

Unconscious emotional memory remains intact during alcohol intoxication, may impact prevention and intervention

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(Medical Xpress) -- Although certain memory processes are impaired during alcohol intoxication, the brain does appear to retain emotionally charged images, particularly in unconscious memory processes, a new study in the September issue of the *Journal of Studies on Alcohol and Drugs* suggests. This finding may have implications for improving [alcohol education](#) and treatment programs.

The study looked at two types of [memory](#): explicit (or conscious memory, such as answering a question about yesterday's weather) and implicit (or unconscious memory, such as performing the steps involved in driving a car or having a conditioned emotional response to a frightening situation).

Acute alcohol intoxication often disrupts explicit memory for emotionally neutral cues, while leaving implicit memory intact.

Further, explicit memory has consistently shown to be improved by emotional content, but emotion's effect on implicit memory has been less thoroughly examined, says Suchismita Ray, an assistant research professor at the Center of Alcohol Studies at Rutgers University and one of the lead study authors.

The study was designed to examine whether acute alcohol intoxication disrupts memory for emotionally valenced and neutral picture cues using

an explicit recall and an implicit repetition priming task. This study is the first to examine how implicit memory priming for emotional cues is affected by acute alcohol intoxication.

The study involved 36 men and women, ages 21 - 24. All participants consumed a placebo, a nonalcoholic beverage, or an alcoholic beverage designed to create a blood alcohol level of .08 (near the national limit for legal driving). They then viewed emotionally negative, emotionally positive, and emotionally neutral images. During the explicit memory test, participants were asked to recall as many images as they could in detail. For the implicit memory test, participants were shown 360 images (images they had already seen and new images) and had to determine whether each was a real picture or a "non-real" picture (an electronically distorted image). The participants' speed in making this decision is a measure of implicit memory.

Alcohol intoxication impaired explicit recall of all three types of images, although participants were still able to recall more emotionally charged images (positive or negative) than neutral ones even when intoxicated. In contrast, implicit memory priming was not affected by alcohol intoxication. Whether intoxicated or not, participants made faster decisions about all images they had previously seen compared with new images. This was especially true for previously seen negative images.

"Alcohol dampens overall emotional reactivity, but the brain still allocates more neural resources for emotional cues compared to neutral ones," says Ray. "And with good reason - emotional memories are important for survival."

It's this emotion - memory connection that Ray says can help improve alcohol treatment programs.

"If explicit memory processes for emotional cues are affected by alcohol

intoxication and implicit processes are not, it's very important to develop ways for future treatment and prevention programs to exploit these intact implicit [memory processes](#)," she says. "If alcohol cues are linked to relaxation or fun, we can't totally delete these links, but perhaps increasing the strength of implicit links between alcohol cues and negative [emotional](#) consequences of use could be used to help people in the future. Those implicit memory links would still be available to individuals during intoxication and, thus, may help to reduce drinking when explicit memory for negative consequences is impaired by alcohol."

Interventions that involve some forms of implicit memory may be especially useful for alcohol treatment because they do not rely primarily on the hippocampus, the part of the brain responsible for learning new information. In addition to acute [alcohol intoxication](#) effects, long-term [alcohol](#) and drug use damages certain parts of the [brain](#) including the hippocampus, so people may not be able to remember new facts that they learn during the treatment process.

More information: www.jsad.com/jsad/article/Memo...ion_OPEN_A/4728.html

Provided by Rutgers University

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