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Review

Prevalence, reasons, perceived effects, and correlates of medical marijuana use: A review

Ji-Yeun Park[a,*], Li-Tzy Wu[a,b,c,d,**]

[a] Department of Psychiatry and Behavioral Sciences, School of Medicine, Duke University, BOX 3903, Durham, NC, USA
[b] Department of Medicine, School of Medicine, Duke University, Durham, NC, USA
[c] Duke Clinical Research Institute, Duke University Medical Center, Durham, NC, USA
[d] Center for Child and Family Policy, Sanford School of Public Policy, Duke University, Durham NC, USA

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ABSTRACT

Background: The use of marijuana for medical purposes is now legal in some U.S. states and other jurisdictions, such as Canada, and Israel. Despite the widespread legalization of medical marijuana globally, there is limited information on patterns and correlates of medical marijuana use (MMU). We conducted a literature review to assess prevalence, reasons, perceived effects, and correlates of MMU among adolescents and adults.
Methods: We searched peer-reviewed articles in English between January 1996 and August 2016 from several databases (PubMed, Google Scholar, Embase, CINAHL, and PsycINFO) using different combinations of keywords.
Results: A total of 25 articles met the inclusion criteria. In the U.S., national survey estimates of prescribed MMU was 1.1% among 12th graders and 17% among adults who reported past-year marijuana use. The reported prevalence of prescribed MMU ranged from < 1.7% in Israeli cancer patients to 17.4% in American health care patients. The reported prevalence of self-medication with marijuana ranged from 15% in Canadian patients with chronic pain to 30% in British patients with multiple sclerosis. Pain was the most frequently endorsed reason for use. MMU appeared to provide symptom relief for a range of pain conditions, sleep disturbance, and anxiety symptoms, but it did not appear to provide sufficient relief of cluster headache symptoms. Non-medical marijuana use was a common factor associated with MMU across studies.
Conclusion: Either MMU or self-medication with marijuana was common, mainly due to pain management. Additional research is needed to evaluate temporal and causal associations of non-medical marijuana use with MMU.

1. Introduction

Marijuana is the most widely used recreational drug in the U.S. The 2015 National Survey on Drug Use and Health (NSDUH) estimated that approximately 22.2 million Americans aged ≥12 years reported marijuana use (MU) in the past 30 days (Center for Behavioral Health Statistics and Quality (CBHSQ), 2016). MU, particularly long-term and heavy use, increases the likelihood of adverse health effects, such as motor vehicle accidents, chronic bronchitis and impaired respiratory function, psychotic symptoms, cognitive impairment, substance use disorder (SUD), and poor school performance (Hall, 2009; Hall and Degenhardt, 2009; Volkow et al., 2014). Of various recreational drugs, marijuana had the highest past-year prevalence of use disorder in the U.S. In 2015, past-year prevalence of MU disorder among Americans aged ≥12 years was 1.5%, which is higher than that of other drug use disorders, such as prescription opioid (0.8%), cocaine (0.3%), and heroin (0.2%) (CBHSQ, 2016). Considering the large population size of individuals who use marijuana recreationally and have MU disorder, problematic MU is an important public health issue that should be monitored to reduce its potential risks (Blanco et al., 2016; Wu et al., 2016).

In the U.S., marijuana is classified as a Schedule I drug under the Controlled Substances Act that has high potential for abuse and its medical use is prohibited (Hoffmann and Weber, 2010). Nevertheless, medical marijuana use (MMU), which refers to using marijuana as a medicine with a physician's recommendation, is legal in many states. California became the first state to legalize the use of medical marijuana (MM) in 1996, and to date 28 states and District of Columbia passed MM laws—most recently, Florida, North Dakota, Arkansas, and Montana have approved a ballot measure that approves the use of MM.

* Corresponding author.
** Corresponding author at: Department of Psychiatry and Behavioral Sciences, School of Medicine, Duke University, BOX 3903, Durham, NC, USA.
E-mail addresses: ji.yeun.park@duke.edu (J.-Y. Park), litzy.wu@duke.edu (L.-T. Wu).

