Big data provide evidence of benefit

Pattern of Protective Effects Emerges in Studies of Cannabis Users' Health

By Paul Armentano

Increasing numbers of US Americans have been using Cannabis in recent years, and its impact is showing up in epidemiological studies. Although the medical establishment gives credence only to Randomized Clinical Trials, common sense tells us that statistical evidence gleaned from large patient populations should not be ignored.

Here we review the evidence indicating that Cannabis use reduces the incidence and/or severity of Fatty Liver Disease, Adult Onset Diabetes, Obesity, Alcoholism and In-Hospital mortality.

Fatty Liver Disease

Writing in the journal PLOS One in October, Stanford University investigators reported that subjects who frequently consume cannabis are less likely to suffer from non-alcoholic fatty liver disease (NAFLD) than are abstainers.

"Active marijuana use provided a protective effect against NAFLD independent of known metabolic risk factors," authors concluded.

Their findings are similar to those of another study published in the same journal six months prior. In that study, authors reported that frequent consumers of cannabis were 52 percent less likely to be diagnosed with NAFLD as compared to non-users, while occasional consumers were 15 percent less likely to suffer from the disease.

Non-alcoholic fatty liver disease is the most prevalent form of liver disease in humans, affecting an estimated 80 to 100 million people in the United States.

Cannabis has also shown protective potential against other types of liver disorders. For example, French investigators writing in the Journal of Viral Hepatitis reported late last year, "Daily cannabis use was independently associated with a reduced prevalence of steatosis" in patients with the human immunodeficiency virus. They concluded, "Daily cannabis use may be a protective factor against steatosis in HIV-HCV co-infected patients."

Most recently, an international team of researchers from the United States and Canada reported that cannabis use may offset the adverse hepatic effects of alcohol. Writing in the journal Liver International, investigators reported: "[A]mong alcohol users, individuals who additionally use cannabis showed significantly lower odds of developing alcoholic steatosis, steatohepatitis, cirrhosis, and hepatocellular carcinoma (the most common type of liver cancer in adults). ... Our findings suggest that cannabis use is associated with reduced incidences of liver disease in alcoholics."

Adult Onset Diabetes

Both survey data as well as the results from several large-scale observational population studies find that a history of cannabis use is inversely associated with type 2 diabetes – a progressive disease that can lead to blindness, kidney failure, nerve damage, hardening of the arteries and death.

In one of the largest studies of its type, researchers at the University of California, Los Angeles in 2012 assessed the association between diabetes and cannabis use among adults aged 20 to 59 in a nationally representative sample of 10,896 US adults. They reported that past and present cannabis consumers possessed a lower prevalence of adult onset diabetes compared to controls, despite all subjects possessing a similar family history of the disease.

They concluded, "marijuana use was associated with a decreased prevalence of DM [diabetes mellitus]."

They postulate that the "decreased prevalence of DM... may be due to the anti-inflammatory properties of marijuana."

Harvard medical school researchers reported similar results in The American Journal of Medicine in 2013. They assessed the relationship between marijuana use and levels of fasting insulin, glucose, and insulin resistance in a sample of 4,657 male subjects.

They concluded, "[S]ubjects who reported using marijuana in the past month had lower levels of fasting insulin and HOMA-IR [insulin resistance], as well as smaller waist circumference and higher levels of HDL-C [high-density lipoprotein or 'good' cholesterol]."

The journal's editor-in-chief wrote in an accompanying commentary: "These are indeed remarkable observations that are supported, as the authors note, by basic science experiments that came to similar conclusions. ... We desperately need a great deal more basic and clinical research into the short- and long-term effects of marijuana in a variety of clinical settings such as cancer, diabetes, and frailty of the elderly.

"I would like to call on the NIH and the DEA to collaborate in developing policies to implement solid scientific investigations that would lead to information assisting physicians in the proper use and prescription of THC in its synthetic or herbal form."

Obesity

It's well documented that cannabis can stimulate appetite. But science also acknowledges, perhaps counter-intuitively, that a healthy diet of cannabis may also play a key role in keeping you thin.

Writing in The American Journal of Epidemiology in 2012, Canadian investigators assessed the relationship between cannabis use and weight in two representative samples of US adults totaling over 50,000 people. "The proportion of obese participants decreased with the frequency of cannabis use," scientists concluded. "This cross-sectional analysis indicated that despite the evidence that cannabis use stimulates appetite in clinical trials and laboratory studies, cannabis users are actually less likely to be obese than nonusers in the general population."

Other researchers have reported similar results. For example, a 2006 study of 297 female subjects determined that cannabis use within the past year was positively associated with lower body mass index. A separate study of 3,617 subjects by UCSF researchers, published that same year in the American Journal of Cardiology, similarly reported that cannabis use was inversely associated with "higher BMI and lipid and glucose levels," despite stimulating increased caloric intake.

More recently, investigators from the Conference of Quebec University Health Centers assessed cannabis use patterns and body mass index in a cohort of 786 Inuit (Arctic aboriginal) adults ages 18 to 74. Researchers reported that subjects who consumed cannabis in the past year were more likely to possess a lower BMI, lower fasting insulin, and lower HOMA-IR (insulin resistance) as compared to those who did not use the substance.

