BOSTON UNIVERSITY SCHOOL OF PUBLIC HEALTH

Workshop on Social Media, Web & Mobile Interventions For College Drinking

Final Report

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A final report summarizing the content, discussion and suggestions from a day long workshop, hosted by the Boston University School of Public Health, to focus on social-media/web/mobile and SBIRT interventions targeting college aged student drinking.

Introduction

Excessive alcohol consumption is the major threat to the health, safety and success of college students in the United States. With support from the Conrad N. Hilton Foundation, the Boston University School of Public Health convened a workshop of experts on college aged drinking and social media to explore if and how emerging technologies can be coupled with Screening, Brief, Intervention and Referral to Treatment programs (SBIRT), or other effective screening and intervention methods to reduce alcohol related harm to students. The focus was on alcohol because excessive drinking remains the dominant threat to the health and safety of college students. (Workshop participants and their institutional affiliations are listed in the Appendix.) This brief summarizes the key themes that emerged at the workshop and suggested next steps. Direct quotes from participants are provided in text boxes to illustrate the discussion.

Workshop participants reported that recent research and demonstration programs [1-9] have shown there are effective population level and individual screening, intervention and environmental approaches that can prevent and reduce harm to many students, but they also reported there was very little adoption of these approaches across the country. They expressed optimism that social media and emerging web/mobile technologies provide major new tools for progress, especially when coupled with campus/community environmental and policy changes.

The persistence of heavy drinking on college campuses and the associated harms; two distinct groups requiring different approaches.

There has been a thirty year trend toward reduced alcohol consumption, especially among high school students and individuals between 19 and 25 years old who are not in college. However, there has been only a slight decline among college students [10], as shown in **Figure 1**. This persistence is noted as evidence that current messaging about the dangers of excessive drinking and interventions to reduce or prevent its consequences are failing.

"For the past few years at my university, by far the most hospital visits, assaults, etc. happen in the first week".

The contrast between regular drinking in the senior year of high school and the start of the Freshman year in college three months later is dramatic. About half of all college students regularly drink significantly more than federal government (11) guidelines for safe drinking. Many start drinking heavily almost immediately upon arrival at college, even though they were not drinkers through their senior year in high school. The change is abrupt and the negative consequences are serious.

Alcohol is reliably associated annually with more than 1800 student deaths; 600,000 student injuries; almost 100,000 sexual assaults or rapes and more than 100,000 instances in which a student was too intoxicated to remember giving or refusing consent; and more than 400,000 instances of unsafe sex. (11) About 25% of college students report some form of academic problem related to their drinking, ranging from missing classes because of drinking the night before to failing out.

Up to 19% of college students drink heavily enough to meet the clinical definition of alcohol dependence for at least part of their years in college. [12] Fewer than five percent of these students seek any form of formal help or treatment. This very large group might well benefit from participating in evidence based screening and brief interventions delivered by web/mobile programming.

Workshop participants noted that there are two distinct patterns of college drinking that require different strategies and approaches. The majority of students who drink heavily during college, significantly reduce their drinking within years of leaving college. However, while they are drinking heavily, they cause or suffer many of the immediate negative outcomes associated with heavy drinking. For this large group, strategies and interventions to prevent and reduce harm should be paramount.

The second group, often disguised among the larger body of students, is the subset who will have repeated lifetime episodes of alcohol dependence and suffer long term negative health and life outcomes. They are usually drinking heavily before and during their college years. For these students, their time in college provides a critical opportunity to successfully identify substance use and intervene before a long downward trajectory begins. This important subset of students needs more intensive screening, treatment and support than others. The challenge is to develop and deploy these services at scale such as may be provided by evidence based SBIRT delivered by web/mobile programming. (The Affordable Care Act provides new opportunities to organize and finance such services because alcohol dependence treatment is now a covered service and virtually all college aged students are now eligible for coverage on their parent's policy or through subsidized insurance.)

