

New technology can mine data from Instagram to monitor teenage drinking patterns

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Credit: Jourden C/public domain

Instagram could offer a novel way of monitoring the drinking habits of teenagers.

Using photos and text from Instagram, a team of researchers from the University of Rochester has shown that this data can not only expose patterns of underage drinking more cheaply and faster than conventional surveys, but also find new patterns, such as what alcohol brands or types are favored by different demographic groups. The researchers say they hope exposing these patterns could help develop effective intervention.

Instagram is very popular among teenagers and it offers large amounts of information about this target population in the form of photos and text. As Jiebo Luo, professor of computer science at the University of Rochester, and his colleagues describe in a new paper, [underage drinkers](#) "are willing to share their [alcohol consumption](#) experience" in [social media](#). Studying the social media behavior of this group allows the researchers to observe it passively in an "undisturbed state."

They are presenting their work this week at the 2015 IEEE International Conference on Big Data in Santa Clara, California.

An example of the disadvantages of traditional methods for monitoring underage alcohol consumption is that teenagers might not be honest when they respond to an administered survey about alcohol use, e.g., the "Monitoring the Future" survey by the federal government. Also, those that choose to respond to such a survey might not be a representative sample and the sample size might be small to draw conclusions.

Instagram does not offer a way of selecting users by age, but the research team was able to select users that fit the profile they were looking for by applying computer vision techniques. Luo and his team have been pioneering techniques that teach computers to extract information from images on the Internet, something that is much more complex than just

extracting information from text. They were able to use computers to analyze the profile faces of Instagram users to get sufficiently accurate guesses for their age, gender, and race.

Having selected a group of underage users to study, the researchers monitored drinking related activities via their Instagram photos by analyzing the social media tags associated with these photos using a constructed Internet slang dictionary and also any alcohol brands the users follow.

In their study, the researchers found that underage alcohol consumption, like with adults, happens more on weekends and holidays and at the end of the day. There also wasn't a strong bias toward one gender for alcohol consumption - it matched the gender ratio of Instagram users.

The researchers did find that different alcohol brands are followed in varying degrees by teenagers, and that different genders follow different brands. The researchers highlight that this could point out brands that are attracting younger audiences in social media, information that could be useful to people working with underage drinkers.

"There are several ways we can go about doing that," said Luo. "We can keep government agencies or schools better informed and help them design interventions. We could also use social media to incorporate targeted intervention and to measure the effect of any intervention. And perhaps other things we haven't thought about."

The researchers acknowledge, however, that research like this could also be used by brands to target their products to those users most likely to follow them.

Luo explained that an important next step is to check the results of their approach with surveys, to ensure their methodology is robust before

applying it to extract even more information from Instagram. They hope to collaborate with people working on addressing other youth problems, such as tobacco, drugs, teen pregnancy, stress or depression.

"This new method could be a useful complement to more traditional methods of measuring youth drinking," said Elizabeth Handley, clinical psychologist and research associate at the University's Mount Hope Family Center. "It could provide important new insights into the contexts of youth drinking and be a valuable tool for evaluating the effectiveness of school or community-based preventive interventions."

Provided by University of Rochester

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