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THINKING

about

DRINKING

NATIONALLY PROMINENT RESEARCHERS AT MU CONDUCT STUDIES ON ALCOHOL AS IT RELATES TO AGGRESSION, DRUNK DRIVING AND WHY MANY PEOPLE OUTGROW HEAVY DRINKING.



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IT'S HARD TO IMAGINE
AN ASPECT OF SOCIETY
— CONSUMABLE OR OTHERWISE — THAT INSPIRES
AMBIVALENCE MORE THAN
ALCOHOL HAS DONE FOR
THOUSANDS OF YEARS.

On the upside, what else can warm the heart and make conversation flow better than a tippie or two. The sale of alcoholic beverages stimulates the economy and pours taxes into government coffers that go toward many a public good. In our evolutionary past, the ability to detect the scent of distant fermenting fruit helped the species find food. On the downside, alcohol addiction and abuse have wrecked the relationships and physical health of countless people. According to the National Institute on Alcohol Abuse and Alcoholism (NIAAA), about 17 million U.S. adults had an alcohol use disorder in 2012. The annual cost of alcohol misuse problems, including missed work and increased health care costs, was an estimated \$223.5 billion in 2006.

By 1996, Mizzou's response to these woes was to create a small but substantial group of alcohol researchers in MU's Department of Psychological Sciences that soon made a name for itself. That year, a long-term planning initiative on campus funded the hire of five more faculty members specializing in alcohol and addiction. "The injection of brainpower provided the critical mass that transformed MU's alcohol group from notable to national leaders," says Andrew Heath, professor of psychiatry at Washington University in St. Louis and a renowned alcohol researcher. "In addition to up-and-coming faculty members, the group of 11 includes several singled out as leaders in their field."

One of these is Ken Sher, professor of psychological sciences, who used the substantial faculty workforce as part of his pitch to win federal funding for a program to train the next generation of alcohol researchers. This prolific program, now in its 13th year at MU, has used about \$4.5 million from NIAAA to train 46 doctoral and postdoctoral students (some are still in the program). Already, 18 of the program's graduates are faculty members conducting alcohol research at other institutions.

Here are snapshots of MU's work.

A PICTURE'S POWER

Any bar bouncer will tell you: Imbibing alcohol can make people aggressive. A thread in psychological sciences Professor Bruce Bartholow's work looks at how aspects of the environment provoke aggression. Starting in graduate school, he launched a series of "priming" studies showing how small a stimulus it takes to arouse such feelings. For instance, firearms are so much associated with aggression that merely showing people images of guns — priming them — puts them in an aggressive frame of mind.

At MU, Bartholow, PhD '00, began a decade-long series of studies investigating alcohol as a primer for aggression. In one study, Bartholow and colleagues subtly primed participants with words for alcoholic (beer, vodka) or nonalcoholic (juice, water) beverages. As participants worked at computers on a task unrelated to the study, the words flashed on the screen for less than one-tenth of a second, which is below the level of awareness. Then participants wrote a brief essay on a controversial topic (abortion rights) and asked for feedback from another person — an experimenter posing as a participant. The experimenter's feedback was either neutral ("Nice essay, some good points."), very negative ("The worst essay I've ever read.") or ambiguous ("I don't even know where to begin."). The results went according to Bartholow's hunches: Being primed with alcohol words colored how participants interpreted ambiguous feedback, assuming it was more hostile. And alcohol-primed participants receiving such feedback behaved more aggressively toward their essay evaluators.

"These findings suggest that being exposed to alcohol words, even without any awareness, changes the interpretation of information in a way that makes people more aggressive," Bartholow says. "Alcohol, as well as imagery and beliefs about alcohol, saturate our culture," he says. "Even kids as young as 9 have strong beliefs about alcohol's effects. This suggests to us that you can't escape knowledge of these associations," even if you are not conscious of them.

Although Bartholow is not a teetotaler — "I drink beer, and I drink it in front of my kids." — he thinks alcohol imagery should be less prevalent. One idea: "Maybe stop advertising beer in sports stadiums, especially for sports like football that are already aggressive. Similar to the logic of removing cigarette ads [from TV], we don't think it sends the right message."

Bartholow's colleague, Denis McCarthy, profes-



sor of psychology, worked with children at the beginning of his career. He says youngsters' impressions of alcohol are well-developed by third grade and that their opinions predict the likelihood of their drinking at an early age. One message from such work is to avoid giving youngsters positive impressions about alcohol at home. For instance, he says, "Many people hold the intuitive idea that if we introduce alcohol to kids at an early age with wine at dinner like they do in France, they will be less likely to abuse it. That might be true if the whole culture was that way, but it's not here in the United States, so I advise people to be cautious about introducing kids to alcohol in family settings."

For the past decade, McCarthy has worked on one of the most recalcitrant alcohol problems — drinking and driving.

STUDYING THE STUBBORN FEW

It's dangerous enough to be a teenager driving a car. But back when states set their own drinking age — 18 was common — intoxicated teens

crashed and died at high rates. McCarthy credits Mothers Against Drunk Driving with providing the political push that in 1984 resulted in a law effectively setting a national drinking age at 21. That policy, along with improved enforcement and attitudes, caused deaths from drunk driving to drop markedly until the late 1990s. By then, he says, the policy had done all it could do. "Everyone who pays attention to the law and what is sensible already had stopped drinking and driving." Yet the problem persists among a group of people, and McCarthy is trying to find out why. In general terms, drunk drivers are making bad risk-reward trade-offs or are compromised when intoxicated and so are likely to drive. He is working on a psychological model of decision-making about driving while intoxicated to help shape new interventions and policies for this hard-to-change group. "You could save more than 10,000 lives a year if you could fix this," McCarthy says.

