

Legalization of Cannabis: A Double-Edged Sword

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ABSTRACT

Keywords

Marijuana, Legislation, Global trend, Adverse effects, Medical use, Recreational drug, Cannabinoids, Regulation, Monitoring, Safety

Although Cannabis use has been present traditionally in certain countries in Asia, including India, Illegal usage of this drug remains rampant globally. As per the World Drug Reports, in 2019, about 188 million (3.8%) people worldwide in the age range of 15-64 years were consuming Cannabis. In Asia, about 54 million (2%) were using this drug ^{1,2}. In recent times, several countries globally, including those of South and East Asia, Oceania, and Southeast Asia, have made cannabis use for medical treatment legal (Figure 1). Research is being conducted regarding the impact of the health drug, and it is even being pushed to be made a legal drug for recreational use ¹.

Over fifty countries globally have permitted access to regulated medical marijuana. Australia is the first country in Asia-Pacific to legalize cannabis use medically in 2016 (Narcotics Amendment Bill, Act No. 12/2016; patients' access and authorization should be regulated at the state level) ^{1,4}. Cultivation and personal use of Cannabis were allowed through passing laws in this regard by the Australian Capital Territory Legislative Assembly in 2019 that became effective in 2020, but cultivating Cannabis remains illegal under federal law ⁵⁻⁷. Medical trials for children who have severe epilepsy, chemotherapy-induced nausea, and adults suffering from terminal illness were started in New South Wales, Australia, in 2015 ⁸.

The Misuse of Drugs (Medicinal Cannabis) Amendment Act became effective in 2018 in New Zealand, and the New Zealand Mental Health and Addictions Inquiry

has strongly recommended decriminalization of Cannabis use decriminalization ^{1,9}. China approved the clinical trial of extracts from cannabis leaves as a component of cosmetics in 2015. In Kunming, China, cannabidiol drug has been studied for use in gout, autism, Alzheimer's disease, depression, and epilepsy with promising outcomes ¹⁰. In Japan, clinical trials for Epidiolex[®] (cannabidiol) have been approved ¹¹. Limited medical use of Cannabis has been allowed in South Korea even though medical marijuana is legal in the country and has been legalized since 2019. Management of diseases, specifically HIV/AIDS, multiple sclerosis, epilepsy, and cancer, may include the use of Cannabis. Still, the final prescribed medication must be requested via the Korean Orphan and Essential Drug Center by the patient within 12 hours. Similarly, in Singapore, only drug-resistant patients with a government-approved prescription may access medical marijuana, and the country still considers Cannabis an illicit drug ¹³. The Philippines has not yet legalized Cannabis. The government of Laos has begun to research the medicinal use of Cannabis.

