



Published in final edited form as:

J Am Coll Health. 2011 April ; 59(5): 350–357. doi:10.1080/07448481.2010.509380.

Screening for Alcohol Problems Among 4-Year Colleges and Universities

Ken C. Winters, PhD,

Department of Psychiatry at the University of Minnesota, School of Medicine, in Minneapolis, Minnesota.

Traci Toomey, PhD,

Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health, in Minneapolis, Minnesota.

Toben F. Nelson, PhD,

Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health, in Minneapolis, Minnesota.

Darin Erickson, PhD,

Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health, in Minneapolis, Minnesota.

Kathleen Lenk, MPH, and

Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health, in Minneapolis, Minnesota.

Mark Miazga, JD

Division of Epidemiology and Community Health at the University of Minnesota, School of Public Health, in Minneapolis, Minnesota.

Abstract

Objective—To assess the use of alcohol screening tools across US colleges.

Participants—Directors of health services at 333 four-year colleges.

Methods—An online survey was conducted regarding the use of alcohol screening tools. Schools reporting use of formal tools were further described in terms of 4 tools (AUDIT, CUGE, CAPS, and RAPS) that the authors judged to be the most favorable based on prior empirical comparative studies.

Results—Forty-four percent of colleges reported use of at least 1 formal alcohol screening tool and nearly all of these used a tool appropriate for college students. However, less than half of the 44% of colleges that used a screening tool used 1 of the 4 most favorable tools.

Copyright © 2011 Taylor & Francis Group, LLC

For comments and further information, address correspondence to Ken Winters, PhD, Department of Psychiatry, University of Minnesota, School of Medicine, F282/2A West, 2450 Riverside Avenue, Minneapolis, MN 55454, USA (winte001@umn.edu).

Publisher's Disclaimer: Full terms and conditions of use: <http://www.informaworld.com/terms-and-conditions-of-access.pdf>

This article may be used for research, teaching and private study purposes. Any substantial or systematic reproduction, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The accuracy of any instructions, formulae and drug doses should be independently verified with primary sources. The publisher shall not be liable for any loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

Conclusions—Continued efforts are needed to encourage colleges to use the most effective available screening tools to identify alcohol-related problems that require intervention among students.

Keywords

alcohol; college students; screening instruments

College student alcohol use is a significant public health problem. More than 70% of college students have consumed alcohol within the past 30 days,^{1,2} with many consuming alcohol heavily. Two in 5 college students report binge drinking, defined as 5 or more drinks in a row for males and 4 or more drinks for females, in the previous 2 weeks.^{1,2} College students are also more likely to use alcohol and drink more heavily than young adults who do not attend college.³⁻⁵ Associated harms due to heavy drinking include traffic crashes, unsafe and unintended sexual activities, deaths due to falls, other personal injury, alcohol overdose, and suicides.^{6,7} In addition to the harms experienced by drinkers themselves, other college students often experience a wide range of secondhand harmful consequences (eg, assaults, sleep disruption, insults).⁶

Approximately 20% of college students nationally are in need of some type of intervention or treatment for their alcohol use, yet many students who abuse alcohol do not recognize the need for help.⁸ A longitudinal study of college students' health behaviors that tracked 1,253 undergraduates at a large public college found that only 3.6% of those students that met criteria for a substance use disorder (the most prevalent being alcohol use disorder) perceived a need for professional help.⁹

Colleges addressing problem alcohol use among their students need a systematic screening process to accurately identify students who may benefit from alcohol intervention or treatment services,¹⁰ particularly in light of recent developments of interventions for alcohol-abusing college students (eg, Brief Alcohol Screening and Intervention for College Students [BASICS]).¹¹ Screening on a college campus can be a relatively brief and simple process implemented by a range of campus professionals.¹² Several psychometrically sound screening tools are available to identify alcohol problems among adolescents and young adults, including college problem drinkers. Several reviews of these screening tools have been published,^{13,14} and there are studies that have directly compared the quality and appropriateness of them.¹⁵

We identified 1 published study that systematically assessed alcohol screening policies and procedures among colleges. This study found that among 249 accredited US colleges and universities with health centers, 32% indicated their college routinely screened for alcohol use problems, and 11.7% used a standardized screening tool.¹⁶ In this article, the work of Foote and colleagues is expanded by reviewing the evidence on the validity and appropriateness of available alcohol screening tools for use among college students and assessing the current use of screening tools among a representative sample of US colleges.

