

Medical Marijuana and Teens: Does an Adjective Make a Difference?

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In the featured article, Salomonsen-Sautel et al.¹ assessed the prevalence and frequency of diverted medical marijuana use in a sample of adolescents recruited for a genetics study at two substance-abuse treatment programs in metropolitan Denver, Colorado. The study idea was stimulated by clinical reports that adolescents were using diverted medical marijuana. Using a simple but scientifically sound design for their study, the investigators hoped to shed light on a potential new threat to adolescent health in a state that was in the first wave to legalize dispensation of marijuana to individuals who registered for medical use after recommendation from a physician. Although their exploratory study has acknowledged limitations, it rises above anecdotal evidence by using a well-defined sample, systematic questioning about medical marijuana experience and risk perception, and assessment of mental health symptoms and disorders with standardized measurements. In the tradition of many important public health discoveries, the investigators made good use of an existing research opportunity to better understand and inform observations made in the treatment setting.

For centuries, humans have discovered and used plants for healing, and marijuana is no exception. Documentation of marijuana use for medical conditions occurs as far back in history as 2700 B.C. in China.² Use in England increased in the mid-1800s after the dissemination of observations of its analgesic and other useful properties by a British physician practicing in India.² In the past few decades, assertions of benefits from medical marijuana have increased, and the list includes a wide range of conditions, such as pain control, nausea and vomiting, glaucoma, seizures, premenstrual symptoms, inflammatory bowel disease, arthritis, asthma, dementia, and more.^{3,4}

Given that consumer safety in the United States has been supported for decades by the

highly regulated review process of the Food and Drug Administration, decisions to advertise marijuana as “medical” or “medicinal” can imply a rigorous level of scientific inquiry and thoughtful decision-making regarding the benefit and level of risk associated with use. Food and Drug Administration mandates help to define safe and effective doses, achieve quality control of the amount and delivery of approved medications, and review the accuracy of product labeling and marketing. Some synthetic cannabinoids, e.g., dronabinol and nabilone, have achieved Food and Drug Administration approval for specific conditions, but marijuana, even if sold in state-sanctioned dispensaries and called “medical,” has no equivalent approval or oversight.

Although the presence of cannabinoid receptors in the central nervous system is well established and many studies have provided optimism and excitement for the development of therapeutic cannabinoids, recent reviews have identified few evidence-supported medical applications for marijuana.^{2,4} Imprecise use of the terms cannabis and cannabinoids may contribute to misunderstandings of the existing evidence base, and differentiating between these terms and the manner of delivery, such as smoked or ingested, is important for interpreting the literature on risks and benefits. Cannabis refers to the plant and plant components (*Cannabis sativa*, also commonly called marijuana), whereas cannabinoids refer to chemical compounds that include and are structurally related to tetrahydrocannabinol whether produced by a plant, synthesized in the body (endocannabinoids), or manufactured in laboratories (e.g., dronabinol). Conditions that have the best support for a beneficial effect of cannabinoids, at least for adults, are chronic neuropathic pain, nausea and vomiting associated with chemotherapy, anorexia associated with human immunodeficiency virus/acquired

immunodeficiency syndrome and cancer, spasticity of multiple sclerosis, and possibly glaucoma.⁴ However, there are few rigorous trials supporting benefits of cannabis.⁴

The adverse effects of marijuana are not trivial. Mounting concerns about the impact of marijuana on adolescent brain development and function, suicide risk, and earlier onset of psychotic disorders are of particular relevance to readers of this *Journal*.^{5,6} At the same time that these concerns are being published in scientific journals, the Monitoring the Future Study is documenting a widespread trend of a decreasing perception of risk from marijuana and a decreasing disapproval of use by adolescents.⁷ This suggests a communication disconnect between scientists and adolescents, but also an opportunity for child psychiatrists and other health care providers to correct this situation.

There is reason to believe in the existence of politically motivated barriers to research on the therapeutic effects of marijuana and its derivatives, as claimed by many compassionate-use proponents. However, a popular vote process to sanction the labeling and distribution of marijuana as “medical” does little, if anything, to correct a deficit in knowledge or to ensure products that are safe, even if determined to have a good risk/benefit ratio. The impact of this policy decision on adolescents is unknown, although previous research on associations between risk perception and adolescent substance use and between availability and use has suggested that social factors that decrease a perception of risk and/or increase availability are likely to be associated with increases in use of the substance.^{8,9} Consistent with this, but not proof of a causal relation, Wall et al.¹⁰ found a higher prevalence of adolescent marijuana use and a lower perception of risk in states with medical marijuana laws compared with those without. The study by Salomonsen-Sautel et al.¹ adds another perspective involving a particularly vulnerable group of adolescents—those already in treatment for substance abuse. The findings are noteworthy: a clear majority of 74% reported they had used another person’s medical marijuana and the median frequency of use was 50 times. Compared with nonmedical marijuana users, medical marijuana users had an earlier onset of use and more symptoms of conduct disorder and of marijuana

abuse or dependence. There were no significant group differences, but the perception of “great risk” of harm from a regular use of marijuana was only 11%.

Much remains to be learned about the effects of legislated medical marijuana dispensation and possession on adolescents. The authors of this study recommend future studies to investigate the hypotheses generated by their findings. These include prospective studies of use patterns and qualitative studies of adolescents’ reports of details about the type, amount, and sources of medical marijuana. Additional studies should examine the impact of medical marijuana policy on adolescent risk perception, disapproval of use, and decision making about use. For example, do adolescents perceive marijuana originating from dispensaries as better quality and less harmful than unspecified marijuana sources? As less harmful because of medical benefit claims? Do medical marijuana laws lower risk perception for all marijuana, as suggested by the study by Wall et al.¹⁰ Are adolescents being manipulated by clever marketing strategies to create new consumers? What is the source of their information about the risks and benefits of marijuana, and is this shifting as more states are allowing the advertising of “medical” dispensaries? Are some adolescents more vulnerable to the impact of permissive medical marijuana policies, as is suggested by the findings of Salomonsen-Sautel et al.¹ Are parents and other influential adults undergoing changes in risk perception and vigilance about adolescent use?

Salomonsen-Sautel et al.¹ are ringing an important bell. We must pay attention to adolescents when determining benefits and costs of legislation supporting the sale of marijuana for purported health benefits. ☺

Accepted May 1, 2012.

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Disclosure: Dr. Kazura co-chairs the American Academy of Child and Adolescent Psychiatry Committee on Substance Abuse and Addiction.

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0890-8567/\$36.00/©2012 American Academy of Child and Adolescent Psychiatry

<http://dx.doi.org/10.1016/j.jaac.2012.05.002>

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