Reasons for the persistence of heavy drinking by college students

Many students see immediate benefits in heavy drinking, from easing social interaction to utilizing alcohol to deal with difficult thoughts or experiences. [13] Messages about potential long term consequences have been ineffective as they are overwhelmed by short term considerations and the environment that encourages heavy alcohol consumption. Existing "safe drinking"

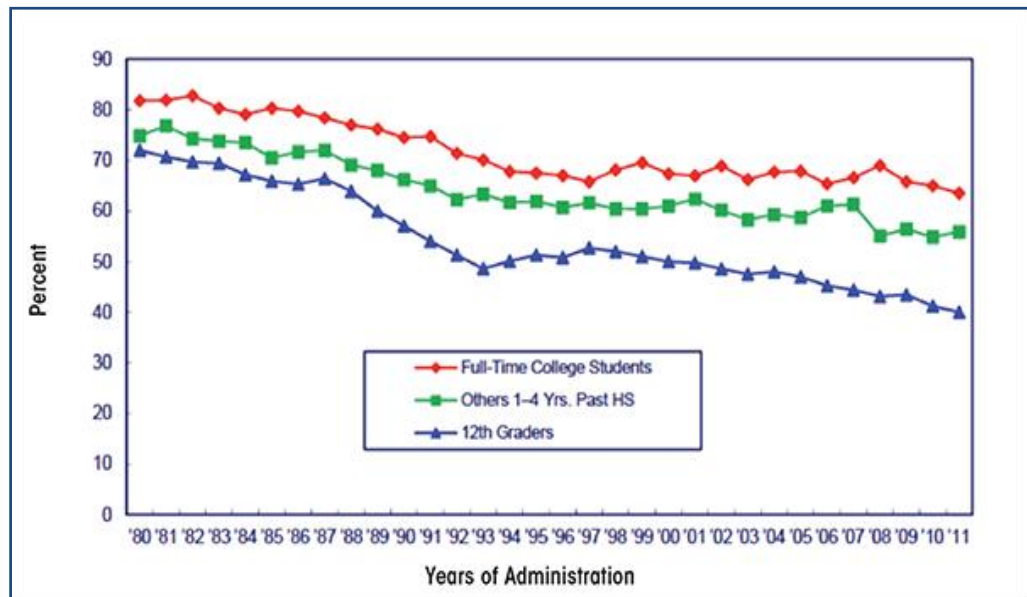guidelines may be valid as long term guides to potential negative consequences related to alcohol consumption but they lack credibility to students who regularly drink and see others drink more than the guidelines.

Figure 1- Alcohol: Trends in 30-day prevalence among college students vs. others 1 to 4 years beyond high school (twelfth graders included for comparison). Source: The Monitoring the Future study, the University of Michigan. [15]
Note: 'Others' refers to high school graduates 1 to 4 years beyond high school not currently enrolled full time in college

Heavy alcohol consumption is central to the social environment of many college campuses, even in the face of the reality that a majority of students do not drink at unhealthy levels. Efforts to reverse the cultural expectations about alcohol and "fun" or social success have been sporadic and poorly sustained on most campuses. The current activism against sexual harassment and unconsented sex/date rape may well be a turning point if it is sustained and moves toward population level and environmental changes in the easy availability of large quantities of beer and mixed drinks by the bowl. Many of the gruesome stories being told through campus meetings and across social media involve situations that started with heavy drinking by the men and women involved in the incident. However, so far, most of the debate and anger has not focused on the alcohol environment and consumption that is the key enabler of the violence. This could change. For example, in January 2015 the President of Dartmouth College announced a ban on distilled spirits on the campus and called for other alcohol related reforms in the fraternities, coupled with a threat of closing them if they did not comply.