Methods

This study is part of a larger, 3-year study conducted concerning the extent and nature of alcohol abuse screening and treatment services provided to students on college campuses. As part of this study, an online survey of directors of campus health care services was conducted. This study was approved by the institution's institutional review board.

Colleges

A list of accredited 4-year colleges/universities was identified through the American Council on Education ($n = 2,482$). Colleges were excluded if they were (1) a graduate school only; (2) a virtual college or online university; (3) associations of schools, or schools that only offered 1 type of program/major; (4) not listed in *Barron's Profiles of American Colleges 2007* or the College Board's *2008 College Handbook*; or (5) had campus leaders who assisted us with development of our survey instrument ($n = 3$). A final list was identified that consisted of 1,572 eligible colleges/universities and stratified by size (ie, undergraduate enrollment $< 2,500$ students vs $\geq 2,500$ students) and public versus private status. Using a weighted sampling procedure based on the number of colleges within each stratum, 100 colleges were randomly selected from the list of small public and large private colleges, 101 from the list of small private colleges, and 268 from the list of large public colleges. The overall sample included 569 four-year colleges; however, 28 of these schools did not have health care services on campus, resulting in a final sample of 541.

Participants

At each college the director of campus health services or someone in a similar position was invited to participate in a survey. To identify potential respondents for each college, college Web sites were reviewed and phone calls were made to various campus offices identified through these Web sites. The response rate was 61.6% (333/541). A comparison of the characteristics of colleges that responded to the survey to those who did not respond based on the size (small vs large) and type of school (private vs public) indicated no significant differences.

Eighty-eight percent of the respondents were directors of health services or health professionals, and the remaining 12% had either a different title (eg, Assistant Dean of Students, Director of Housing and Residential Life) or did not report their title.

Online Survey

A draft of the survey instrument was reviewed and pilot-tested among 6 campus health professionals from 3 colleges; these colleges were excluded from eligibility in the regular survey. The online survey was administered by a health survey research center at the authors' university. The online survey was housed on a university server using secure sockets layer protocol to ensure that respondent data were safely transmitted to the server. Data were maintained according to industry standards for Internet security, as well as standards for research protection established by the authors' university's institutional review board. Potential participants were first contacted with an e-mail invitation that included a link to complete the online survey. This was followed by up to 5 reminder e-mails sent by the survey center and up to 10 attempted follow-up telephone contacts as needed. The telephone calls served as a reminder to complete the survey online and an opportunity to complete the survey over the phone. Only 3 of our respondents chose to complete the survey over the phone versus online.

Measures

Measures were created from responses to 2 survey items—the first item asked: “Do counselors or health care staff use any formal instrument to identify students with problems related to alcohol use?” (Yes/No/Don't know/Not applicable). If the response was “Yes,” the respondent was asked, “What instrument(s) does your school use?” Response options included 11 tools (eg, Alcohol Use Disorders Identification Test [AUDIT], CAGE, Michigan Alcohol Screening Test [MAST]), “in-house” and “other” (with write-in option); respondents were instructed to “check all that apply.”

Responses were categorized according to the item regarding which instrument(s) was (were) used in 3 stages. First, each instrument was categorized, including write-in responses, into 1 of 4 categories: (1) formal screening tool (12 formal screening tools were reported, and 8 from the response choices provided to the respondent, plus 3 additional provided by respondents; see Appendix 1 for descriptive and source information for these 12 tools); (2) in-house screening tool, meaning a tool that was developed and used by staff at that institution; (3) comprehensive assessment tool (3 common diagnostic-based or multiproblem assessment tools were provided response options—Diagnostic Interview Schedule, Addiction Severity Index, and Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [DSM-IV]*); or (4) write-in responses that were determined to be either *not applicable* (not a screening or assessment tool—eg, a brief intervention curriculum), *a psychiatric screening tool*, or *of unknown purpose* (eg, an unrecognizable acronym). Second, based on a thorough literature review of relevant studies (see Appendix 2), psychometric status of each formal screening tool was categorized according to whether it was empirically evaluated for its accuracy in identifying problem drinkers (concurrent validity) in a college student population—“yes” (published study available) or “no” (no published study available). Third, we assessed the comparative status of each formal tool based on whether the tool’s concurrent validity had been empirically compared to at least 1 other tool among (but not limited to) young adults (age 18 and older)—and then assigned the tool to 1 of these 3 categories: (1) tool had been empirically compared to at least 1 other tool, and at least 1 study showed the tool’s concurrent validity more favorable than at least 1 other tool; (2) tool had been empirically compared to at least 1 other tool, and no study showed the tool’s concurrent validity to be more favorable than other tool(s); and (3) tool had not been empirically compared to other tool(s) (Appendix 2 provides a list of studies and the tools investigated).

