behavior three or more times in this same period are identified as frequent binge drinkers, and those who drank this way less often are identified as occasional binge drinkers. Students who drink at binge levels are more likely to be harmed by alcohol than those who do not (Wechsler et al., 1994; Wechsler et al., 1998; Wechsler, Lee, et al., 2000), and the risk of experiencing a negative outcome increases with the frequency of binge drinking. As shown in Table 1, significantly more frequent binge drinkers engage in unplanned sexual behavior, get hurt or injured, and experience five or more alcohol-related problems than do nonbinge drinkers.

The five/four measure of binge drinking is also a good indicator of the problems binge drinkers produce for those around them. Campuses that have high levels of binge drinking are more likely to have students who report experiencing the secondhand effects of alcohol (see Table 2). For example, nonbinge drinking students living on high-binge campuses are twice as likely to be assaulted by a student using alcohol, three times more likely to have their property damaged, and three times more likely to have their sleep or studying interrupted than are nonbinge drinking students on low-binge campuses (Wechsler, Lee, et al., 2000; Wechsler, Moekyens, Davenport, Castillo, & Hansen, 1995).

Binge Drinking as a Public Health Measure

The CAS found a linear relationship between the number of drinks consumed in a row and the alcohol-related problems an individual reported. Wechsler, Moekyens, et al. (1995) adopted the five/four measure of binge drinking because college men and women who drank at this level had significantly higher rates of a variety of alcohol-related problems than their peers who drank below these levels. The rates of experiencing each problem at five drinks for men and four for women was sufficiently large to place a sizable proportion of the college population who drank this way at risk of serious problems. Although any single binge drinking event may not lead to alcohol-related problems, individuals who have many such events are at increased risk for experiencing problems. When cumulative drinking problems are compiled, half of the frequent binge drinkers report experiencing five or more different alcohol-related problems.

The five/four measure of binge drinking was developed to measure the high-risk aspect of college drinking, namely heavy consumption in a short (several hours vs. a week) time frame. The risk of experiencing alcohol-related harm is much higher for a person who consumes seven drinks on a single occasion than for someone who has one drink a day every day of the week. It is this
Table 1
Risk of Alcohol-Related Problems Among Students in Different Binge Drinking Categories, 1999

<table>
<thead>
<tr>
<th>Problem</th>
<th>Nonbinge drinkers (n = 5,063; %)</th>
<th>Binged 1–2 times in past 2 weeks (n = 2,962)</th>
<th>Binged 3+ times in past 2 weeks (n = 3,135)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Adjusted OR 95% CI</td>
<td>%</td>
</tr>
<tr>
<td>Miss a class</td>
<td>8.8</td>
<td>26.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Get behind in schoolwork</td>
<td>9.8</td>
<td>26.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Do something you regret</td>
<td>18.0</td>
<td>39.6</td>
<td>2.1</td>
</tr>
<tr>
<td>Forget where you were or what you did</td>
<td>10.0</td>
<td>27.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Argue with friends</td>
<td>9.7</td>
<td>23.0</td>
<td>2.1</td>
</tr>
<tr>
<td>Engage in unplanned sex</td>
<td>7.8</td>
<td>22.3</td>
<td>2.1</td>
</tr>
<tr>
<td>Not use protection during sex</td>
<td>3.7</td>
<td>9.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Damage property</td>
<td>2.3</td>
<td>8.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Get into trouble with police</td>
<td>1.4</td>
<td>5.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Get hurt or injured</td>
<td>3.9</td>
<td>10.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Medical treatment for alcohol overdose</td>
<td>0.3</td>
<td>0.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Drove after drinking alcohol</td>
<td>18.6</td>
<td>39.7</td>
<td>2.1</td>
</tr>
<tr>
<td>5 or more alcohol-related problems</td>
<td>3.5</td>
<td>16.6</td>
<td>2.1</td>
</tr>
</tbody>
</table>


patterning of alcohol use that is important as it relates to negative outcomes. The five/four measure of binge drinking was chosen because it provides a simple way to assess a drinking style that threatens the public’s health. It is not a clinical measure, although it is related to the diagnosis of alcohol-related problems. It is not meant to serve as a Breathalyzer or to determine whether a person is legally intoxicated at a particular moment, although it is related to drinking and driving. Rather, it serves as an elegant measure that is indicative of increased risk of alcohol-related problems in population-based survey research.