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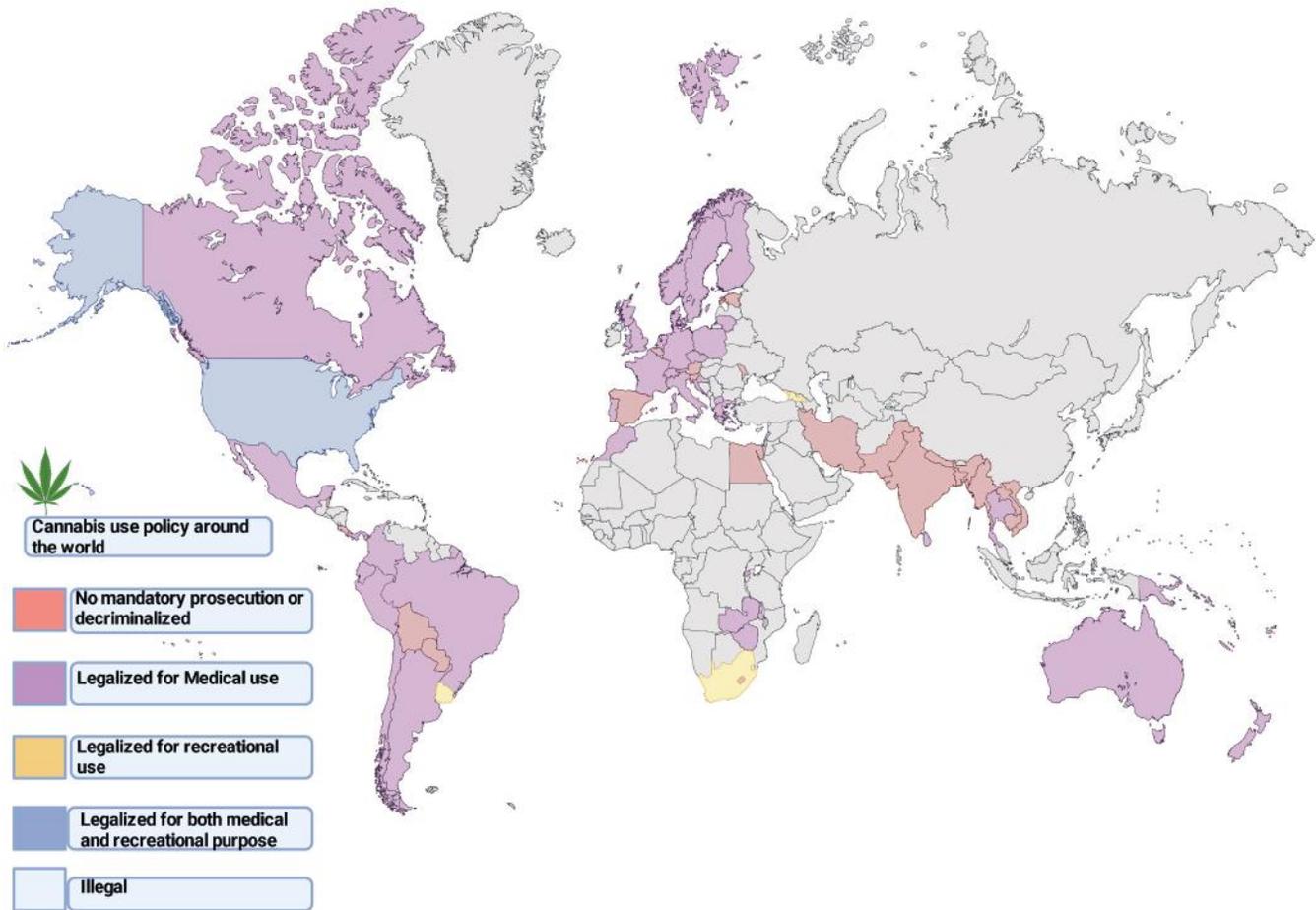


Figure 1: Display of the cannabis use policy worldwide. This figure was created using the premium version of BioRender (<https://biorender.com/>)³, accessed on June 30, 2025, with license number RD28G9RX0W3.

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In 2019, Thailand also legalized medical marijuana, and since the possession of marijuana reporting can be done with no penalty¹⁴. This led to 139977 of its citizens registering for drug possession. Production and prescription of traditional medicine with Cannabis was also allowed since 2019¹.

In the United States of America, the first two states that legalized cannabis use were Washington and Colorado in 2014, and since then, twenty-four states have made its use legal. Currently, almost half of the population of the US is using Cannabis for non-medical reasons^{15,16}. In Canada, the production and retail sales of Cannabis were made legal in 2018, and in 2019, edibles and extract sales began^{17,18}.