Analyses

Descriptive statistics were first calculated of the responses to our survey for each measure. To compare use of screening tools across size (large vs small) and type (private vs public) of school, schools were grouped into 3 mutually exclusive groups using the best tool reported for each school: *Recommended* (use of at least 1 tool evaluated in a college sample and found to be favorable in at least 1 comparison study), *College-tested* (use of a tool evaluated in a college sample but was either not compared or not found to be favorable in any comparison study), or *Others* (eg, use of in-house tool only, no tool reported; see Table 2 for further description of *Others*). Groups were then compared across school size and type. The first tests were 2-degree of freedom tests comparing all 3 groups simultaneously, followed by planned pairwise contrasts between *Recommended* versus *College-tested*, and *Recommended* versus *Others*. There was no assessment of how frequently each tool was administered to students within campuses.

RESULTS

Fifty-six percent (185 of the 333 respondents) indicated that their college uses a screening tool to identify students with alcohol problems (see Figure 1). Among the 333, we further identified these subgroups (also provided in Figure 1): 14 (4%) said that they used a tool but did not provide any additional information; 148 (44%) reported use of at least 1 identifiable, formal screening tool (see Table 1 for list of these 12 tools); 12 (4%) reported use of only an in-house screening tool; 4 (1%) reported use of only a comprehensive drug abuse assessment tool; and 7 (2%) specified either a tool that was not recognized or was not an assessment tool (eg, a brief intervention program). Among the 148 colleges reporting use of an identifiable and formal screening tool, 47 (32%; based on these 148 colleges) indicated that they also used a comprehensive drug abuse assessment tool.

Screening Tools

Table 1 shows the ratings of the 12 formal screening tools and the frequency with which they were used (listed in order of frequency) among the 148 colleges that reported using a formal screening tool. Because some respondents reported using more than 1 identifiable tool, the total number of tools used by this sample is larger than 148. The 4 most commonly used screening tools were the following: CAGE (54%), AUDIT (33%), Substance Abuse Subtle Screening Inventory (SASSI) (28%), and MAST (16%). Among the 12 tools, we determined that 9 were psychometrically evaluated among college students. The 3 tools not evaluated in a college population—CRAFFT, Global Appraisal Inventory of Needs-Screen (GAIN-Screen) and the Drug Abuse Screening Test (DAST)—were evaluated in published studies showing favorable psychometric properties among adolescents. Five tools (AUDIT, CRAFFT, CUGE, College Alcohol Problem Scale [CAPS] and Rapid Alcohol Problem Screen [RAPS]) were shown in at least 1 study to have more favorable psychometrics than at least 1 other tool.

Then we assessed the best screening tool reported by each college (see Figure 2 and Table 2). Here we used all colleges surveyed ($N=333$) as the denominator given that we wanted to indicate the extent of screening tool use across all colleges. We found that 20% (68/333) used a *Recommended* tool, 23% (78/333) used a *College-tested* tool (but not a *Recommended* tool), and 56% (187/333) did not use any screening tool ($n = 185$) or reported using a tool that was neither recommended nor tested ($n = 2$).

In comparisons across the 3 groups (based on best tool used) by school size and type, the only significant difference was school size—larger schools were more likely than smaller schools to use a *Recommended* tool (24% vs 11%; ($\chi^2[2, N = 333] = 8.8, p = .01$; see Table 2). In follow-up pairwise contrasts between *Recommended* versus *College-tested* and *Recommended* versus *Others* by school size and type, there was only 1 significant association—large schools, compared to small schools, were more likely to use a *Recommended* tool and less likely to be in the *Others* group ($\chi^2[1, N = 255] = 8.7, p = .003$).