There is a striking disconnect between the research that demonstrates effective population and individual ways to prevent and reduce harm and the reality of what happens on most campuses. Very few colleges have implemented and sustained the kind of comprehensive campus/community strategies that research has shown can be effective in reducing and preventing alcohol related harms. Surveys [16] show that most colleges implement only one or two elements of a comprehensive plan and thus have little effect. For example, many campuses now have some form of brief alcohol education program, often delivered during the rush of Freshman orientation. Some of the programs have an evidence base that suggests modest short term impact on drinking while others are home grown with no evidence of efficacy. [17-19] Colleges also often have a disciplinary process to adjudicate individual alcohol related offenses as they occur. These processes are sometimes used to identify and refer students with an "indicated" alcohol problem for brief interventions but some colleges that have these processes in place fail to maintain an adequately trained staff to implement the evidence based programs with fidelity. [20]

Reasons for the failure to adopt evidence based policies are as varied as the colleges themselves. Some college administrations fear that "cracking down" will hurt future student recruitment or alumni fund raising. Others feel it is hopeless to do anything about underage drinking and want the law setting 21 as the legal drinking age changed, despite its remarkable demonstrated success in reducing long term alcohol related deaths and negative consequences. Many campuses establish policies and services to identify and provide services to students with an indicated need for intervention but then do not provide the sustained resources and trained personnel to provide the services at scale with fidelity.

Key elements of an effective way to reduce and prevent the harms associated with excessive drinking include policy/environmental changes, population level alcohol screening and individual intervention when indicated.

Low prices and easy availability of essentially unlimited amounts of alcohol, especially served in large containers in poorly supervised settings, create an almost insurmountable barrier to effective action to prevent and reduce harm. Therefore, a campus/community comprehensive strategy that includes policies and practices that have been shown to be effective is essential. [3]

Successful campus/community strategies include:

- Raising the price of alcohol through tax increases, bans on low priced "happy hour" and other promotions, bans or limits on kegs and other high quantity low price serving methods. [21, 22]
- Consistent enforcement of drinking age and consumption laws both on and off campus with businesses, campus organizations and individuals held accountable for violations.
- Creation and promotion of activities that do not revolve around excessive alcohol.
- Scheduling more classes on Friday to reduce drinking with harmful consequences on Thursday nights.

- Special attention to key transition points associated with consequential drinking such as the start of Freshman year or the time around a 21st birthday to identify students at high risk for heavy consequential drinking and intervening in real time to prevent harm.
- Sustained support for appropriately trained personnel to provide (directly or through insurance coverage) evidence based interventions for students who are on a path to long term dependence.

Social media based web/mobile platforms utilizing screening, brief intervention and other evidence based approaches provide unprecedented opportunities to reduce and prevent harms from unhealthy drinking by college students.

Social media web and mobile platforms are where we will find the students we need to reach. They organize their academic and social lives through their phones and social media. Smart phones and web applications have also become major marketing channels for alcohol beverage companies and groups promoting mass events that are likely to be suffused with excessive alcohol and other drugs. The ads and messages that surround a user's search, mail, or almost any other web/mobile activity are increasingly driven by that person's past searches and accumulated digital persona. Geolocating technology can send a message suggesting a beer or promoting a drink special as you walk by a bar, or tell you that a friend is already there.

"Technology facilitated interventions are very heterogeneous because they address many different sub populations such as all Freshmen or only indicated referred individuals."

Emerging research indicates that these same technologies can also be used to provide content and interventions that will prevent and reduce alcohol related harms at both the population and indicated individual level but none have been developed or tested for use at scale.

Online alcohol screening and brief interventions have shown to be at least moderately effective at the college population level for short periods. Online versions of individually oriented multi-session evidence based interventions have achieved positive outcomes on drinking and related negative consequences when compared to the in person versions of the same program. [2-9]

The specific advantages of using social media web/mobile technologies to deliver evidence based content include:

- **Relatively low cost delivery at scale**. Designing and validating a web/mobile intervention can be costly but actual widespread implementation can be significantly less expensive than in person screening, intervention or counseling. For example, a recent test of a text based messaging system designed to reduce the "melt" of low income students who were accepted at a college but failed to matriculate in September increased the percent of students who successfully enrolled by 7% at a cost of $5.00 per student.
- **High levels of fidelity.** Faithful replication of a protocol that has been validated is a major challenge to many behavioral interventions. Manuals to guide delivery are often ignored by inadequately trained personnel and few programs have enough clinical supervision to ensure faithful and sustained application. Computerized protocols apply the algorithms the same way every time and can get results that are similar to those achieved in the trials and superior to usual in person practice.

