

LATEST ANTI-POT QUACK SCIENCE: 'MARIJUANA MAKES YOUR TEETH FALL OUT'

Recent weeks have seen a rash of new studies of marijuana hitting the mass media, generating scary headlines like "Smoking Pot Rots Your Gums," "Cannabis Bigger Cancer Risk Than Cigarettes," and "Pot Withdrawal Similar to Quitting Cigarettes. Most of this coverage can be boiled down to a fairly simple equation:

Flawed science + uncritical reporting = misinformation.

Mercifully, the U.S. mass media were so distracted by Super Tuesday, Heath Ledger's autopsy and the latest Britney Spears trauma that reports of these studies didn't get as much play as they might have. That's good, because the research had significant gaps, and the reporting ranged from slapdash to flat wretched.

Lung Cancer: A Joint = 20 Cigarettes?

The lung cancer study was the scariest. Since cigarettes are a known lung cancer risk, it seems plausible that marijuana might carry similar risks. In fact, most of the scientific evidence tends in the opposite direction -- though one would never know it from reading either the study or the Reuters wire story that got the heaviest circulation.

Conducted in New Zealand, this was what is called a "case-control" study, in which researchers looked at a group of patients who had lung cancer and compared them to a group without cancer -- the controls -- matched for age and other demographics. All were asked about various factors that might increase their lung cancer risk, including smoking cigarettes or marijuana.

After running the data on 79 cancer cases and 324 controls through myriad equations and mathematical analyses, the researchers proclaimed that one joint packed a cancer risk roughly equal to 20 cigarettes -- an assertion that became Reuters' lead.

What was downplayed in the study, published in the European Respiratory Journal, and missing entirely from most media reports was context -- context that strongly suggests that its alarming conclusion is wrong.

For one thing, the new conflicts with other, much larger studies. In a study published in 1997, Kaiser-Permanente researchers followed 65,000 patients for 10 years and saw no sign of marijuana use increasing the risk of lung cancer or other smoking-related cancers. And a UCLA study similar in design to this one, published in 2006, found a trend toward lower lung cancer rates among marijuana smokers. Instead of 79 cancer cases, the UCLA team looked at 1,212. The result was so striking that they speculated that it "may reflect a protective effect of marijuana."

That's right: Marijuana might protect from cancer. Piles of published studies going back to the mid-1970s document the cancer-fighting properties of marijuana's active components, THC and other chemicals called cannabinoids. Anticancer activity has been shown in many types of malignant cells, including lung cancer cells. So even though marijuana smoke contains tars and other potentially carcinogenic compounds, it is entirely plausible that cannabinoids counter any harmful effects.

But even without such context, a closer look at the New Zealand data raises questions that should have been asked by reporters. For example, most marijuana smokers in the study actually didn't show an increased risk of cancer. The only group that did was those whose marijuana use equaled at least 10.5 "joint-years" (one joint-year equals smoking a joint every day for one year). That group constituted a whopping 14 people. All those complicated mathematical models leading to the "20 times the risk" assertion, and contradicting reams of published research, rest on exactly 14 people.

Does Marijuana Rot Your Gums?

The gum disease study was even more tenuous, but again you would never know it from most of the coverage. Researchers -- also in New Zealand -- followed 903 participants from birth through age 32. At ages 18, 21, 26, and 32, they were asked whether they had used marijuana in the past year, and how often. The heaviest marijuana users had a 60 percent increased risk for gum disease after controlling for several factors that might affect their risk, including cigarette use and professional dental care.

The researchers were careful to say they hadn't proved cause-and-effect, but simply what scientists called an "association." But that didn't stop one U.S. reporter from writing that marijuana "could ... destroy gum tissue," and an Australian headline writer from declaring that marijuana "makes teeth fall out."

Reading the actual study -- something one suspects most reporters never did -- raises questions the media never asked. Why is there no indication that participants were questioned about use of alcohol or other illicit drugs, both of which are known risk factors for dental and gum problems? Why were they not asked about brushing and flossing habits?

Given the relatively small effect -- the statistical margin of error meant that the increased risk could be as low as 16 percent -- confounding by alcohol/drug use or poor dental hygiene could easily explain the whole difference. In other words, there is a very good chance this study found nothing real at all.

I raised this issue with an editor at one news organization, whose story had been particularly hysterical and lacking in context, asking why they hadn't noted these potential doubts. The rather snippy reply: "As for the rest of your concerns, we are dealing with a peer-reviewed journal study, and I don't feel at all comfortable going beyond what they are publishing. That is not our role."

Memo to editors: Journal peer-reviewers are human. They sometimes miss stuff. When did it stop being a reporter's job to ask questions?

Marijuana As Addictive As Tobacco?

If you haven't lost your teeth or died of lung cancer yet, another set of grim headlines warned that marijuana is as addictive as tobacco -- again, a conclusion that went beyond the study's findings and which was almost certainly wrong.

In this U.S. study, researchers took 12 people who regularly smoked both marijuana and cigarettes and had them stop using one, the other, and both, in varying orders. Physiological tests and responses to questionnaires were used

to assess withdrawal symptoms such as irritability and difficulty sleeping. The withdrawal symptoms reported were roughly comparable.

But the limitations of this research are obvious. In fairness, most were acknowledged in the study, published in the journal Drug and Alcohol Dependence.

For one, the study looked only at regular users of both substances, so it tells nothing about marijuana users who do not use tobacco -- a considerable number, by most accounts. Second, the researchers did not publish the results for individual participants. In a sample of 12, one or two extreme responses can skew the averages enough to make them meaningless.

The researchers also did not note any changes in participants' use of caffeine or alcohol, which could easily have affected their findings. Volunteers were asked not to change their use of these substances, but we have no clue whether they followed these instructions.

And though the overall withdrawal symptom ratings were similar, ratings of anger and craving were higher for tobacco than for marijuana. And even in areas where the two substances were statistically comparable, there was often a trend toward the tobacco withdrawals being stronger. Had this been a larger study, those trends might have reached statistical significance.

Also, the 5-day abstinence period may not have been enough to fully gauge withdrawal effects. For longtime cigarette smokers, tobacco cravings can continue for years.

Finally, a reality check: It is an established fact that about 32 percent of those who ever touch a cigarette become dependent on tobacco. For marijuana, the figure is nine percent. In the real world, it's clear that marijuana is nowhere near as addictive as tobacco -- but again, you'd never know it from the coverage of this study.

In fact, you wouldn't learn much from the coverage of any of these studies.

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