COMMENT

Conclusions

The study revealed 3 main findings. First, the study results indicate that many colleges do not use formal assessment tools to screen for alcohol problems among their students. This occurs despite the high prevalence of binge drinking and alcohol use disorders among college students,^{1,2,17} recognition of the problem by college administrators,¹⁸ and clear recommendations to screen and intervene with students who need help.¹² The second main finding was more favorable. Among those colleges that use a formal screening tool, nearly all use at least 1 tool with demonstrated psychometric properties among college students. The third finding was that, unfortunately, most schools that use a formal tool do not use the *best possible* tool. Four screening tools were identified (AUDIT, CUGE, CAPS, and RAPS) that we can recommend based on their psychometric properties among college student samples *and* their performance when empirically compared to at least 1 other tool. Fewer than half of the colleges that use a formal screen reported use of one of these recommended tools, and among all survey respondents, only 20% reported using a screening tool that fell into this recommended category.

The issue of the prevalence and type of alcohol screening among health service providers at US colleges and universities is particularly important given the frequent heavy drinking among college students.¹⁷ Screening is a critical step towards identifying students who are abusing alcohol and may need intervention or treatment services. Thus, it is discouraging that nearly half (44%) of the surveyed college health officials reported their school did not

use a formal screening tool, and that about half of the schools that reported use of a formal screening tool may not be using an optimal tool. Continued efforts are needed to encourage colleges to use the most effective available screening tools to identify alcohol-related problems that require intervention among college students. Effective brief interventions are available for the college student population^{10,12} and an important component of these interventions is an effective screening program.

Our research extends and updates the work by Foote and associates.¹⁶ We found a higher prevalence of use of screening tools for alcohol use problems; in the present sample, 44% reported using a formal screening tool compared to 12% in Foote et al study. Foote and colleagues do not report detailed frequencies of specific tools, but they noted that the CAGE was the most frequently used. The CAGE was the most commonly used tool in our sample; it was used by 54% of colleges that reported using a formal screening tool. These findings may indicate an increase in the use of screening tools by colleges since the prior study was conducted (pre-2004).

It is encouraging that among colleges reporting use of a screening tool, a formal tool with a sound empirical basis was preferred. The use of formal, standardized tools is important because they optimize the accuracy of identifying a student who may need services, provide stronger pre- and postmeasures when interventions are evaluated, and promote comparability of data across institutions. Comparatively few colleges and universities ($n = 12$) reported using only an in-house screening tool. The availability of several sound and relatively short screening tools behooves colleges to choose an existing and scientifically sound screening tool.

More research is needed to better understand factors that contribute to whether colleges and universities choose to use formal screening tools and how they decide which tool to use. It would be helpful to understand the factors that lead to colleges choosing one screening tool over another; these factors may include cost, convenience, and psychometric rigor. However, the tools we recommend based on their performance in published research are free, widely available, and among those with the greatest support in the scientific literature. It would also be useful to explore barriers to employing a screening procedure with a standardized tool. Barriers may include lack of awareness about existing screening tools, lack of clinical expertise, lack of services for addressing alcohol problems, and poor support from college and university administrators.

In sum, screening for alcohol abuse among college students is a recommended practice that should be widely adopted. The practice of screening in the college setting can be facilitated by use of a validated tool that is appropriated for the college student population. However, fewer than half of the colleges we surveyed reported using a formal screening tool, and only 20% reported using at least 1 of the 4 tools that were judged as recommended (AUDIT, CUGE, CAPS, and RAPS). There are numerous psychometrically sound and accessible screening tools available. The widespread research on these tools suggests that they are not only relatively accurate but also appear to be generally acceptable to college students. Indeed, ongoing use of brief interventions in college settings suggest that many students identified as having an alcohol problem are agreeable to not only being screened but also to be part of an intervention program.¹⁰ Improving the screening standards in colleges and universities can promote effective identification and appropriate referral of college students who abuse alcohol. Promoting empirically supported screening services and the development and implementation of appropriate referrals and interventions are important responsibilities of campus health centers.

