

Up in smoke or bottoms up: How policy could affect substance abuse

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Half of young drivers who died in car crashes in American states such as California, Hawaii and West Virginia were under the influence of either alcohol or marijuana, or both. This is the story told by the statistics recording fatal road accidents involving 16- to 25-year olds in nine US states. It was used by researchers from Columbia University's Mailman School of Public Health to gauge how possible policy changes could influence substance use among adolescents and young adults. The study, led by Dr. Katherine Keyes, is published in Springer's *Injury Epidemiology*, an open access journal.

Keyes and her colleagues analyzed 7,191 [fatal accidents](#) involving drivers between the ages of 16 and 25 from the states of California, Connecticut, Hawaii, Illinois, New Hampshire, New Jersey, Rhode Island, Washington State and West Virginia. These nine states all routinely perform toxicological tests on the blood or urine specimens of drivers who die in [car crashes](#). Information was drawn from the Fatality Analysis Reporting System, a census of fatal traffic crashes occurring within the US. More than half of the crashes (54.7 percent) included for the period between 1999 to 2011 occurred in California.

Overall, 50.3% of the deceased tested positive for [alcohol](#), [marijuana](#) or both. Of these, 36.8 percent were under the influence of alcohol, 5.9 percent used only marijuana and 7.6 percent used both substances.

Keyes's team further tested whether there were any changes in patterns of alcohol and marijuana use among those aged 21 years and older who

were legally allowed to consume alcohol, versus those less than 21. It was found that alcohol consumption indeed increased by 14 percent, but such prominent changes in marijuana use were not seen. The Columbia University researchers do note that marijuana use decreased among those aged 21 years and older who used this drug alone. After reaching age 21, use of alcohol in combination of marijuana increased slightly.

"Given the rapid changes currently underway in marijuana availability and permissibility in the US, understanding the effects of drug control policies on substance use behaviour and adverse health outcomes, such as fatal motor vehicle crashes, has never been more important," says Dr. Keyes.

"Taken together, we found no significant substitution effect between alcohol and marijuana. Rather, increased availability seems to increase the prevalence of concurrent use of alcohol and marijuana," says Dr. Guohua Li, co-author of the study and Director of the Centre for Injury Epidemiology and Prevention at Columbia University.

More information: Keyes. K.M. et al (2014). Effects of Minimum Legal Drinking Age on Alcohol and Marijuana Use: Evidence from Toxicological Testing Data for Fatally Injured Drivers Aged 16 to 25 Years, *Injury Epidemiology*, DOI 10.1186/s40621-014-0032-1

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