Cannabis Demand and Social Impact Across Countries

The data of national household surveys on use of illicit drugs in countries like Japan, Thailand, Japan and Australia revealed that the most used drug in the previous 12 months was cannabis¹. In 2016, the Australian National Drug Strategy Household Survey 2016 observed that 10.4% of people used Cannabis over the last 12 months, and more women in their 30s were using Cannabis in 2016 when compared to 2013,¹⁹. The Nationwide General Population Survey on Drug Use in Japan 2017 found 1.5% of the participants (0.6% female and 2.4% male) had a lifetime cannabis use prevalence of²⁰. About 1.3 million of the Japanese population are users of Cannabis, and when compared to the data of 2015, the number of users was noted to be rising. New Zealand Health Survey of 2012/ 13 showed that 11 %

of adults 15 years and older (8% female and 15% male) were using Cannabis in the past twelve months, and 34% of them mentioned using at least once weekly²¹. The study also noted that 36% have driven a vehicle under the influence of a drug. In comparison, 8% reported suffering harmful mental health effects due to cannabis use in the past twelve months. Medicinal use of Cannabis was reported by 42% of the respondents.

In the United States, individuals over the age of 21 years and in Canada, those more than 19 years of age, can now purchase regulated products of Cannabis legally, and a substantial decline in arrests of individuals for cannabis offences has been noted in these countries²²⁻²⁴. The access to cannabis products has become easy due to declining prices and the opening of an increasing number of retail outlets for Cannabis in the US and Canada,²⁵⁻³⁰. Various cannabis products, more potent than cannabis flower and hash products, like pre-rolled joints, cannabis-based beverages, cannabis-infused edibles, and extracts of Cannabis with THC

concentrations of 70% or more, are now available to the public^{31,32}. The USA household surveys noted a rise in cannabis use among individuals above 25 years old since the legalization of cannabis use, and the proportion of adults using Cannabis has surpassed the proportion consuming alcohol daily³³⁻³⁵. Among adolescents and those below 21 years of age, there has been a decline in the perception of cannabis use risk after its legalization³⁴. A meta-analysis done in Canada noted there was a significant rise in the cannabis use prevalence annually from 9% before cannabis legalization (between 1985 and 2017) to 25% after legalization between 2018-2021, and a steady prevalence of Cannabis from 6%-27% from 1985-2021³⁶.

Adverse Effects Noted Following Legalization of Cannabis

Several studies have noted that the adverse effects on health of cannabis users sharply rose as the number of retail outlets selling legal Cannabis increased following legalization of the drug³⁷⁻⁴¹ (Figure 2). In the USA and