Limitations

Limitations of this study need to be considered when interpreting the findings. First, the data are based on self-report surveys. The respondent may not have been aware of the full range of screening procedures including screening tools used at their school. It is also possible that findings may have been influenced by social desirability bias, in that respondents may wish to portray their college in a positive light. However, given that 44% of respondents reported no use of a formal screening tool, this limitation may not be a major one. Second, the estimate of use of screening tools may be conservative. Some respondents recorded a brief intervention curriculum or a comprehensive assessment tool rather than listing a screening tool. These colleges may be using screening tools but interpreted the survey question incorrectly. The data reported here focus only on use of screening tools; it is not known the extent to which use of a formal screening tool is associated with the practice of referring students in need to interventions and treatment. Finally, another limitation is that the survey was not formally tested for reliability and validity, other than face validity. However, many of our survey items were adopted from a college survey that has been administered over multiple waves and is considered the standard in the field.¹⁸

Acknowledgments

This study was supported by a grant from the Robert Wood Johnson Foundation Substance Abuse Policy Research Program (RWJF no. 063118); Traci Toomey, Principal Investigator.

REFERENCES

1. Johnston, LD.; O'Malley, PM.; Bachman, JG.; Schulenberg, JE. Monitoring the Future: National Survey Results on Drug Use, 1975–2008: Volume II, College Students and Adults Ages 19–45. Bethesda, MD: National Institute on Drug Abuse; 2009. NIH Publication 09–7403.
2. Wechsler H, Lee JE, Kuo M, Seibring M, Nelson TF, Lee H. Trends in college binge drinking during a period of increased prevention efforts. Findings from 4 Harvard School of Public Health College Alcohol Study surveys: 1993–2001. *J Am Coll Health*. 2002; 50:203–217. [PubMed: 11990979]
3. Dawson DA, Grant BF, Stinson FS, Chou PS. Another look at heavy episodic drinking and alcohol use disorders among college and noncollege youth. *J Stud Alcohol*. 2004; 65:477–488. [PubMed: 15378804]
4. Gruzsa RA, Norberg KE, Bierut LJ. Binge drinking among youths and young adults in the United States: 1979–2006. *J Am Acad Child Adolesc Psychiatry*. 2009; 48:692–702. [PubMed: 19465879]
5. O'Malley PM, Johnston LD. Epidemiology of alcohol and other drug use among American college students. *J Stud Alcohol Suppl*. 2002; (14):23–39. [PubMed: 12022728]
6. Hingson RW, Heeren T, Zakocs RC, Kopstein A, Wechsler H. Magnitude of alcohol-related mortality and morbidity among U.S. college students ages 18–24. *J Stud Alcohol*. 2002; 63:136–144. [PubMed: 12033690]
7. Perkins HW. Surveying the damage: a review of research on consequences of alcohol misuse in college populations. *J Stud Alcohol Suppl*. 2002; (14):91–100. [PubMed: 12022733]
8. Weitzman, ER.; Nelson, TF.; Seibring, M.; Wechsler, H. *Needing, Seeking and Receiving Treatment for Alcohol Problems in College*. Cambridge, MA: Center for Substance Abuse Treatment, Substance Abuse and Mental Health Services Administration, Harvard School of Public Health; 2005.
9. Caldeira KM, Kasperski SJ, Sharma E, et al. College students rarely seek help despite serious substance use problems. *J Subst Abuse Treat*. 2009; 37:368–378. [PubMed: 19553064]
10. Larimer ME, Cronce JM. Identification, prevention, and treatment revisited: individual-focused college drinking prevention strategies 1999–2006. *Addict Behav*. 2007; 32:2439–2468. [PubMed: 17604915]
11. Dimeff, LA.; Baer, JS.; Kivlahan, DR.; Marlatt, GA. *Brief Alcohol Screening and Intervention for College Students (BASICS)*. New York, NY: The Guilford Press; 1999.