Association of Binge Drinking With Other Measures of Alcohol Consumption

Alcohol use is a complex behavior. No single measure will capture all the relevant aspects of alcohol use. Although the 5/4 measure is appropriate for public health (measurement) purposes, others, such as Diagnostic and Statistical Manual of Mental Disorders (4th ed. [DSM–IV]; American Psychiatric Association, 1994) criteria, may better serve clinical and treatment needs.

The CAS has used a number of other measures of alcohol consumption, and many such measures are needed to understand college student drinking behavior. Many of these common measures of drinking are strongly related. Binge drinking is associated with a heavy drinking lifestyle, including the number of drinking occasions in the past 30 days, the number of drinks usually consumed, the number of times a person became intoxicated in the past 30 days, and whether the person drinks in order to “get drunk.” Nearly all binge drinkers acknowledged being drunk in the past 30 days, and most reported that they usually binge when they drink. Frequent binge drinkers consume more than two thirds of all

Table 2
Risk of Experiencing Select Secondhand Effects of Alcohol Use at Low, Medium, and High Binge Drinking Schools

<table>
<thead>
<tr>
<th>Effect</th>
<th>Low (n = 963; %)</th>
<th>Medium (n = 934)</th>
<th>High (n = 1,019)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>%</td>
<td>Adjusted OR 95% CI</td>
<td>%</td>
</tr>
<tr>
<td>Been insulted or humiliated</td>
<td>20.5</td>
<td>29.3</td>
<td>1.65</td>
</tr>
<tr>
<td>Had a serious argument or quarrel</td>
<td>13.7</td>
<td>18.6</td>
<td>ns</td>
</tr>
<tr>
<td>Been pushed, hit, or assaulted</td>
<td>5.5</td>
<td>9.5</td>
<td>2.16</td>
</tr>
<tr>
<td>Had property damaged</td>
<td>7.4</td>
<td>13.6</td>
<td>2.60</td>
</tr>
<tr>
<td>Had to take care of a drunken student</td>
<td>37.3</td>
<td>53.6</td>
<td>1.92</td>
</tr>
<tr>
<td>Had studying/sleep interrupted</td>
<td>43.2</td>
<td>60.5</td>
<td>2.32</td>
</tr>
<tr>
<td>Experienced unwanted sexual advance</td>
<td>14.7</td>
<td>20.1</td>
<td>ns</td>
</tr>
<tr>
<td>Been a victim of sexual assault or date rape</td>
<td>0.6</td>
<td>1.3</td>
<td>ns</td>
</tr>
<tr>
<td>Experienced at least one of the above negative effects</td>
<td>63.7</td>
<td>81.3</td>
<td>2.44</td>
</tr>
</tbody>
</table>

the alcohol college students drink, account for more than three-fifths of the most serious alcohol-related problems on campus, and consume an average of 17 drinks per week (Wechsler, Molnar, Davenport, & Baer, 1999).

Furthermore, binge drinking has substantial overlap with alcohol-related problems and with clinical measures of alcohol abuse. In the 1999 CAS (Knight et al., 2001), a scale that approximates the DSM-IV criteria for alcohol dependence and abuse was administered. The results demonstrated that an alarming number of college students meet the criteria for a diagnosable alcohol problem. Among frequent binge drinkers (who represent about one-fifth of college students nationally), between 1 of 2 and 4 of 5 qualified for a diagnosis of alcohol abuse or dependence by DSM-IV standards. Even among occasional binge drinkers, between 1 in 3 and 1 in 2 met the standard for a diagnosable alcohol disorder.