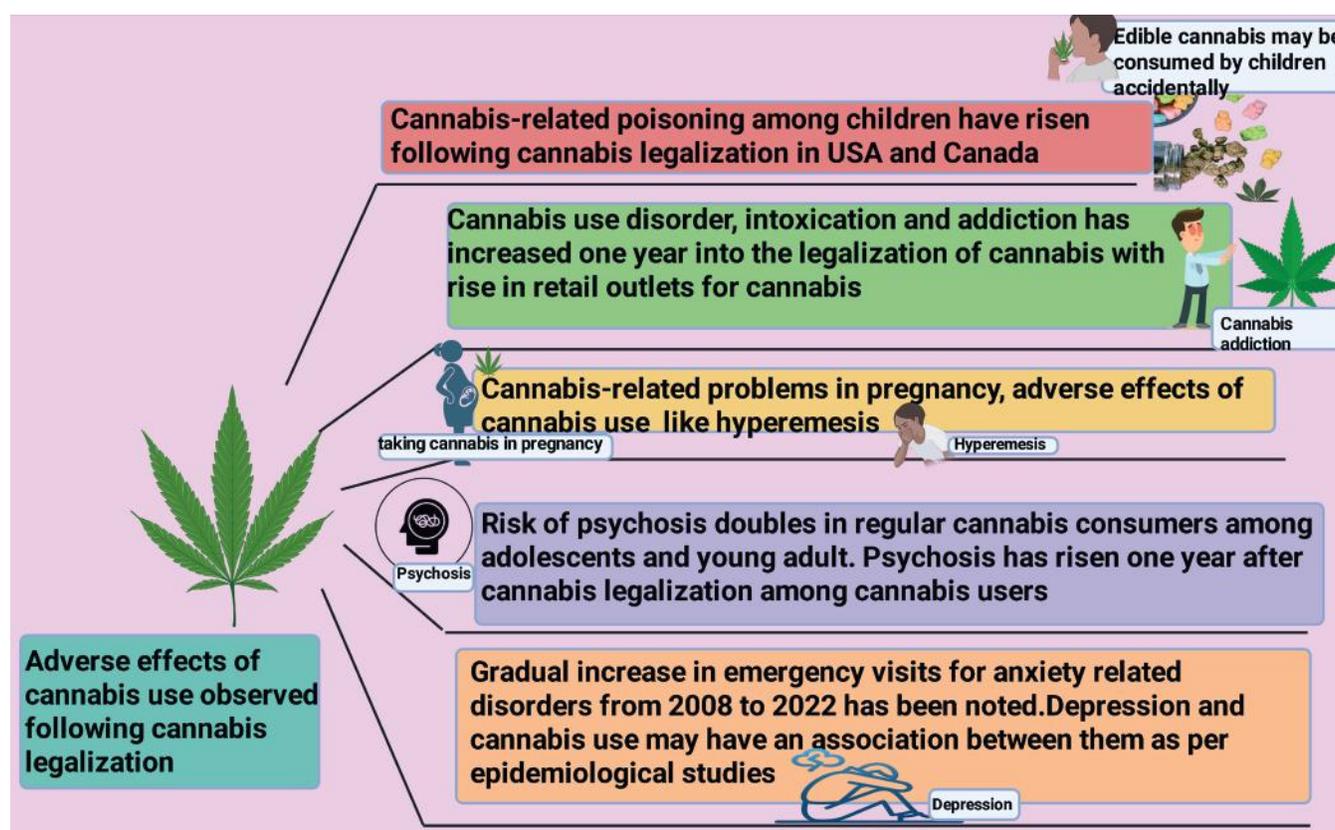


Figure 2: Illustrates the various adverse effects observed following cannabis use legalization. This figure was created using the premium version of BioRender (<https://biorender.com/>)³, accessed on June 30, 2025, with license number RO28GC8QK13.

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Canada, there are growing cases of cannabis-related poisoning among children since adult cannabis (medical and recreational) has been legalized⁴²⁻⁴⁶. In Canada, following the legalization of edible Cannabis, there has been a rise in emergency visits of children having unintentionally ingested cannabis⁴⁰. The relative risk of pediatric Emergency department visits following cannabis legalization in the USA and Canada was noted in a systematic review to be 4.31 (95% CI 2.30–8.07)⁴⁷.

Similarly, the trend of adults visiting the emergency department for cannabis-related problems like symptoms of cannabis use disorder, Cannabis related problems in pregnant females, hyperemesis, and intoxication in the USA and Canada is rising following its legalization^{37-39,41}. Data about medical treatment for cannabis use disorder symptoms display an increased prevalence of such disorders, even among older adults who have used legalized medical and adult Cannabis^{48,49}. However, fewer individuals enroll for specialist addiction treatment for cannabis use disorders since the legalization of Cannabis, since previously people used to opt for treatment to avoid legal consequences^{32,49,50}. Cannabis use disorders have been reported by those who consume cannabis products that are more potent than herbal cannabis^{51,52}. An association has been noted between the potency of cannabis products and treatment-seeking for the drug's use disorder⁵³.

Evidence from a previous study demonstrates that the risk of psychosis development doubled in those who are daily cannabis users during their young adulthood and adolescence⁵⁴. Myran et al noted, between 2014 and 2021, a rise in psychosis among cannabis users before legalization, a fall in this disorder for one year following legalization and then again rise in psychosis among cannabis users when the number of retail outlets selling cannabis products increased⁵⁵. Epidemiological studies have observed an association between regular usage of Cannabis and depression, although this relationship may be causal⁵⁶⁻⁵⁸. There has also been a gradual increase in Emergency department visits for anxiety disorders among cannabis users from 2008 to 2022⁵⁹.