12. Task Force of the National Advisory Council on Alcohol Abuse and Alcoholism. A Call to Action: Changing the Culture of Drinking at US Colleges. Bethesda, MD: National Institute on Alcohol Abuse and Alcoholism; 2002.
13. Allen, J.; Columbus, M., editors. Assessing Alcohol Problems: A Guide for Clinicians and Researchers. 2nd ed. Rockville, MD: National Institute on Alcohol Abuse and Alcoholism; 2003.
14. Winters KC, Kaminer Y. Screening and assessing adolescent substance use disorders in clinical populations. *J Am Acad Child Adolesc Psychiatry.* 2008; 47:740–744. [PubMed: 18574399]
15. Chung T, Colby SM, Barnett NP, Rohsenow DJ, Spirito A, Monti PM. Screening adolescents for problem drinking: performance of brief screens against DSM-IV alcohol diagnoses. *J Stud Alcohol.* 2000; 61:579–587. [PubMed: 10928728]
16. Foote J, Wilkens C, Vavagiakis P. A national survey of alcohol screening and referral in college health centers. *J Am Coll Health.* 2004; 52:149–157. [PubMed: 15018426]
17. Knight JR, Wechsler H, Kuo M, Seibring M, Weitzman ER, Schuckit MA. Alcohol abuse and dependence among U.S. college students. *J Stud Alcohol.* 2002; 63:263–270. [PubMed: 12086126]
18. Wechsler H, Seibring M, Liu IC, Ahl M. Colleges respond to student binge drinking: reducing student demand or limiting access. *J Am Coll Health.* 2004; 52:159–168. [PubMed: 15018427]
19. Babor, TF.; Biddle-Higgins, JC.; Saunders, JB.; Monterio, MG. AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Health Care. Geneva, Switzerland: World Health Organization; 2001.
20. Ewing JA. Detecting alcoholism. The CAGE questionnaire. *JAMA.* 1984; 252:1905–1907. [PubMed: 6471323]
21. O'Hare T. Measuring problem drinking in first time offenders. Development and validation of the College Alcohol Problem Scale (CAPS). *J Subst Abuse Treat.* 1997; 14:383–387. [PubMed: 9368216]
22. Knight JR, Sherritt L, Harris SK, Gates EC, Chang G. Validity of brief alcohol screening tests among adolescents: a comparison of the AUDIT, POSIT, CAGE, and CRAFFT. *Alcohol Clin Exp Res.* 2003; 27:67–73. [PubMed: 12544008]
23. Aertgeerts B, Buntinx F, Bande-Knops J, et al. The value of CAGE, CUGE, and AUDIT in screening for alcohol abuse and dependence among college freshmen. *Alcohol Clin Exp Res.* 2000; 24:53–57. [PubMed: 10656193]
24. Martino S, Grilo CM, Fehon DC. Development of the drug abuse screening test for adolescents (DAST-A). *Addict Behav.* 2000; 25:57–70. [PubMed: 10708319]
25. Dennis ML, Chan YF, Funk RR. Development and validation of the GAIN Short Screener (GSS) for internalizing, externalizing and substance use disorders and crime/violence problems among adolescents and adults. *Am J Addict.* 2006 15. suppl 1:80–91. [PubMed: 17182423]
26. Selzer ML. The Michigan alcoholism screening test: the quest for a new diagnostic instrument. *Am J Psychiatry.* 1971; 127:1653–1658. [PubMed: 5565851]
27. Winters KC. Development of an adolescent alcohol and other drug abuse screening scale: personal Experience Screening Questionnaire. *Addict Behav.* 1992; 17:479–490. [PubMed: 1332434]
28. White HR, Labouvie EW. Towards the assessment of adolescent problem drinking. *J Stud Alcohol.* 1989; 50:30–37. [PubMed: 2927120]
29. Cherpitel CJ. A brief screening instrument for problem drinking in the emergency room: the RAPS4. Rapid Alcohol Problems Screen. *J Stud Alcohol.* 2000; 61:447–449. [PubMed: 10807217]
30. Miller, G. The Substance Abuse Subtle Screening Inventory—Adolescent Version. Bloomington, IN: SASSI Institute; 1985.
31. Bush KR, Kivlahan DR, Davis TM, et al. The TWEAK is weak for alcohol screening among female Veterans Affairs outpatients. *Alcohol Clin Exp Res.* 2003; 27:1971–1978. [PubMed: 14691385]
32. Cherpitel CJ. Analysis of cut points for screening instruments for alcohol problems in the emergency room. *J Stud Alcohol.* 1995; 56:695–700. [PubMed: 8558901]

