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Medical Cannabis in Law and Islamic Perspective

Singgih Tomi Gumilang*

Department of Law, Faculty of Law, Universitas Sebelas Maret, Surakarta 57126, Indonesia [*Corresponding author]

Hartiwiningsih

Department of Law, Faculty of Law, Universitas Sebelas Maret, Surakarta 57126, Indonesia

Pujiyono Suwadi

Department of Law, Faculty of Law, Universitas Sebelas Maret, Surakarta 57126, Indonesia

Jadmiko Anom Husodo

Department of Law, Faculty of Law, Universitas Sebelas Maret, Surakarta 57126, Indonesia

Abstract

This study aims to explain the legal status of medical marijuana in several countries in the world and the prospects for legalizing medical marijuana in Indonesia and to examine the need for legalizing medical marijuana in Indonesia as a step forward in fulfilling citizen's constitutional rights to health. This research uses qualitative methods with a normative juridical research type. The Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines with legalization of medical cannabis (included) used to develop this study. The result showed that 234 final articles proposing the medical cannabis and its policy together with the Islamic approaches. Interestingly, several countries have developed the law to adapt their country while the constitutional law of Indonesia has rejected two times for medical cannabis. In the other hand, the Islamic approaches, the legal experts emphasize that medical cannabis can be used as an alternative medicine, which is quite effective as a medicine in emergencies for medicinal purposes as long as all the requirements for medical cannabis are in line with Islamic values. With scientific studies and research, the government needs to make policies related to the fulfillment of citizen's health rights in the context of using cannabis for medical needs. To avoid the illegal use of cannabis with inappropriate doses, the government must immediately make technical regulations.

Keywords

Constitutional rights, Health services, Islamic perspective, Legal breakthroughs, Medical cannabis

INTRODUCTION

Health service delivery continues to grow every year. Technological advances and biomedical research continue to produce new treatments, therapies, and diagnostic methods. This contributes to improving the efficacy of health services and the outcome of patient recovery. Shifting attitudes and social policies, as well as increasing biomedical research, are turning cannabis into a potential source for novel treatments. Prior studies have demonstrated that cannabis can be a useful treatment for epilepsy and neuralgia, and its side effects are less harmful than traditional treatments (Qatanami et al., 2021).

Likewise, clinical studies compare cannabis use offers potential treatment for cancer, arthritis, Parkinson's disease, and reduced pain, inflammation, and anxiety (Pisanti et al., 2017). These results show that medical cannabis has many benefits, which has led cannabis industry is growing rapidly, and laws allowing medical and recreational cannabis use are gaining attention throughout the United States (Hill, 2015).

Over 100 scientific studies on cannabis' therapeutic usefulness were published in the late 1800s (Zuardi, 2006). The medical usage of cannabis reached its peak in the late 19th and early 20th centuries when laboratories such as Merck, Parke-Davis, Bristol-Meyers Squibb, Burroughs-Wellcome, and Eli Lilly marketed cannabis extracts or tinctures. In the

20th century, medical benefits of cannabis included analgesic effects for melancholia, chorea, tetanus, insanity, insomnia, delirium tremens, rabies, fever, cough, paralysis, exophthalmic goitre, bladder spasms, and gonorrhoea (Gaoni and Mechoulam, 1964). Other uses include improving appetite and digestion, diarrhoea, gastric neurosis, treating anorexia, dyspepsia, dysentery, cholera, nephritis, haematuria, diabetes mellitus, heart palpitations, vertigo, sexual atonia in women, and impotence in men. Cannabis was utilized in medical treatments throughout the Middle East, Africa, and Arabia from the Christian era until the 18th century. It served as a diuretic, digestive aid, anti-inflammatory, and pain reliever. It was grown in Europe for fiber, but its widespread use in Western medicine began in the 19th century (Younger, 2018).

Cannabis has a lengthy history, with ancient Chinese and Indian communities using it for various medical purposes. The ancient Chinese used a plant component mixed with wine to anesthetize patients during surgical procedures (Zuardi, 2006). Its psychoactive properties were well recognized in India because of its preparation procedures, which included poorly forming dry leaves and extracting cannabis from flowers (ABEL, 2005). Over the last two decades, an increasing number of USA have legalized the illegal drug commonly called "cannabis." Although every state once banned the use of the substance outright, today, more than 30 states now permit its use for medical purposes, and at least ten of these states permit the use by adults for other purposes (Mikos & Kim, 2019).