- **In the moment delivery to targeted recipients.** This is an aspect of social media web/mobile technology that has been particularly underutilized. Web/mobile devices are available anytime and are almost always turned on to receive or send content. More often than not, a student encounters a stressful or triggering situation when traditional services are not available. His/her phone, however, can deliver a message or support just when it is needed. Geotargeting enables message delivery to an individual at the time and place where risky behavior often takes place. For example, a student in counseling could identify places that often trigger drinking episodes and develop a plan on how to handle such situations. When he/she is near such a location, a support message can be sent to remind the student how to effectively cope with the specific trigger.
- **Message delivery triggered by an individual's online behavior** Web/mobile advertising messages are driven by our own past use. For example, when we search for a bar or product or even use key words in private email messages we see ads for similar bars or products. Algorithms that trigger appropriate alcohol related messages can be similarly deployed.
- **Content customized based to individuals at different levels of risk.** Screening and other information can be integrated in algorithms that lead to individually appropriate information and interventions ranging from supportive messaging for safe or no drinking through a spectrum of information and interventions or referral to treatment when indicated
- **Self-managed or supervised support groups.** Peer support is a key element of success in almost all behavior change. Web/mobile based support has been shown to be an effective and accessible new way to organize and maintain such support and deliver it at the time it is most needed by an individual. Web/mobile support groups are not limited to a particular time or place. Students who may feel isolated or stigmatized on their own campus can find students with similar circumstances at other colleges to build a support network.
- **Training and support for counselors and personnel at the college level.** Web based training and professional support is now common in many fields. However, it has not been utilized widely yet to train and support college alcohol counselors or residence advisors who face many of the most serious issues of college drinking without much training or support.
- **Customized presentation for different colleges or sponsors.** Faithful implementation of evidence based protocols is the heart of a web/mobile screening and intervention program, but the look and feel of a program can be easily adapted to a particular college. Thus, a centrally designed and operated program can be implemented within the frame of any particular college that chooses to use it.

Opportunities for Action

Reinvigorate alcohol policy activities that promote sustained comprehensive environmental strategies at colleges. Research [3] from a decade ago (AMOD) showed that those few colleges that actually implemented all the evidence based elements of a comprehensive achieved significant reductions in alcohol related harms to their students and community. Many colleges tried but failed to implement comprehensive strategies and others that had them in place failed to sustain them over time. There is a particular need for research on the challenges to dissemination and implementation of sound policies because easy access to huge quantities of

cheap beer and sweetened alcohol punch (think 20-30 ounce plastic cups filled from unsupervised taps and bowls) is the starting point for many of the harms we seek to prevent.

Re-engage parents. Research has repeatedly shown that parents' own behaviors and views are a very important influence on their children's early use of alcohol. Genetics plays a significant but not determinant role in developing alcohol dependence, [23] but many young people are often not fully aware of a family related risk or taught how to handle it. Research shows that the more parents are engaged in their children's lives, the less likely they are to develop alcohol and drug related problems, without respect to family risk. It is striking that current policies about student confidentiality and communication between college officials and parents excludes substantive communication with parents about problems their child may be experiencing except in the most dire circumstances, such as an attempted suicide, that may occur late in the decline to long term illness.

Deploy and test web/mobile interventions at scale in the real world. Screening and intervention programs that have been shown to be efficacious for a short time in small controlled trials should be tested at scale and over a long enough time to measure real world effectiveness. Traditional academic sponsored trials enroll relatively small groups of participants and measure outcomes for a brief period of time, often less than a year. They provide little guidance on whether interventions have long term or delayed impact or whether continuing support would increase the size and duration of short term positive impacts. There is a basic disconnect between even the best designed alcohol interventions and the reality of college drinking experience. Trials are short because grants are for limited periods of time. The intervention and associated support usually end, followed by one or two efforts to follow up with participants to check on endurance of the intervention effect. The participants continue to be surrounded by the environment and circumstances that contributed to their drinking problems so it should not be surprising that immediate positive effects disappear over a brief time. Long term trials with continuing support would be a better match of intervention and problem.