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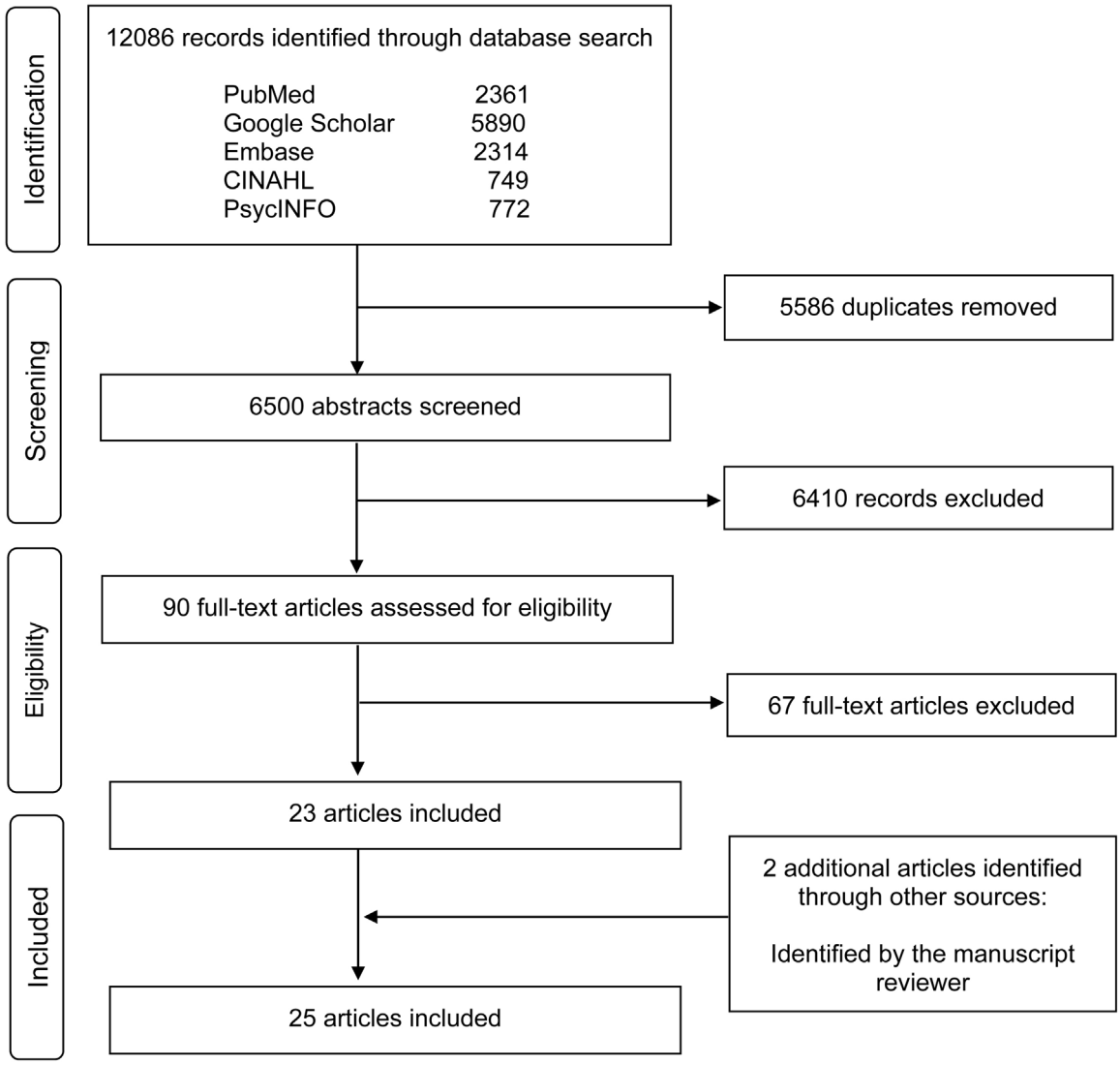

Fig. 1. The PRISMA diagram of the literature search.

MM laws vary by states in terms of approved conditions but they typically include cancer, glaucoma, HIV/AIDS, cachexia, severe chronic pain, severe nausea, seizures, and severe muscle spasms (Hoffmann and Weber, 2010). While adults with a qualifying disease have legal access to MM, adolescents (under age 18) are only allowed to use MM under limited conditions with consent of a parent or caregiver. The landscape of MM laws is also rapidly changing globally. In Canada, the Marihuana Medical Access Regulations (MMAR) was enacted in 2001, which permitted the use of MM for severe illnesses upon approval by Health Canada. In 2014, the new Marihuana for Medical Purposes Regulations was enacted to replace the MMAR, enabling medical practitioners to prescribe MM regardless of patient's medical conditions or failure of conventional treatments (Fitzcharles and Jamal, 2015). In Israel, individual patients can obtain a MM license after the Medical Cannabis Unit of the Ministry of Health approves a specialist's recommendation (Sznitman and Lewis, 2015). In Australia, the New South Wales Government introduced the Terminal Illness Cannabis Scheme in 2014, which permitted the use of MM for adult with a terminal illness that meets the definition by the scheme (Martin and Bonomo, 2016). Recently, the Narcotic Drugs Amendment Bill of 2016 that legalizes the cultivation of marijuana for medical and scientific purposes went into effect on November 2016 (Parliament of Australia, 2016). In the U.K., Sativex® became the first licensed marijuana-based medicine for the treatment of Multiple Sclerosis (MS)-related spasticity in 2010 (Kmietowicz, 2010).

The global movement towards legalizing MM raises concern about its potential impact on public health. Joffe et al. (2004) suggested that legalization of MM may potentially reduce the risk perception related to MU and increase the availability of marijuana, which may contribute to MU by adolescents (Bachman et al., 1998; Swaim, 2003). During the MM commercialization period (2009–2011), adolescents (12–17 years) in Colorado showed significantly lower risk perception related to regular MU compared to the pre-MM commercialization period (2006–2008) than adolescents in non-medical marijuana states (NMMS) (Schuermeyer et al., 2014). A national survey of adults aged ≥18 years in the U.S. showed that residents in MM states had higher past-year prevalence of MU than residents in NMMS, although comparison was not made prior to and after implementation of MM laws in MM states and NMMS (Cerda et al., 2012).

To date, there is limited information that outlines patterns and correlates of MMU. Most of the available studies on MMU in the U.S. were conducted on samples of HIV/AIDS patients. A telephone survey of 180 HIV patients found that nearly 24% used marijuana for medical purposes in the past year, primarily due to nausea, weight loss, or diarrhea (52.8%) (Fairfield et al., 1998). An anonymous survey on 442 HIV/AIDS patients revealed that approximately 33% were those who