The use of medical cannabis for medical purposes in Indonesia is prohibited as regulated in Law Number 35 of 2009 Article 6 paragraph (1) letter and Article 8 paragraph (1) concerning Narcotics. The discourse on legalizing cannabis for medical purposes in Indonesia reached its peak when legislators discussed a draft law regarding amendments to the narcotics law. Efforts to legalize cannabis for medical purposes are carried out by reviewing narcotics laws. However, through decision number 106/PUU-XVIII/2020, the Constitutional Court prohibits the use of medical cannabis as a medical necessity for treatment. Everyone has the right to life and health, according to the standpoint of human rights. Hence, by society's standards, banning cannabis usage for medical purposes is equivalent to stopping sick individuals from getting better and from continuing to live. This indicates that the state is unable to ensure the wellbeing of its people. However, other nations, including Thailand, Lebanon, Netherlands, Spain, and Turkey, have approved cannabis for medical use (Aditya et al., 2022). Too far, 68 nations—including Australia, South Africa, Brazil, South Korea, and Thailand—have legalized or permitted the use of cannabis for medical purposes. A number of Muslim nations, such as Malaysia, are reassessing their legal stance regarding the use of cannabis for medicinal purposes in order to guarantee Muslim patients' access to the medication. In April 2020, Lebanon became the first Muslim nation to legalize cannabis for both industrial and medical use (Shirah et al., 2021), followed by Morocco in May 2021 (Afsahi & Darwich, 2016).

Most Muslim countries do not legalize or do not allow the use of cannabis because it is feared that it will cause negative effects, such as an addictive effect on the human body. Therefore, ideological rejection of medical cannabis arises because most Muslim countries support the argument that cannabis consumption is against the teachings of Islam (Ismail et al., 2023). Based on the problems and research background that have been mentioned, the author would like to discuss; 1) How does the government trying to fulfil the right to health by legalizing cannabis for medical purposes? 2). What is the legal position of medical cannabis in several countries? 3). What are the prospects for the legalization of medical cannabis in Indonesia and the Islamic perspective regarding the prohibition and licensing of cannabis use, especially regarding cannabis for medicinal purposes?

METHODS

This research uses qualitative methods with a normative juridical research type. Research data was obtained by conducting a literature study of various sources related to medical cannabis legalization policies and Islamic perspectives regarding the prohibition and licensing of cannabis use, especially related to cannabis for medicinal purposes. This data was obtained through scientific reputable databases such as the Europe PMC, BMC Public Health, Scopus, Google Scholar, PubMed Central and Web of Science from 2019 to 2024. Furthermore, the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) 2020 guidelines with legalization of medical cannabis (included) used to develop this study. The initial search yielded 1,368 articles, which were evaluated based on their titles and abstracts, resulting in 1,077 unique articles. However, 624 articles were deemed ineligible and were excluded during the initial screening phase. Further analysis excluded papers that did not meet the specified criteria, ultimately resulting in 234 unique articles that were included for detailed review, as shown in Figure 1. In addition, to understanding the core research and the relationship during the years, we constructed and visualized the bibliometric networks using VOSviewer.

RESULTS AND DISCUSSION

The Benefits and Disadvantages of Cannabis

Each type of cannabis contains cannabidiol (CBD) and tetrahydrocannabinol (THC) in certain amounts. Hemp and cannabis are cannabis that come from the type *C. sativa*, but Hemp contains 20% CBD and 0.3% THC; the content of these chemicals can make a person hallucinate (Mahaiyadin et al., 2022). Hemp has gained popularity due to its effectiveness in treating various health conditions. Hemp is well-known to has two main cannabinoids, tetrahydrocannabinol (THC, 1) and cannabidiol (CBD, 2) are components known for their therapeutic potential (Fig. 1). THC has the highest psychotropic effects compared to cannabinoids, so THC is the main component that is useful for providing pharmacological and therapeutic effects in medical cannabis. Another benefit is that it has various functions, such as anti-inflammatory, analgesic, anti-emetic, and anti-proliferative against tumour cells. Other from CBD, which has pharmacological effects, the other cannabinoids are non-psychoactive. In contrast to THC, CBD might have the opposite

impact by reducing the euphoric feeling that THC produces. According to Aizpurua-Olaizola et al. (2016), CBD also has antipsychotic, anti-nausea, anti-cancer, neuroprotective, and anti-diabetic properties without having too severe side effects.