33. Cherpitel CJ. Differences in performance of screening instruments for problem drinking among blacks, whites and Hispanics in an emergency room population. *J Stud Alcohol*. 1998; 59:420–426. [PubMed: 9647424]
34. Cherpitel CJ. Screening for alcohol problems in the U.S. general population: a comparison of the CAGE and TWEAK by gender, ethnicity, and services utilization. *J Stud Alcohol*. 1999; 60:705–711. [PubMed: 10487741]
35. Kelly TM, Donovan JE, Chung T, Bukstein OG, Cornelius JR. Brief screens for detecting alcohol use disorder among 18–20 year old young adults in emergency departments: comparing AUDIT-C, CRAFFT, RAPS40QF, FAST, RUFT-Cut, and DSM-IV 2-Item Scale. *Addict Behav*. 2009; 34:668–674. [PubMed: 19398161]
36. Kelly TM, Donovan JE, Kinnane JM, Taylor DM. A comparison of alcohol screening instruments among under-aged drinkers treated in emergency departments. *Alcohol Alcohol*. 2002; 37:444–450. [PubMed: 12217936]
37. O’Hare T. Comparing the AUDIT and 3 drinking indices as predictors of personal and social drinking problems in freshman first offenders. *J Alcohol Drug Educ*. 2005; 49:37–61.
38. O’Hare T, Sherrer MV. Validating the Alcohol Use Disorder Identification Test with college first-offenders. *J Subst Abuse Treat*. 1999; 17:113–119. [PubMed: 10435259]
39. West S, Graham CW. Assessing the validity of College Alcohol Problem Scale with African American undergraduates: results of preliminary investigation. *J Alcohol Drug Educ*. 2001; 46:4–17.

APPENDIX 1

Information About the Identifiable Screening Tools

Tool	Source reference	No. of items	Fee?
AUDIT (Alcohol Use Disorders Test)	Babor et al, 2001 ¹⁹	10	No
CAGE	Ewing, 1984 ²⁰	4	No
CAPS (College Alcohol Problem Scale)	O’Hare, 1997 ²¹	8	No
CRAFFT	Knight et al, 2003 ²²	6	No
CUGE	Aertgeerts et al, 2000 ²³	4	No
DAST-A (Drug Abuse Screening Test–Adolescents)	Martino et al, 2000 ²⁴	27	No
GAIN–Short Screen (Global Appraisal Inventory of Needs)	Dennis et al, 2006 ²⁵	20	Yes
MAST (Michigan Alcohol Screening Test)	Selzer, 1971 ²⁶	25	No
PESQ (Personal Experience Screening Questionnaire)	Winters, 1992 ²⁷	41	Yes
RAPI (Rutgers Alcohol Problem Inventory)	White & LaBouvie, 1989 ²⁸	18	No
RAPS (Rapid Alcohol Problems Screen)	Cherpitel, 2000 ²⁹	4	No
SASSI-A (Substance Abuse Subtle Screening Inventory–Adolescent)	Miller, 1995 ³⁰	100	Yes

APPENDIX 2

US-Based Published Studies That Compared Screening Tools

Citation	Tools compared
Aertgeerts et al, 2000 ²³	CAGE, CUGE, AUDIT
Bush et al, 2003 ³¹	TWEAK, AUDIT, AUDIT-C ^a
Cherpitel, 1995 ³²	CAGE, BMAST, AUDIT, TWEAK
Cherpitel, 1998 ³³	CAGE, BMAST, AUDIT, TWEAK, RAPS

Citation	Tools compared
Cherpitel, 1999 ³⁴	CAGE, TWEAK
Chung et al, 2000 ¹⁵	CAGE, TWEAK, AUDIT
Kelly et al, 2009 ³⁵	AUDIT, CAGE, CRAFFT, RAPS-QF ^a
Kelly et al, 2002 ³⁶	AUDIT, TWEAK, CAGE
O'Hare, 2005 ³⁷	AUDIT, Alcohol Change Index, heavy drinking index, binge drinking index ^b
O'Hare & Sherrer, 1999 ³⁸	AUDIT, CAPS, Drinking Context Scale ^c
West & Graham, 2001 ³⁹	CAPS, CAGE, AUDIT

^aRefers to the version of the tool that consists only of the alcohol consumption items.