Some Health Hazards of Long-term Cannabis Consumption

Regular long-term cannabis smoking may lead to cancers and cardiovascular diseases^{58,60}. Cardiovascular diseases like myocardial infarction and cancer risk may increase in cannabis users, as has been reported in epidemiological studies⁵⁸⁻⁶². However, it is still too

early for the detection of cancers, including respiratory cancers in legal cannabis users, since this trend of legalization is relatively recent, and cancers and cardiovascular disease can take decades to develop in regular cannabis users⁶³. Older adults may develop cardiovascular disease since there is an acute increase in risk of cardiovascular disorders among older adults who smoke Cannabis heavily, and cannabis use has increased among this older population after its legalization⁶⁴.

Regulation of Cannabis use following legalization: Steps to curtail its usage

The international drug control convention governs the use of Cannabis with probation laws on demand and supply. There needs to be strict control on the promotion of Cannabis to ordinary people, which includes a ban on advertising and marketing cannabis. The criminal black market must be checked since this allows easy access to Cannabis and buying of poor quality drugs with adverse health effects⁶⁵. Policies should list the harms and benefits in case of long-term use of cannabis^{57,66}. The strict policy for cannabis use must include synthetic cannabinoids, including assessment of the safety of the product, standards of manufacturing, market monitoring process, and imposing of excise tax to discourage unsafe cannabinoid selling⁶⁷⁻⁷⁰. Regular and accurate testing for the concentration of cannabinoids, contaminants, and residual solvents should be conducted locally in Laboratory¹. If not monitored and regulated closely, cannabis and cannabinoid usage for medical purposes will reach a wider population, resulting in addiction, like the case of prescription opioids. While the regulations are being developed, emerging scientific data need to be accommodated. As no standard methods of cannabis testing exist, relevant methodologies of other industries should be used as a basis for establishing a methodology for testing Cannabis and validated rigorously. A reference laboratory and proficiency testing are necessary to ensure reliability. Medical and non-medical cannabis regulation should be aligned in terms of allowable amounts of possession, requirement of testing, packaging/labeling, and taxation. Moreover, the constraints of government agency resources, unrealistic time frames for implementation, and the influence on the policy-making process should be addressed^{1,67,71}.

Future Focus and Recommendations for Ensuring Safe Usage of Cannabis

In the future, the focus of research should be on the chemical constituents of cannabis products, building

on existing research and fostering diverse and strong collaboration among researchers from different aspects of Cannabis. Countries in Europe, Canada, and the USA have made both medical and recreational cannabis use legal and are witnessing several pitfalls of this policy. The legalization of cannabis use policy, however, varies among different countries in the Asia-Pacific region. Acceptance of medical Cannabis is more than its use as a recreational drug. Australia has approved for both medical and recreational use, while New Zealand and Thailand have only allowed cannabis use for medical purposes. Cannabis use is limited in Singapore and South Korea. Research into Cannabis is underway in China and Japan. It is likely to be approved for medical use. New Zealand and Australia are working to decriminalize cannabis use. Certain countries are reporting a rise in cannabis use by ordinary people. Several pros and cons exist, which should be considered while legalizing this drug, particularly the long-term consequences on health. Serious monitoring of Cannabis, its products, and its synthesized form is needed by researchers through international collaboration.

Consent for Publication

The author has reviewed and approved the final version and agrees to be accountable for all aspects of the work, including any accuracy or integrity issues.

DISCLOSURE

Mainul Haque works in the editorial team of Bangladesh Journal of Medical Sciences, Dhaka, Bangladesh. No other author declares that they do not have any financial involvement or affiliations with any organization, association, or entity directly or indirectly related to the subject matter or materials presented in this review paper. This includes honoraria, expert testimony, employment, ownership of stocks or options, patents, or grants received or pending royalties.

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Authorship Contribution

All authors contributed significantly to the work, whether in the conception, design, utilization, collection, analysis, or interpretation of data, or all these areas. They also participated in the drafting, revision, and critical review of the paper, gave their final approval for the version that would be published, decided on the journal to which the article would be submitted, and made the responsible decision to be held accountable for all aspects of the work.

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