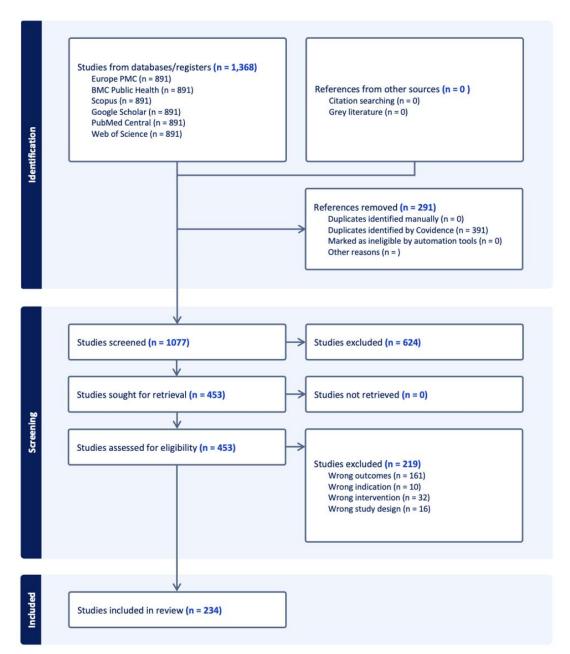


Fig. 1 Flow chart of PRISMA protocol

CBD can potentially be used to treat and relieve various symptoms associated with neurological disorders such as seizures and epilepsy, psychosis, anxiety and movement disorders (for example, amyotrophic lateral sclerosis and Huntington's disease) (LEWEKE et al., 2016). Meanwhile stomach ulcers, allergies, migraines, asthma and back pain are common diseases or symptoms that are usually treated with hemp plants. Hemp is also effective for stimulating appetite stimulation, such as anorexia. Hemp is also reported to reduce nausea; therefore, hemp can be used for patients

undergoing chemotherapy treatment. People with rheumatism, HIV, cancer, and other chronic pain conditions can therefore find relief from their discomfort with hemp. In addition, hemp has been shown to be effective in treating a number of other illnesses, including diabetes, Tourette's syndrome, Alzheimer's disease, and epilepsy (Aizpurua-Olaizola et al., 2016).

Apart from the benefits of hemp in medicine, it also has negative effects and side effects. Such as acute cannabis poisoning, namely the user's sensitivity to certain stimuli (for example, colours, sounds, etc.) and an increased appetite for fatty and sweet foods. Some studies also report that users can experiencing a pleasant feeling of relaxation after smoking cannabis. These subjective symptoms are frequently linked to diminished perception, dry mouth, poor motor abilities, and decreased short-term memory. Even worse, someone with extremely high $\Delta 9$ -tetrahydrocannabinol (THC) levels in their body may have hallucinations, panic attacks, and paranoid thinking. Moreover, additional transient adverse effects of cannabis use include impaired balance, disorientation, lightheadedness, asthenia, diarrhea, euphoria, tiredness, nausea, and vomiting (Agrawal et al., 2014).

Legal Status of Using Cannabis in Countries Across the World

The discourse on legalizing cannabis use is still being debated in many countries. However, several countries have decided to legalize cannabis. The research data included in this article is an analysis and summary of documented articles related to the Legal Status of Medical Cannabis in Various Countries which is showed in Table 1 below.

Table 1 Legal Status of Medical Cannabis in Various Countries

Researcher and Year	Research result
Green et al. (2003)	Netherlands being the sole European country that allows legal possession.
Hazekamp and Heerdink (2013) Cascini et al. (2012) Chao et al. (2023)	The Netherlands provides pharmaceutical-grade as well as prescription-grade
	cannabis to patients suffering from HIV/AIDS, cancer, chronic pain, multiple
	sclerosis, therapy-resistant glaucoma, and Tourette's syndrome. The Czech
	Republic, Italy, Finland and Germany also import products from the Dutch
	program.
	In India, cannabis is used for a variety of purposes, including analgesic, hypnotic,
	antitussive, antiparasitic, antispasmodic, sedative, antibiotic, anticonvulsant,
	appetite stimulant, diuretic, aphrodisiac, and expectorant. Cannabis is a category two narcotic in Taiwan. Recently, several legislative
	candidates have advocated the legalization of cannabis for medical purposes.
	However, many respondents asked that the government provide more information
	about cannabis to the public before considering whether cannabis should be
	legalized.
Laqueur et al. (2020)	Uruguay became the first country in the world to legalize recreational cannabis in
	2013. Citizens and permanent residents over the age of 18 can legally obtain
	cannabis through home cultivation, cannabis social clubs, or pharmacies.
	Everyone is only allowed to access one of the three supply mechanisms.
	The Canadian government decided to legalize cannabis to close gaps in the
Hamid et al. (2022)	former criminal justice system, which disproportionately impacted Black and
	disadvantaged individuals.
Adebisi et al., (2022)	South Africa officially legalizes cannabis for medical and recreational use. Health
	professionals agree with the use of cannabis as medicine. North America legalizes the use of medical cannabis and non-medical cannabis.
Toscano et al. (2023)	According to the National Survey on Drug Use and Health in the United States,
	17.9% (49.6 million) of citizens aged 12 and older reported using cannabis in the
	previous year, while 46% (127.1 million) of residents having used it at least once
	in 2019–2020. The group of young adults who used cannabis the most in the
	previous year was those between the ages of 18 and 25 (35.4%), then 26 to 49
	(21.7%).
Assanangkornchai et al.	Thailand is the first country to legalize cannabis in Southeast Asia on February 18
(2022)	2019.