^bSee O'Hare (2005) for descriptions of the Alcohol Change Index, heavy drinking index, and binge drinking index.

^cSee O'Hare & Sherrer (1999) for description of the Drinking Context Scale.

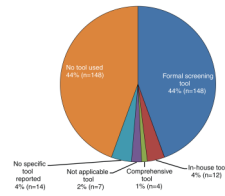


FIGURE 1.

Use of screening tools across full sample of colleges ($N = 333$). *Comprehensive* refers to a diagnostic-based or multiproblem assessment (Diagnostic Interview Schedule, Addiction Severity Index, or Structured Clinical Interview for *DSM-IV*); *Not applicable* refers to nonscreening tool or a response that was not recognizable.

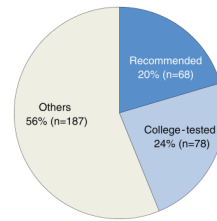


FIGURE 2.

"Best" screening tool used across full sample of colleges ($N = 333$). *Recommended* refers to use of at least 1 tool that was evaluated in a college sample and found to be favorable in comparison studies; *College-tested* refers to use of a tool that was evaluated in a college sample but was either not compared to other tools or not found to be favorable in a comparison; *Others* refers to all other responses (eg, uses in-house tool only, no tool reported).

TABLE 1

Frequencies and Ratings of Formal Alcohol Screening Tools Among Colleges That Reported They Used a Formal Screening Tool ($n = 148$).

Screening tool	Colleges n (%) ^a	Psychometrically evaluated in college sample?	Comparative evaluation favorable? ^b	Recommended ^c
CAGE	100 (68)	Yes	No [†]	
AUDIT	61 (41)	Yes	Yes	✓
SASSI	52 (35)	Yes	No [‡]	
MAST	29 (20)	Yes	No [†]	
CRAFFT	13 (9)	No ^d	Yes	
CUGE	8 (5)	Yes	Yes	✓
PESQ	8 (5)	Yes	No [‡]	
GAIN-Screen	3 (2)	No	No [‡]	
RAPI	3 (2)	Yes	No [‡]	
DAST	2 (1)	No	No [‡]	
CAPS	2 (1)	Yes	Yes	✓
RAPS	1 (1)	Yes	Yes	✓

^aPercentages based on 148 (of 333) 4-year colleges that reported their college used a formal screening tool. Order of screening tools based on reported frequency.

^bYes = empirically compared to at least 1 other tool and at least 1 study showed the tool to be psychometrically more favorable than the other tool(s).

^cThose checked as “recommended” based on the tool having been both psychometrically tested in a college sample and fared well in a comparative evaluation.

^dThe CRAFFT has been evaluated among older adolescents (18- to 20-year-olds) treated in Emergency Departments (Kelly et al, 2009).

[†]No = empirically compared to at least 1 other screening tool and no study showed the tool to be psychometrically more favorable than the other tool(s).

[‡]No = not empirically compared to other screening tools.

TABLE 2
Frequencies of “Best” Screening Tool by College Size and Type Based on Full College Sample ($N = 333$)

Best tool group	Size						Type					
	Total		Large		Small		Public		Private			
	n	%	n	%	n	%	n	%	n	%	p^a	
Recommended	68	20	57	24	11	11	.01	42	19	26	22	.74
College-tested	78	23	56	24	22	22		53	24	25	22	
Others (see below)	187	56	121	52	66	67		122	56	65	56	
Total	333		234		99			217		116		
Others include:												
Not college-tested	2											
In-house	12											
Comprehensive ^b	4											
Not applicable ^c	7											
No specific tool reported	14											
No tool used	148											

Note. Use of at least 1 formal screening tool was reported by 148 respondents. Use of both screening and comprehensive tools was reported by 47 respondents.

^a Significance test compares the 3 groups simultaneously.

^b Comprehensive refers to a diagnostic-based or multiproblem assessment (Diagnostic Interview Schedule, Addiction Severity Index, or Structured Clinical Interview for DSM-IV).

^c Not applicable refers to nonscreening tool or a response that was not recognizable.