

It cures acne, afib, anxiety? CBD users think it's real medicine, contrary to evidence

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Cannabidiol (CBD) is a chemical found in hemp or marijuana plants that does not make users high. Despite CBD only being approved by the US Food and Drug Administration (FDA) to treat rare forms of childhood



epilepsy, CBD has been widely marketed as a cure-all under the auspices of wellness. These claims have coincided with an explosion in CBD's popularity raising the troubling question: Are patients using CBD to treat medical conditions that could otherwise be improved or cured by established treatments with verifiable efficacy?

A new study lead by the Qualcomm Institute's Center for Data Driven Health at the University of California San Diego, published in *JAMA Network Open*, reviewed CBD user testimonials to discover why they take CBD, finding the vast majority used CBD to treat diagnosable medical conditions, including for psychiatric, orthopedic, and sleep conditions while fewer took CBD for wellness.

Mining Public Testimonials to Understand Why Patients Use CBD

"The reasons consumers take CBD had not been previously studied because experts lacked access data where large groups of users discussed in detail why they take CBD," said Dr. Eric Leas, Co-Founder of the Center for Data Driven Health, Assistant Professor in the Herbert Wertheim School of Public Health and Longevity Science at UC San Diego, and lead author.

To fill this gap the team turned to Reddit, a social media website with 330 million active users. Reddit is organized into communities focused on specific topics, many of which deal exclusively with health. The team monitored all r/CBD (www.reddit.com/r/CBD/) posts, where users can find anything and everything CBD related, from its inception in January 2014 through February 2019.

A random sample of posts was drawn and analyzed by the team who labeled them according to if the poster testified to using CBD to treat a



diagnosable medical condition or using CBD for non-specific wellness benefits. "On r/CBD users tell us in their own words why they take CBD," added Dr. John W. Ayers, also with the Center for Data Driven Health and Vice Chief of Innovation in the Division of Infectious Disease and Global Public Health who co-authored the study. "

Most CBD Users Take CBD to Treat Medical Conditions

90 percent of testimonials on r/CBD cited using CBD to treat diagnosable medical conditions. For example, many testimonials recounted experiences such as, "after using CBD for 2 months, my autism symptoms have improved. My family has noticed great improvements and I have finally been able to attend important social events."

Through a process of labeling the posts, the team grouped this subset of testimonials into 11 categories corresponding to medical subspecialties. Psychiatric conditions (e.g., "autism" or "depression") were the most frequently cited sub-category, mentioned in 64 percent of testimonials, followed by orthopedic (26 percent), sleep (15 percent), and neurological (7 percent) conditions. There were also testimonials that claimed CBD treated addiction, cardiological, dermatological, gastroenterological, ophthalmological, oral health, and sexual health conditions, ranging from 1 to 4 percent of all posts [as detailed in the accompanying study materials].

"The public appears to believe CBD is medicine," added Dr. Davey Smith, Chief of Infectious Diseases and Global Public Health and study coauthor. "Who would have predicted that the public might ever think CBD is a cardiology medication?"



By contrast, just 30 percent of testimonies cited using CBD for wellness benefits, the vast majority citing mental wellness, e.g., "quieting my mind", and about 1 percent citing any physical wellness benefit, e.g., "exercise performance."

"CBD retailers attempt to evade FDA regulation by framing their product as a wellness aid, rather than a therapeutic," said Dr. Alicia Nobles, with the Center for Data Driven Health and Assistant Professor in the Division of Infectious Disease and Global Public Health. "But when users explain why they take CBD in absence of any prompts they will commonly cite they are using it for medicinal purposes like to treat acne."

The Need for Enhanced Regulation of the CBD Marketplace

"At this time there are no known medical uses for over-the-counter CBD," said Dr. Leas. "CBD is this generation's snake oil as millions believing to have discovered a new medical breakthrough are actually taking a product without evidence of a benefit."

"The obvious harm is that some patients might forgo seeing a physician or taking medications with known, tested and approved therapeutic benefits in favor of CBD and thereby become sicker or succumb to their illness," added Mr. Rory Todd, study co-author and research associate in the Center for Data Driven Health.

While many think that using CBD poses few risks to consumers trying CBD out, the team notes that taking CBD can harm patients in other ways that warrant cautious use. "There are several documented cases of CBD products leading to mass poisons, because unlike FDA approved medications there are no uniform safety standards governing the



manufacture or distribution of CBD," said Mr. Erik Hendrickson, study co-author and research associate with the Center for Data Driven Health. "CBD can also interact with patients' prescribed medications, including resulting in rare but dangerous side effects such as liver damage and male reproductive toxicity," added Dr. Smith who is also a practicing physician.

The lack of regulation governing the CBD marketplace may drive misperceptions of CBD the team notes. "The public isn't spontaneously coming to the conclusion that CBD is medicine. Instead this is a natural response to the largely unchecked marketing claims of CBD retailers," added Dr. Ayers. "A lack of regulation puts the onus on physicians who must raise concerns about CBD with patients one-on-one instead of focusing on evidence-based treatments. For instance, since the COVID-19 outbreak claims that CBD prevents or treats COVID-19 are now commonplace."

"Now is the time to act," concluded Dr. Leas. "Government regulators must step up to the plate and give CBD the same level of scrutiny as other proven medications. Moreover, anyone considering taking CBD should instead consult a physician to identify a proven medication."

More information: Eric C. Leas et al. Self-reported Cannabidiol (CBD) Use for Conditions With Proven Therapies, *JAMA Network Open* (2020). DOI: 10.1001/jamanetworkopen.2020.20977

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