Contrasts with the policies of the countries listed above, which have legalized the use of cannabis. Although it is not the only country that prohibits the use of cannabis other than in medical practice, Indonesia is still one of the countries where it is prohibited or illegal the use of cannabis and considers it a harmful plant. According to Law Number 35 of 2019 concerning Narcotics, cannabis is classified as class I, which has a high potential for abuse and is not utilized for treatment or health services, even in small amounts (Sonjaya, 2022). This makes all kinds of production, distribution, and consumption activities of this plant and its derivatives totally forbidden, apart from limited quantities for scientific development. In November 2020, children with Cerebral Palsy and community organizations filed a lawsuit before the Constitutional Court seeking a judicial review of regulations governing the use of cannabis for medical purposes, requesting that the ban be lifted. Even if the verdict in this case was ultimately overturned by the Constitutional Court on July 20, 2022, it did not dampen the debate (Camellia et al., 2019).

The Legality of Medical Cannabis from the Islamic Perspective

The Sunnah and Quran make no mention of cannabis use and do not forbid it outright. Islamic legal scholars including Syafi'i, Imam Hambali, Hanafi, and Maliki do not address the position of Islamic law on cannabis use because the use of cannabis was not known to exist during their time. Despite substantial opposition from others, a pro-cannabis group utilized this finding to support the legalization of the drug (Halim et al., 2014).

Scholars from the Shafi'i school Imam Al-Zarkashi, Imam Ibn Qayyim al-Jawziyyah, Al-Hafiz Zayn Ad-Din Al-Iraqi, and Imam Ibn Hajar al-Asqalani asserted that cannabis and wine share a similar legal standing. Therefore, prohibited to consume because the effect can be intoxicating. As is known, all substances that cause an intoxicating effect are prohibited for consumption (Ali, 2014).

Imam Al-Zarkashi stated that the side effects of cannabis are similar to wine when drunk and can change a person's mind (iskar). Al-Zarkashi also stated that the intoxicating effects of cannabis can disrupt a person's ability to speak, causing hidden secrets to be revealed. This shows that consuming cannabis causes a person's brain to be unable to function and think normally as a result. According to earlier studies, Muslims have been using cannabis for medical purposes for centuries. Authors of the Risala Fi Hurmat Al-Banj, legal professionals, impose stringent regulations and forbid the use of cannabis for medicinal purposes. These legal experts forbid the use of cannabis for any reason, including medicinal purposes. Its effects are comparable to those of wine or al-khamr. Nonetheless, the majority of Islamic legal experts from Mazhab Al-Hanafiyah, Al-Shafi'iyah, and a few legal experts from Mazhab Al-Hanabilah acknowledge that it is allowed to consume a specific amount of cannabis, hashish, or binj for medical purposes. They stress that cannabis is distinct from al-khamr (wine), which permits its usage for medicinal purposes (Ismail et al., 2023).

According to Al-Shirbeniy of Mazhab Shafi'i, the use of potent intoxicating plants for medicinal purposes is allowed as long as no other option is available, even if doing so results in poisoning. This is allowed due to urgent medical needs. Therefore, everything that Allah has forbidden to eat and drink in critical or emergency is permitted for a person to eat and drink in an urgent situation, including substances that can cause intoxication, such as binj or cannabis, if consumed for therapeutic or medicinal purposes. Apart from that, Az-Zakarshi stated that cannabis consumption could be considered halal under certain conditions. Examples of these situation is for medical purposes (Toscano et al., 2023).