In 2008, after about five years of survey research asking teens and adults to offer their judgments about drinking and driving, McCarthy hit a dead

end. Because drinking influences people's perceptions and judgment, he reasoned that the best way to measure such things is when people are drinking. Now his lab is one of a few nationwide to look at judgment and decision-making about driving while research subjects are under the influence.

In a number of laboratory studies during the past five years, McCarthy has looked at what people say about drinking and driving when sober versus varying levels of intoxication. He gives people different scenarios, such as "How dangerous would it be and how likely would you be to drive if you had three drinks in two hours?" Then he gives them a corresponding dose of alcohol and repeats the question when their blood alcohol has reached the three-drink level. It turns out that people who have been drinking generally see the scenario as less dangerous and are more likely to say they'd drive.

That might seem intuitive, but the responses aren't uniform, so the plot thickens. For instance, individuals' personality traits, such as impulsivity, figure into their decision-making, McCarthy says.

In the next phase of his research, McCarthy hopes to take his work to the streets by studying people partying in nightclubs. "If we want to understand drinking and driving, we need to look at its immediate antecedents. I have bitten off a chunk of that in the lab, in that one antecedent is being drunk. But there are many others, like where people are and who they are with. The next step is to see it in the real world."

CHICKEN OR EGG, OR

Lynne Cooper is a top researcher not only on alcohol but also on the broader topic of risk-taking. Researchers look to her work for clarity and direction. One thread of her research takes on the chicken-and-egg conundrum: When looking at alcohol-related risk-taking, such as drag racing down city streets, having unprotected sex or starting bar fights, which comes first, the alcohol or the risk-taking?

One theory is that alcohol decreases inhibitions, Cooper says. "So, intoxicated people make dumb decisions because they are not processing properly."

Or, is it that someone plans to engage in risky behavior and uses the alcohol as a scapegoat or excuse. "Subconsciously, they think, 'You know, everybody thinks that drinking makes you do dumb stuff, so if I get drunk, maybe they won't think I'm an idiot if I do this. They'll say it's the alcohol.'"

Or, it could be that the propensity to take risks hatches from another egg altogether — the so-called third variable. "Maybe it's just a manifes-

tation of some underlying cause — maybe something like the characteristic of sensation-seeking. People who are high in sensation-seeking look for kicks or thrills in a variety of ways." Alcohol and other types of risk-taking could just be related ways to fulfill that same need, she says.

So, which view is correct? That depends, Cooper says. It's complicated because, from the outside, taking a drink looks pretty much the same from one person to the next. But motivations for drinking vary widely and so suggest different approaches to dealing with the problem. For instance, for some people, their behavior could drive their drinking. Call it self-medication. "The idea is that if you go out and engage in risky sexual behavior, afterward you might well feel anxious and worried and maybe feel some guilt, shame and regret. Those things could lead you to drink. That's quite different from people who drink to get tipsy, have a good time and then maybe build up their courage to hit on someone."

And it's also different from the third-variable thrill-seekers. Deciding on the best intervention is tricky, Cooper says, because there's always another place to get a thrill. Interventions might focus on helping such a person drink less or pick fewer fights, but then they might take up an equally risky alternative behavior, like picking up a stranger in a bar. Intervention efforts could turn into a game of Whack-a-mole if the underlying cause is not dealt with.

Cooper's work at parsing these possibilities not only helps researchers plan their next studies but also helps clinicians and others concerned with changing these problematic behaviors figure out what problem they should be addressing.

AFTER COLLEGE, THEN WHAT?

Like Cooper, Sher is a household name in the alcohol-research community. He has evidence-based good news for the post-college crowd.

Part of Sher's research has followed MU students over time, starting the day they set foot on campus and for as long as 17 years afterward. His findings about drinking during college years surprise some people: It turns out that drinking is often associated with students remaining in school, rather than flunking out. But this mainly holds true for students who are socially integrated. For instance, Sher says, although the Greek system is associated with heavy drinking, it also fosters a strong social network and is associated with academic persistence. Isolated drinkers don't fare as well. He adds that the seemingly benign effect of alcohol on academic achievement probably depends on the

school's culture. "At a religious school that forbade alcohol, we might see a totally different pattern."

Sher says drinking tends to peak around age 21, then it tapers markedly as people approach age 30 and continues to diminish across the life span. Before Sher's research, the prevailing theory was that as people build careers and families in their late 20s, meeting the requirements of those roles was incompatible with heavy drinking. "People might still want to party, but now they have a job and a child,

so social role constraints inhibit what they can do."

But Sher's study was the first to go beyond the "role incompatibility" explanation and show how personality changes relate to reduced drinking with age — the so-called maturing-out phenomenon. "Historically, personality was considered static and fixed, but we now know that our personalities change over the life span. We see decreases in neuroticism and impulsivity, and increases in conscientiousness," Sher says. "It's reassuring." **M**

DRINKING TENDS TO PEAK AROUND AGE 21, THEN IT TAPERS MARKEDLY AS PEOPLE APPROACH AGE 30 AND CONTINUES TO DIMINISH ACROSS THE LIFE SPAN.



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