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Using Alcohol and Marijuana Together Exacerbates Negative Consequences in Young Adults

June 22, 2021 *By William Ross Perlman, Ph.D., CMPP, NIDA Notes Contributing Writer*

These studies found that:



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- College students who used marijuana and alcohol simultaneously experienced more negative consequences than those who used both substances sequentially.
- College students who used both substances sequentially reported more negative consequences than those who only used alcohol.
- Young adults drank more alcohol on days when they also used marijuana than on days when they only drank alcohol.

- Young adults reported more harms on days when they used both substances than on days when they used only one or the other.

With more widespread legalization of marijuana for medicinal and recreational purposes, its use has increased, especially among young adults. Given the pervasive alcohol use in this age group, it is important to investigate the consequences of using both substances together. Three recent studies investigating this issue indicate that simultaneous alcohol and marijuana use (SAM) is associated with both increased alcohol consumption and greater negative consequences.

SAM Leads to More Negative Consequences in College Students

[Dr. Kristina M. Jackson](#) and colleagues from the Center for Alcohol and Addiction Studies at Brown University and [Dr. Helene R. White](#) from the Center on Alcohol Studies at Rutgers University compared negative consequences experienced by college students who engage in SAM to those experienced by students who used both substances but not at the same time (concurrent alcohol and marijuana use [CAM]), and those who used only alcohol. The researchers analyzed online surveys of 1,390 full-time college students ages 18 to 24 who had used alcohol and marijuana in the past year. The students were recruited from colleges in three states with different state laws regarding recreational marijuana use.

The team first compared how many negative consequences people who engage in SAM, those who engage in CAM, and those who only use alcohol reported experiencing; the survey included nine different consequences:

- Cognitive, academic, social, and self-care effects
- Blackouts
- Vomiting
- Risky behavior
- Driving under the influence
- Physical dependence

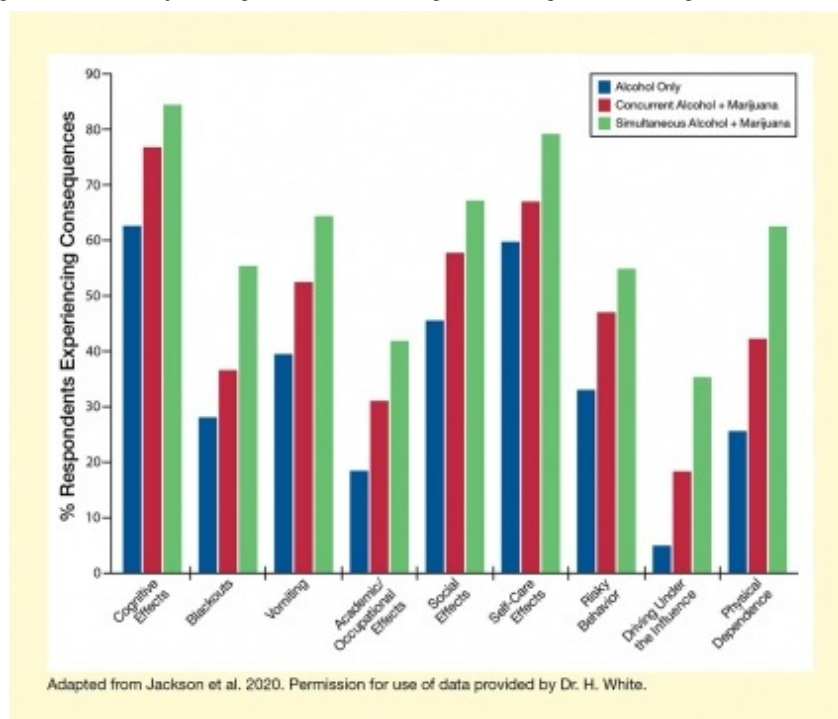


Figure. Negative Consequences Are More Common in College Students Who Engage in SAM Use Than Those Who Engage in CAM or Alcohol-Only Use For all consequences, the percentage of respondents reporting these consequences was highest for SAM users and lowest for those who used alcohol only. See [full text description](#) at end of article.

