

Marijuana Use in Models for Health Outcomes



To the Editor:

Using data from the continuous National Health and Nutrition Examination Survey (NHANES) to estimate the effects of current and past marijuana use on certain health outcomes associated with an increased risk of diabetes and cardiovascular disease,¹ Penner et al² found that marijuana users experienced improved insulin resistance, higher high-density lipoprotein cholesterol, lower insulin, lower glucose, and smaller waist circumferences compared with nonusers.²

NHANES captures self-reported marijuana use and cardiometabolic risks at a single point in time for each survey respondent. These data lack behavioral or environmental variables necessary to control for unobserved differences between users and nonusers. Penner et al's² use of simple regression models to estimate a static relationship between marijuana use and health outcomes ignores unobserved cumulative mediating factors (eg, other drug use, psychological factors, personality, behavioral traits) that may correlate with both marijuana use and cardiometabolic risk factors.³ Statistical analyses that fail to account for such

issues are subject to biased parameter estimates and misleading results.⁴

Using the same NHANES data but using other self-reported personal consumption variables in place of marijuana in the Penner et al² estimation equations, we found that alcohol and carbohydrate consumption had even larger beneficial effects on each of these cardiometabolic risk factors than marijuana; a clearly nonsensical result. If we are to believe Penner et al² that marijuana use is great for avoiding diabetes and obesity, then beer and pizza are even better.

Christin A. Thompson, BS

Joel W. Hay, PhD

*Department of Clinical Pharmacy
Pharmaceutical Economics & Policy
Leonard Schaeffer Center for Health Policy & Economics
University of Southern California
University Park Campus
Los Angeles*

<http://dx.doi.org/10.1016/j.amjmed.2014.07.039>

References

1. Alberti KG, Zimmet P, Shaw J. The metabolic syndrome—a new worldwide definition. *Lancet*. 2005;366:1059-1062.
2. Penner EA, Buettner H, Mittleman MA. The impact of marijuana use on glucose, insulin, and insulin resistance among US adults. *Am J Med*. 2013;126:583-589.
3. French MT, Popovici I. That instrument is lousy! In search of agreement when using instrumental variables estimation in substance use research. *Health Econ*. 2011;20:127-146.
4. Angrist JD, Pischke J-S. *Mostly Harmless Econometrics: An Empiricist's Companion*. Princeton: Princeton University Press; 2009.

Funding: None.

Conflicts of Interest: None.

Authorship: Both authors were involved in the writing of this manuscript.