In essence, the use of cannabis as medicine is permitted based on the principles of fiqh, including:

- a. Allah said in the Holy Quran, Surah Al-Baqarah verse 173:
 "But whoever is compelled by necessity, neither willful disobedience nor transgressing due limits, then he is not a sinner. Verily Allah is all forgiving and most merciful."
- b. Surah Al-An 'am verse 119:

"Why should you not eat of what is slaughtered in Allah's Name when He has already explained to you what He has forbidden to you—except when compelled by necessity? Many 'deviants' certainly mislead others by their whims out of ignorance. Surely your Lord knows the transgressors best."

The Fiqh Council of North America (FCNA), a deliberative body comprised of Islamic jurists and medical consultants, examined the medical as well as religious evidence surrounding medical cannabis to furnish Muslim Americans with religious guidance. In 2018, they resolved that, while the use of intoxicating substances is proscribed by Islamic law, medical cannabis was permissible for Muslims to use with the following stipulations: Non-psychoactive preparations of cannabis are permitted to treat illnesses for which therapeutic effects of cannabis are certain, and psychoactive preparations are contingently permissible in cases of dire necessity (Qatanani et al., 2021).

Thematic Cluster Analysis

Cannabis research has been widely carried out in the world. Figure 3 shows the appearance of the keywords 'Medical' and 'Cannabis', complemented by 'Law'. As a result, 1328 of the most cited articles were published on Scopus between 2019-2024. A number of these articles analyzed the law on the cultivation and regulations for consumption of cannabis, which has been frequently discussed recently, especially in terms of benefits for medical or health purposes. Therefore, research on cannabis as an alternative treatment is significant for medical purposes and its legal status.

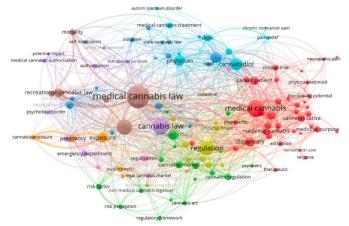


Fig. 3 Co-occurrences of keywords 'Medical' and 'Cannabis' refined by 'Law'; 1328 most cited papers published in Scopus 2019–2024

Cannabis research every year needs to be done because the medical cannabis plant is unexplored, mainly due to legal institutions in many countries. Figure 4a shows that cannabis research has experienced rapid growth since the emergence of research results, stating that there are many benefits from the cannabis plant, especially in the health sector. However, the cannabis plant still has illegal status in several countries because it has terrible effects or negative impacts after consumption, so its use requires special regulations and attention. Figure 4b shows that in this study, over generations, genetic variability in cannabis has spread, resulting in a variety of varieties with different phenotypic qualities and secondary metabolites.

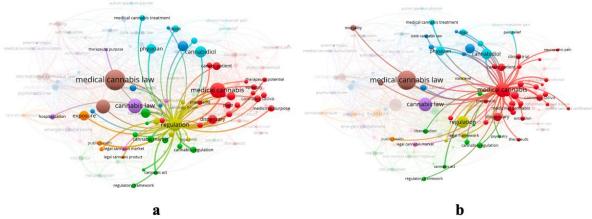


Fig. 4 VOSviewer results of co-occurrences of keywords 'Medical' and 'Cannabis' refined by 'Law in papers published in 2019-2024: display detail shows enlarged output for term 'medical cannabis law''; VOSviewer results of co-occurrences in papers published in same journals containing the key terms (a) 'regulation' and (b) 'medical cannabis'

The campaign to change Cannabis regulations began in 2001, when Canada implemented legislation regulating the use of cannabis for medical purposes. Since then, other countries have begun to pay attention to the use of cannabis for medical purposes. Based on Levinsohn et al. (2020), Medical cannabis has been proven to be more effective in a variety of disease conditions than the pharmaceutical drugs currently used in its treatment and has been proposed as an alternative therapy for a variety of diseases. In addition to the legal use of cannabis in Western countries, several Asian countries, such as Muslim countries, including Malaysia, are returning to their position on the use of cannabis for medical purposes so that Muslim patients have the right to benefit from the medicine.

Based on a human rights perspective, everyone has the right to life and health. Therefore, prohibiting the use of cannabis for medical treatment is tantamount to prohibiting sick people from recovering and living. This means that the state has failed to guarantee the health of its citizens. Through case number 13/PUU-XXII/2024, a person who has had cerebral palsy since the age of 4 months hopes that medical cannabis can be an alternative treatment to treat daily tremor seizures. However, the result showed that medical cannabis is still not acceptable as an alternative treatment model in Indonesia.

Moreover, the research by Putranto and Mangesti (2024), informed that a child with cerebral palsy in Australia who had used cannabis therapy used Cannabis Oil to show good development. Health is a human right and one element of prosperity that must be realized by the ideals of the Indonesian nation as intended in Pancasila and the 1945 Constitution of the Republic of Indonesia.