In-Hospital Mortality

Emerging data indicates that cannabis may increase the likelihood of survival among ER patients. Writing last year in The Journal of Trauma and Acute Care Surgery, University of Arizona researchers analyzed the in-hospital mortality rates of 2,678 adults (1,339: cannabis positive, 1,339 cannabis negative) admitted into the ICU over a five-year period. Authors concluded: "Patients with a positive marijuana screen had a lower mortality rate (5.3 percent versus 8.9 percent) compared to patients with a negative marijuana screen. … Prospective studies with long-term follow up will be useful in answering many of the remaining questions surrounding the specific impact of marijuana on outcomes after trauma."

Their findings are not unique. For instance, a study by UCLA Medical Center investigators reported that among traumatic brain injured patients, those with a history of cannabis use possessed increased survival rates compared to non-users. "[O]ur data suggest an important link between the presence of a positive THC screen and improved survival after TBI," authors concluded in the October 2014 edition of The American Surgeon.

"This finding has support in previous literature because the neuroprotective effects of cannabinoids have been implicated in a variety of neurodegenerative diseases such as Alzheimer's disease, Huntington's disease, and multiple sclerosis. ... With continued research, more information will be uncovered regarding the therapeutic potential of THC, and further therapeutic interventions may be established."

Separate data presented at the 2016 meeting of the American College of Cardiology indicated that recent cannabis ingestion may also decrease mortality among heart attack patients. Investigators from the University of Colorado compared the hospital records of over 3,800 heart-attack patients who acknowledged having consumed cannabis or had tested positive for it to those of over 1.2 million matched controls. Researchers determined that cannabis-positive admitees possessed a lower mortality risk during hospitalization and were at lower risk for intra-aortic balloon pump (IABP) placement compared to controls.

Researchers determined that counties located in medical cannabis jurisdictions, on average, experienced a reduction in monthly alcohol sales of 15 percent.

Alcohol Consumption

While prospective studies have yet to be conducted to address the question of whether cannabis can effectively mitigate alcohol use disorders, a growing body of data indicates that the plant often acts as a substitute, rather than as a complement, for booze. Writing in 2014 the journal Alcohol and Alcoholism, researchers acknowledged, "While more research and improved study designs are needed to better identify the extent and impact of cannabis substitution on those affected by AUD, cannabis does appear to be a potential substitute for alcohol."

Empirical data gathered from legal cannabis states appears to affirm this notion. For instance, data published in 2017 by researchers from the University of Connecticut and Georgia State University determined that sales of alcoholic beverages decline following the enactment of medical cannabis access laws.

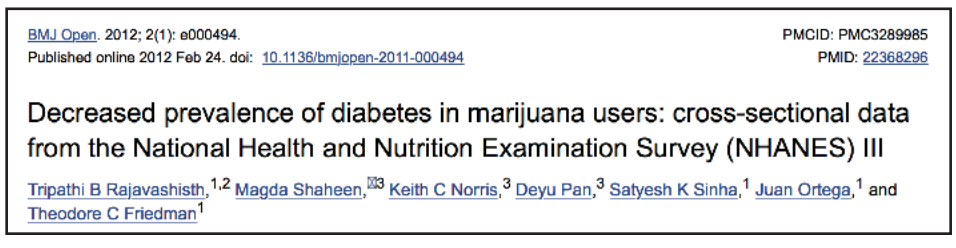
"We find that marijuana and alcohol are strong substitutes."

Authors evaluated the relationship between medical cannabis laws and retail alcohol sales in more than 2,000 US counties for the years 2006 to 2015. Alcohol sales trends in medical cannabis states were compared to sales trends in states where cannabis remained illegal. Researchers determined that counties located in medical cannabis jurisdictions, on average, experienced a reduction in monthly alcohol sales of 15 percent.

They concluded: "We find that marijuana and alcohol are strong substitutes. ... States legalizing medical marijuana use experience significant decreases in the aggregate sale of alcohol, beer and wine. Moreover, the effects are not short-lived, with significant reductions observed up to 24 months after the passage of the law."

Similarly, a 2016 analysis of beer sales in Colorado, Oregon, and Washington reported that retail sales "collectively underperformed" in the years following the enactment of adult use cannabis regulations, while a pair of recent studies finding a decrease in traffic fatalities following legalization theorized that this decline was likely the result of reduced alcohol use among the general population.

Curb Your Enthusiasm



BMJ Open. 2012; 2(1): e000494. PMCID: PMC3289985
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Decreased prevalence of diabetes in marijuana users: cross-sectional data from the National Health and Nutrition Examination Survey (NHANES) III

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Clinical trial results by UCLA endocrinologists look like good news for marijuana users, especially given the size of the analytic sample (10,896). But despite finding that "marijuana use was associated with a decreased prevalence of DM," the authors warn, "A limitation of our study was its cross-sectional nature... Persons attending the study visits may differ from those not attending in subtle ways that may affect the results of this study... Prospective studies in rodents and humans are needed to determine a potential causal relationship between cannabinoid receptor activation and DM. Until those studies are performed, we do not advocate the use of marijuana in patients at risk for DM."

The difference between the researchers' takeaway message and that of cannabis clinicians' is this: the clinicians are willing to recommend cannabis use on the basis of "limited evidence." Why wait until mechanism of action is elucidated?

Paul Armentano is the Deputy Director of NORML — the National Organization for the Reform of Marijuana Laws. He is the co-author of the book, Marijuana Is Safer: So Why Are We Driving People to Drink? (Chelsea Green, 2013) and the author of the book, The Citizen's Guide to State-By-State Marijuana Laws (Whitman Press, 2015).