In contrast to earlier studies, the researchers controlled for factors that could be higher among people who engage in SAM and could increase risk of experiencing negative consequences, such as greater/more frequent alcohol and marijuana use, certain socio-demographic characteristics (e.g., sex and race/ethnicity), and certain psychosocial characteristics (e.g., impulsive behavior). Even after controlling for these factors, people who engaged in SAM reported significantly more negative consequences than those who engaged in CAM, and the SAM and CAM groups experienced more negative consequences than those who only used alcohol. Additionally, the SAM group was most likely, and the alcohol-only group was least likely, to report each type of negative consequence, although the differences were not always statistically significant (see Figure).

The researchers also found that people who engaged in SAM were more likely to attribute the negative consequences they experienced to their alcohol use than to the simultaneous use of both substances. “Whether this attribution was due to ‘myths’ about marijuana use being benign or to heightened prevention messages about harms associated with alcohol use needs to be further investigated,” says Dr. Jackson. One exception was that more individuals in the SAM group reported driving under the influence of marijuana than under the influence of alcohol alone or combined with marijuana. Dr. White speculates that, “Perhaps this generation, which has been

socialized not to drink and drive, is unlikely to drive under the influence of alcohol, or to report doing so.”

Overall, the results indicate that college students need to be better informed about the potential harms associated with marijuana use and especially with SAM, including driving under the influence. Therefore, prevention programs targeted at multiple substances, including simultaneous substance use, should be implemented on college campuses.

SAM Increases Alcohol Consumption and Consequences in Young Adults

One limitation of the study by Dr. Jackson and colleagues was that it included only college students, whose behavior may not be representative of all young adults. However, their findings are supported by a study by [Dr. Christine M. Lee](#) and colleagues from the University of Washington School of Medicine and [Dr. Megan E. Patrick](#) from the University of Minnesota, who assessed alcohol consumption and alcohol-related consequences in a community sample of nearly 400 young adults who used alcohol and marijuana simultaneously.

The participants completed online surveys twice a day for two 14-day periods approximately 4 months apart. On SAM days, the respondents consumed greater amounts of alcohol and reported more alcohol-related consequences (both negative and perceived positive consequences) compared with days when they only drank alcohol. The increase in negative alcohol-related consequences (e.g., hangover, nausea, and vomiting) was partially explained by the greater alcohol consumption on SAM days. The increase in perceived positive consequences (e.g., feeling more relaxed or in a better mood), however, was significant even after accounting for amount of alcohol consumed.

Findings by [Dr. Ashley N. Linden-Carmichael](#) and colleagues from Pennsylvania State University further support the hypothesis that SAM has different consequences than separate use of both substances. These investigators wanted to go beyond comparing SAM users versus people who use just one substance or the other by studying young adults who use both, but not always at the same time. For each participant, the team compared consequences on days with SAM, alcohol-only use, and marijuana-only use. Explains Dr. Linden-Carmichael, “This approach allows for a better understanding of whether harms associated with combining alcohol and marijuana are simply due to differences between people, or whether it is actually their substance use behaviors

that are linked with harms.” The participants completed up to 14 daily assessments of their substance use.

The young adults reported more negative consequences, such as experiencing negative physical side effects, forgetting what happened the night before, or embarrassing themselves, on SAM days than on days when they used only alcohol. Similarly, they reported more negative and perceived positive consequences on SAM days than on marijuana-only days. “Importantly, we found that young adults experience more harms even after adjusting for the amount of alcohol and/or marijuana they were using and whether they were using other substances such as nicotine products or other drugs,” says Dr. Linden-Carmichael.

According to Dr. Linden-Carmichael, the findings have important implications. “In developing highly effective substance use interventions, we should consider the role of all substances young adults may be using and whether they are using substances at the same time with overlapping effects,” she says.

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Text Description of Figure



Sources:

Jackson, K.M., Sokolovsky, A.W., Gunn, R.L., and White, H.R. [Consequences of alcohol and marijuana use among college students: Prevalence rates and attributions to substance-specific versus simultaneous use](#). *Psychol Addict Behav* 34(2):370-381, 2020.

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