Cannabis legalization efforts impact agriculture and the environment, law enforcement, incarceration and restorative justice, regulation and taxation, intellectual property, labour, transportation, manufacturing, marketing, consumption, and public health (DRAGONE et al., 2019). Stakeholders must overcome many obstacles to a prosperous and fair legal cannabis market. One of these obstacles is the need for regulators to monitor and protect public health while encouraging the growth of regulated markets in the face of continued power in unregulated markets (Jones et al., 2018). Based on Aditya and Aditya (2022), as a country of law, Indonesia consistently strives to realize guarantees of the fulfillment of rights to every citizen, including the realization of rights in the health sector. Several legal norms have regulated the right to health, including:

- 1. Article 25 of the Universal Declaration of Human Rights (UDHR).
- 2. Article 12 paragraph (1) of the International Convention on Economic, Social and Cultural Rights established by the UN General Assembly 2200 A (XXI) of December 16, 1966.
- 3. Article 28 H paragraph (1) of the 1945 Constitution.
- 4. Article 9 of Law Number 39 of 1999 concerning Human Rights.

Based on several legal norms, support emerged for efforts to legalize cannabis for medical purposes in Indonesia. One organization that is diligently campaigning for the legalization of cannabis as a medical necessity is the Indonesian Cannabis Circle (Lingkar Ganja Nusantara "LGN"). LGN argues that cannabis for medical conditions cannot be replaced with other drugs because the demand is very specific and depends on a certain dose. Therefore, with scientific studies and research, the government needs to take policies regarding fulfilling citizen's health rights in the context of using cannabis for medical needs (Rasmi et al., 2022).

This is further strengthened by the firm mandate in Articles 7 and 8 of Law Number 35 of 2009 concerning Narcotics, where Narcotics and class I Narcotics can be used for medical, research, and educational purposes. Therefore, if you refer to these provisions legally and bindingly, people can use cannabis for medical purposes. However, to avoid the illegal use of cannabis in inappropriate doses, the government must immediately respond to Articles 7 and 8 of the Health Law with other technical regulations, for example in the form of a Minister of Health Regulation. Minister of Health or in a higher form through Presidential Regulation. Through visible legal norms, the National Narcotics Agency (BNN), and the Police are expected not to arbitrarily arrest cannabis users for medical needs. This is because people get legal protection to fulfill their health rights (Aditya et al., 2022).

CONCLUSION

Indonesia is still one of the countries that does not allow the use of cannabis and considers it a dangerous plant, this is also because consuming cannabis is against the teachings of Islam, which is the majority religion in Indonesia, some Muslim jurists asserted that medical cannabis can be used for treatment when a legal alternative is insufficiently effective as a medicine, access to medical cannabis is in line with Islamic values, provided all the emergency requirements and conditions are fulfilled and for medicinal purposes. Therefore, with scientific studies and research, the government needs to take policies regarding fulfilling citizens' health rights in the context of using cannabis for medical needs and to avoid the illegal use of cannabis in inappropriate doses, the government must immediately address the technical regulations.