Develop and test messaging that is related to the immediate challenges facing students and that is credible to them. Students themselves and experts in marketing to students should be brought into a partnership that will be the core of this effort. Current messaging about the negative health and social effects of heavy alcohol consumption is clearly overwhelmed by the immediate benefits perceived by students in their environment.

Develop partnerships with experts in web/mobile design, messaging and programming. The alcohol prevention and intervention programs now in use suffer from very low levels of engagement by students. Almost all of the existing web or mobile based interventions are programs that were initially developed and tested for in person use. Few have been designed from scratch to make full use of the capacities of the new technologies. Research driven application development rarely has the budget or expertise to develop programs that have the same appeal as commercially developed applications that draw millions of students.

Develop and use predictive analytic techniques. When clinicians review the histories of patients with alcohol disorders, they find trails to circumstances and events much earlier in life that could have been accumulated into an accurate forecast of likely future problems. Now, when help is offered at all it is usually concentrated on students who have gotten in trouble but who may or may not be in the group at highest long term risk. There is always risk that a predictive tool can be used to label a young person in ways that have long term negative consequences. However, failing to use information that can lead to an early and voluntary action to reduce risk may be a greater disservice to the individual and the community.

Conclusion

The workshop participants included many of the nation's most senior experts on college aged drinking and its consequences. With their varying levels of experience with social media, they collectively understood there is not going to be a "killer app" that solves the college drinking problem. As a result, the discussion focused less on specific technology and more on the role that social media applications can play in addressing the broader context of individual and community problems associated with high levels of alcohol consumption on college campuses. The workshop participants concluded that the emerging technologies offer an almost unprecedented opportunity to build and implement effective prevention and treatment interventions at scale, particularly in screening and brief intervention. The effectiveness of these technologically supported interventions will ultimately depend on using them in the context of a multi-pronged, comprehensive strategy to prevent, reduce and treat alcohol related problems in college students.