Implications

Despite the advances in knowledge that the measurement of binge drinking has afforded, some groups oppose the use of this term and the five/four measure. Most unhappy with the implications of research on binge drinking are the largest brewers, who produce beer, the primary drink of abuse on college campuses. Our findings indicate that, for underage drinkers in particular, the strongest predictors of binge drinking are the use of beer as the preferred drink, low price, and easy availability (Wechsler, Kuo, Lee, & Dowdall, 2000). Brewers are now becoming active financial contributors to college alcohol programs. A recent report in the Wall Street Journal (Murray & Gruley, 2000) described the extensive financial and organizational support that Anheuser-Busch and other large brewers are providing for certain programs to counter excessive drinking. A mix of alcohol industry supported organizations, such as BACCHUS (Boosting Alcohol Consciousness Concerning the Health of University Students) and GAMMA (Greeks Advocating the Mature Management of Alcohol), and advocates of a prevention approach called social norms, supported a resolution passed by the Inter-Association Task Force on Alcohol and Other Substance Abuse Issues asking the media to delete the term binge drinking from their coverage of college drinking. These groups suggest that research on binge drinking has overstated the problem of alcohol use on college campuses and that such research may actually promote drinking by making it seem like normative behavior. The social-norms approach releases survey data on alcohol use with a more positive spin in an effort to show students that existing norms about drinking behavior are lower than might be perceived. This approach may ignore the fact that existing norms about college student drinking are unhealthy. Normative behavior may indeed be pathological.

The effort to purge the word binge would be unimportant if it did not also include an attack on the five/four measure. Five drinks may seem like a small amount of alcohol to those in an environment where heavy drinking of alcohol is viewed by many as "just part of the college experience." Some students think that drinking at binge levels (and even higher) is "social" or "responsible" drinking. Efforts to raise the number of drinks in a measure designed to monitor drinking problems may encourage the acceptance of the dangerous notion that consuming five or four or more drinks in a row is actually safe. Yet in terms of overall health risks, recent recommendations for moderate levels of daily drinking should be set significantly lower than five or four drinks, perhaps no more than two drinks per day (Dufour, 1999; Secretary of Health and Human Services, 1997).

Actually, many college students do recognize the standard definition of binge drinking. A recent analysis of 1999 CAS data found that most college students think that binge drinking is 6 drinks for men and 5 drinks for women (Wechsler & Kuo, 2000), very close to the definition used by the CAS and most major population research. The definition used by students is directly related to their own drinking. Occasional binge drinkers defined the term as the consumption of 7 drinks for a male and 5 drinks for a female, and frequent binge drinkers defined it as 8 drinks for a male and 6 drinks for a female. In fact, one third of these heaviest drinkers defined it as 10 or more drinks for men. Students who defined binge drinking at a level that was higher than the five/four definition were significantly more likely to have five or more alcohol-related problems.

It is easy to see why the beer industry and the heaviest drinkers among college students want to downplay the potential consequences of consuming five drinks in a row. It is harder to understand this action on the part of professionals in the alcohol field and in the higher education community. We think that those who deny the significance of alcohol use at the five/four "binge" levels and wish to raise the bar are contributing to the promotion of an unhealthy norm. Instead of reinforcing the idea that consuming five or four drinks is normal or acceptable behavior for college students, it is time for health and alcohol professionals and researchers to take a leadership role in setting a new college norm. Driving after drinking any alcohol is widely considered to be unacceptable in our culture now. There is nothing positive about students assaulting or raping other students, overdosing on alcohol, or ending their night out drinking with a trip to the emergency room. The rate of binge drinking is a good indicator of how many of these events will occur on campus. Simply glossing over problems and playing with words or measures in order to be able to craft positive messages about college students will not solve these problems.

Monitoring the alcohol use behavior and experience with alcohol-related harms of college students is an important public health endeavor. The five/four measure of binge drinking is a key component of this effort. Until a more appropriate measure of alcohol use emerges, the CAS will continue to report on college student binge drinking using the 5/4 measure.

References


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