

Utilizing BIG DATA and SNS to track alcohol use in college students

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Heavy episodic drinking (i.e., binge drinking) is associated with a host of health problems, accidents and increased mortality. In the college student population, the excessive use and abuse of alcohol is an important public health problem affecting the physical, intellectual and social welfare of young people in higher education in the United States.¹ Despite decreases in heavy episodic drinking in this population over the past decade, a large majority (63%) of college students report past-month drinking and nearly half (40%) report being “drunk” during the past-30 days.² The consequences from excessive alcohol consumption are numerous in this population and include nearly 600k alcohol-related injuries, almost three-quarter of a million assaults and close to 100k sexual assaults, as well as 1,825 deaths.³ Moreover, nearly one-quarter of undergraduate students report alcohol-related academic problems such as missing class and poor grades.⁴

Typically, college student drinking epidemiology has been understood through the use of large national surveys, such as Monitoring the Future² or from institution-specific surveys. Although still the “gold standard” for understanding alcohol and drug taking behaviors in this and many other populations, there are many disadvantages to this method of data collection. For example, the veracity of survey data can suffer from low response rates and the under-reporting of behavior. Furthermore, because surveys are generally conducted once a year (or less frequently), the data reflected in the survey may not represent the most current view of a given behavior such as alcohol consumption.⁵⁻⁶ Lastly, surveys are not always “sensitive” enough to capture the sometimes dynamic and ever-changing temporal nature of alcohol consumption on a college or university campus. For example, a big football win could result in spontaneous partying and excessive drinking on a campus while increased studying for mid-term exams may reduce drinking.

The call for new methodologies that don’t suffer from the same limitations of traditional surveys to collect data about college student drinking by researchers in the college alcohol field⁷ has coincided with a growing research literature exploring how to use Big Data generated from the internet and social networking sites (SNSs) as an intelligence tool⁸ to understand substance use behaviors in particular populations. One advantage to using data generated from the internet and SNS is that the data could be collected unobtrusively and in near real time;⁹⁻¹⁰ thus, reducing some of the problems (i.e., under-reporting and insensitivity to dynamic and temporal changes in behavior) of traditional surveys. The use of SNS (i.e., Twitter, Instagram, Facebook, etc.) among college and university students is extremely popular with use ranging from a low of 37% (Twitter) to a high of 87% (Facebook)¹¹ with time spent viewing these applications/websites ranging from 1 to 2.5 hours a day.¹² Thus, leveraging information from data generated from SNS to unobtrusively track and monitor alcohol-related and harmful drinking patterns in college student populations could be an important adjunctive method of capturing alcohol epidemiological information in this population.⁹⁻¹⁰ In fact, a growing number of studies have linked alcohol-related content (i.e., text, photos, etc.) on SNS to self-reported alcohol consuming behaviors;¹³⁻¹⁵ thus, there seems to be some empirical support to the validity of utilizing SNS to collect alcohol-related information in this population of young people.

My interest in this line of work lies with the development of a web-based surveillance system that could be utilized by college health promotion professionals to help in the prediction of drinking problems on campus as well as with the development of drinking reduction campaigns/programs that can be launched proactively as opposed to be reactively—which is

what typically occurs on many college and university campuses. Moreover, these campaigns could leverage SNS or other web-based modalities to launch campaigns designed to reduce harmful drinking in this population of young people. Given the potential ability to track the dynamic nature of college student drinking over time, college health promotion professionals could prioritize resources and programming based on temporal fluctuations of drinking that occur over the academic year.

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