Sources

1. Mason M, Benotsch EG, Way T, Kim H, and Snipes D. Text Messaging to Increase Readiness to Change Alcohol Use in College Students. The Journal of Primary Prevention. Feb 2014; 35 (1): 47-52.
2. Hallet J, Maycock B, Kypri K, Howat P, McManus A. Development of a Web based alcohol intervention for university students: processes and challenges. Drug and Alcohol Review, 2009; 28(1):31-39.
3. Weitzman E.R., Nelson T.F., Lee H., and Wechsler H. Reducing drinking and related harms in college: Evaluation of the "A Matter of Degree" program. American Journal of Preventive Medicine,2004; 27(3):187-196.
4. Spijkerman, R., Roek, M. A., Vermulst, A., Lemmers, L., Huiberts, A., & Engels, R. C. (2010). Effectiveness of a Web-Based Brief Alcohol Intervention and Added Value of Normative Feedback in Reducing Underage Drinking: A Randomized Controlled Trial. Journal of Medical Internet Research, 12(5), e65. doi:10.2196/jmir.1465.
5. White A, Kavanagh D, Stallman H, Klein B, Kay-Lambkin F, Proudfoot J, Drennan J, Connor J, Baker A, Hines E, et al. Online alcohol interventions: a systematic review. J Med Internet Res. Dec 2010; 12(5):e62.   Epub. Dec 2010.
6. Voogt C, Kuntsche E, Kleinjan M, Poelen E, Engels R. Using ecological momentary assessment to test the effectiveness of a web-based brief alcohol intervention over time among heavy-drinking students: randomized controlled trial.J Med Internet Res. Jan 2014.16(1):e5. Epub. Jan 2014.
7. Larimer, ME and Cronce, JM. Identification, prevention, and treatment revisited: Individual-focused college drinking prevention strategies 1999–2006. Addictive Behaviors. 2007; 32: 2439-2468.
8. Cronce, J. M., & Larimer, M. E. (2011). Individual-focused approaches to prevention of college student drinking. Alcohol Research & Health, 34: 210-221.
9. Carey KB, Scott-Sheldon LAJ, Carey MP, DeMartini KS. Individual-level interventions to reduce college student drinking: A meta-analytic review. Addictive Behaviors. 2007; 32: 2469–2494.
10. Eagan, K., Stolzenberg, E.B., Ramirez, J.J., Aragon, M.C., Suchard R.S., & Hurtado, S. The American Freshman: National Norms Fall 2014 ISBN: 978-1-878477-39-2   79 pages.
11. National Institute of Alcohol Abuse and Alcoholism-College Drinking; Fact Sheet, 2013.
12. National Institute on Alcohol Abuse and Alcoholism, National Epidemiologic Survey on Alcohol and Related Conditions, 2002 (special data run).
13. Iwamoto D, Corbin W, Lejuez C, MacPherson L. College men and alcohol use: Positive alcohol expectancies as a mediator between distinct masculine norms and alcohol use. Psychology Of Men & Masculinity [serial online]. January 2014;15 (1):29-39.
14. National institute of Alcohol Abuse and Alcoholism—Alcohol Alert #68, April 2006.
15. White, A and Hingson, R. The Burden of Alcohol Use: Excessive Alcohol Consumption and Related Consequences Among College Students. From Measuring the Burden—Alcohol's Evolving Impact on Individuals, Families, and Society, NIAAA; Alcohol Research: Current Reviews, 35(2).
16. Toomey T, Nelson T, Winters K, Miazga M, Lenk M, and Erickson D. Characterizing College Systems for Addressing Student Alcohol Use: Latent Class Analysis of U.S. Four-Year Colleges. J. Stud. Alcohol Drugs, 2013; 74: 777–786.
17. Croom K , Lewis D , Marchell T, ML , Reyna VF , Kubicki-Bedford L , Feffer M , Staiano-Coico L. Impact of an Online Alcohol Education Course on Behavior and Harm for Incoming First-Year College Students: Short-Term Evaluation of a Randomized Trial.Journal of American College Health. 2009; 57 (4).
18. Hustad JT, Barnett NP, Borsari B, Jackson KM. Web-based alcohol prevention for incoming college students: A randomized controlled trial, Addictive Behaviors. March 2010; 35 (3):183-189,

19. Lovecchio CP , Wyatt TM , DeJong W. Reductions in Drinking and Alcohol-Related Harms Reported by First-Year College Students Taking an Online Alcohol Education Course: A Randomized Trial. Journal of Health Communication. 2010; 15, (7).

20. Larimer ME, Kilmer JR, Lee CM. College Student Drug Prevention: A Review of Individually-Oriented Prevention Strategies Journal of Drug Issues. April 2005; 35: 431-456.

21. Elder RW, Lawrence B, Ferguson A, Naimi TS, Brewer RD, Chattopadhyay SK, Toomey TL, and Fielding JE. Task Force on Community Preventive Services, The Effectiveness of Tax Policy Interventions for Reducing Excessive Alcohol Consumption and Related Harms, American Journal of Preventive Medicine. February 2010; 38 (2): 217-229.

22. Hahn RA, Kuzara JL, Elder R, Brewer R, Chattopadhyay S, Fielding J, Naimi TS, Toomey T, Middleton JC, and Lawrence B. Task Force on Community Preventive Services, Effectiveness of Policies Restricting Hours of Alcohol Sales in Preventing Excessive Alcohol Consumption and Related Harms, American Journal of Preventive Medicine. December 2010; 39 (6): 590-604.

23. Dick, DM. Developmental Changes in Genetic Influences on Alcohol Use and Dependence. Child Development Perspectives. 2011; 5: 223–230.

Appendix

Attendees at

Boston University School of Public Health

workshop on

Social media, web & mobile interventions for college drinking

Jon Agley, PhD
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