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DECLARATION OF CONFLICT

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REFERENCES

- 1. Abel, Ernest L. (2005). Jacques Joseph Moreau (1804–1884). *American Journal of Psychiatry*, 162(3), 458-458. https://doi.org/10.1176/appi.ajp.162.3.458.
- 2. Adebisi, Yusuff Adebayo, and Damilola Quazeem Olaoye. (2022). Medical use of cannabis in Africa: the pharmacists' perspective. *INNOVATIONS in Pharmacy*, *13*(1). https://doi.org/10.24926/iip.v13i1.4430.
- 3. Aditya, Zaka Firma, and Sholahuddin Al Fatih. (2022). The Legalization of Medical Marijuana: A Human Rights Law Perspective. *Human Rights in the Global South (HRGS)*, 1(2), 109-124. https://doi.org/10.56784/hrgs.v1i2.36
- 4. Agrawal, Arpana, Pamela AF Madden, Kathleen K. Bucholz, Andrew C. Heath, and Michael T. Lynskey. (2014). Initial reactions to tobacco and cannabis smoking: a twin study. *Addiction*, 109(4), 663-671. https://doi.org/10.1111/add.12449.
- 5. Aizpurua-Olaizola, Oier, Umut Soydaner, Ekin Öztürk, Daniele Schibano, Yilmaz Simsir, Patricia Navarro, Nestor Etxebarria, and Aresatz Usobiaga. (2016). Evolution of the cannabinoid and terpene content during the growth of Cannabis sativa plants from different chemotypes. *Journal of natural products*, 79(2), 324-331. https://doi.org/10.1021/acs.jnatprod.5b00949.
- 6. Afsahi, Kenza, and Salem Darwich. (2016). Hashish in Morocco and Lebanon: A comparative study. *International Journal of Drug Policy*, *31*, 190-198. https://doi.org/10.1016/j.drugpo.2016.02.024
- 7. Ali, Mansur. "Perspectives on drug addiction in Islamic history and theology. (2014). *Religions*, 5(3), 912-928. https://doi.org/10.3390/rel5030912.
- 8. Assanangkornchai, Sawitri, Kanittha Thaikla, Muhammadfahmee Talek, and Darika Saingam. (2022). Medical cannabis use in Thailand after its legalization: a respondent-driven sample survey. *PeerJ*, *10*, e12809. https://doi.org/10.7717/peerj.12809.
- 9. Camellia, Vita, Fasihah Irfani Fitri, Muhammad Surya Husada, Dudy Aldiansyah, Muhammad Ichwan, Khairunnisa Khairunnisa, and Farah Diba Harahap. (2019). Sociological and Psychological Factors on Prohibited Substances Abuse in Rehabilitation Centre of Medan City, Indonesia. *Open Access Macedonian Journal of Medical Sciences*, 7(23), 4137. https://doi.org/10.3889/oamjms.2019.611.
- 10. Cascini, Fidelia, Carola Aiello, and GianLuca Di Tanna. (2012). Increasing delta-9-tetrahydrocannabinol (Δ-9-THC) content in herbal cannabis over time: systematic review and meta-analysis. *Current drug abuse reviews*, *5*(1), 32-40. https://www.ingentaconnect.com/content/ben/cdar/2012/00000005/00000001.
- 11. Chao, Kuo-Yu, Shu-Hsiang Liu, Chih-Chiang Chou, Ching-I. Chen, and Wei Cheng. (2023). Legalization of marijuana or not? Opinions from over 38,000 residents in Taiwan. *BMC Public Health*, 23(1), 1954. https://doi.org/10.1186/s12889-023-16834-x.
- 12. Dragone, Davide, Giovanni Prarolo, Paolo Vanin, and Giulio Zanella. (2019). Crime and the legalization of recreational marijuana. *Journal of economic behavior & organization*, 159, 488-501. https://doi.org/10.1016/j.jebo.2018.02.005.
- 13. Gaoni, Yehiel, and Raphael Mechoulam. (1964). Isolation, structure, and partial synthesis of an active constituent of hashish. *Journal of the American chemical society*, 86(8), 1646-1647. https://doi.org/10.1021/ja01062a046.
- 14. Green, B. O. B., David Kavanagh, and Ross Young. (2003). Being stoned: a review of self-reported cannabis effects. *Drug and alcohol review*, 22(4), 453-460. https://doi.org/10.1080/09595230310001613976.

- 15. Halim, Mustafa Afifi Ab, Mohd Mahyeddin Mohd Salleh, M. I. A. M. Kashim, Azlin Alisa Ahmad, and Norhaslinda Nordin. (2014). Halal pharmaceuticals: legal, shari'ah issues and fatwa of drug, gelatine and alcohol. *International Journal of Asian Social Science*, 4(12), 1176-1190. http://www.aessweb.com/journals/5007.
- 16. Hamid, Muhammad Akhter, Roohab Shaikh, Luxhman Gunaseelan, Jannat Salim, Atchaya Arulchelvan, and Trisha Tulloch. (2022). Recreational cannabis legalization in Canada: a pediatrics perspective. *Substance Use & Misuse*, *57*(3), 481-483. https://doi.org/10.1080/10826084.2021.2012689.
- 17. Hazekamp, Arno, and Eibert R. Heerdink. (2013). The prevalence and incidence of medicinal cannabis on prescription in The Netherlands. *European journal of clinical pharmacology*, 69, 1575-1580. https://doi.org/10.1007/s00228-013-1503-y.
- 18. Hill, Kevin P. (2015). Medical Marijuana for Treatment of Chronic Pain and Other Medical and Psychiatric Problems. *JAMA*, *313*(24), 2474. https://doi.org/10.1001/jama.2015.6199.
- 19. Jones, Jacob, K. Nicole Jones, and Jenny Peil. (2018). The impact of the legalization of recreational marijuana on college students. *Addictive behaviors*, 77, 255-259. https://doi.org/10.1016/j.addbeh.2017.08.015.
- 20. Ismail, Shahrul Mizan, Ekmil Krisnawati Erlen Joni, and Rohaida Nordin. (2023). The Legality of Medical Cannabis from the Islamic Perspective. *Malaysian Journal of Law & Society*, 32. https://doi.org./10.17576/juum-2023-32-06
- 21. Laqueur, Hannah, Ariadne Rivera-Aguirre, Aaron Shev, Alvaro Castillo-Carniglia, Kara E. Rudolph, Jessica Ramirez, Silvia S. Martins, and Magdalena Cerdá. (2020). The impact of cannabis legalization in Uruguay on adolescent cannabis use. *International Journal of Drug Policy*, 80, 102748. https://doi.org/10.1016/j.drugpo.2020.102748.
- 22. Levinsohn, Erik A., and Kevin P. Hill. (2020). Clinical uses of cannabis and cannabinoids in the United States. *Journal of the neurological sciences*, *411*, 116717. https://doi.org/10.1016/j.jns.2020.116717.
- 23. Leweke, F. Markus, Juliane K. Mueller, Bettina Lange, and Cathrin Rohleder. (2016). Therapeutic potential of cannabinoids in psychosis. *Biological psychiatry*, 79(7), 604-612. https://doi.org/10.1016/j.biopsych.2015.11.018.
- 24. Mahaiyadin, Mohd Hapiz, Norsyifa Harun, Roshaimizam Suhaimi, and Zakiah Samori. (2022). Islamic Legal Perspective on Hemp Cultivation in Malaysia: Wonder or Evil?. *Social Sciences*, *12*(12), 173-187. https://doi.org/10.6007/IJARBSS/v12-i12/14810.
- 25. Mikos, Robert A., and Cindy D. Kam. (2019). Has the "M" word been framed? Marijuana, cannabis, and public opinion. *PLoS One*, *14*(10), e0224289. https://doi.org/10.1371/journal.pone.0224289
- 26. Pisanti, Simona, Anna Maria Malfitano, Elena Ciaglia, Anna Lamberti, Roberta Ranieri, Gaia Cuomo, Mario Abate et al. (2017). Cannabidiol: State of the art and new challenges for therapeutic applications. *Pharmacology & therapeutics*, 175, 133-150. https://doi.org/10.1016/j.pharmthera.2017.02.041.
- 27. Putranto, Mahardian, and Yovita Arie Mangesti. (2024). Penggunaan Ganja Medis dalam Pengobatan dan Pengaturannya di Indonesia. *Journal Evidence of Law*, 3(1), 10-19. https://jurnal.erapublikasi.id/index.php/JEL.
- Qatanani, Anas, Mustafa Umar, and Aasim I. Padela. (2021). Bioethical insights from the Fiqh Council of North America's recent ruling on medical cannabis. *International Journal of Drug Policy*, 97, 103360. https://doi.org/10.1016/j.drugpo.2021.103360.
- 29. Rasmi, Muhammad Zulkifli, Buchari Mengge, and Nuvida Raf. (2022). Perempuan dalam Gerakan Lingkar Ganja Nusantara. *Jurnal Noken: Ilmu-Ilmu Sosial*, 7(2), 182-191. https://doi.org/10.33506/jn.v7i2.1567.
- 30. Shirah, Bader H., and Mohammed M. Ahmed. (2021). The use of cannabis for medical purposes in the arab world. *Medical Cannabis and Cannabinoids*, 4(1), 72-74. https://doi.org/10.1159/000510824
- 31. Sonjaya, Saji. (2022). Legalization of Marijuana Use for Medical in Indonesia in Relation to Law Number 35 of 2009 concerning Narcotics. *JCIC: Jurnal CIC Lembaga Riset dan Konsultan Sosial*, *4*(2), 85-94. https://doi.org/10.51486/jbo.y4i2.80.
- 32. Toscano, Alessandro, Didier G. Ebo, Khaldon Abbas, Hannelore Brucker, Ine I. Decuyper, David Naimi, Anil Nanda et al. (2023). A review of cannabis allergy in the early days of legalization. *Annals of Allergy, Asthma & Immunology, 130*(3), 288-295. https://doi.org/10.1016/j.anai.2022.10.016.
- 33. Younger, David S. (2019). The Science of Medical Cannabis. Nova Medicine and Health.
- 34. Zuardi, Antonio Waldo. (2006). History of cannabis as a medicine: a review. *Brazilian Journal of Psychiatry*, 28, 153-157. https://doi.org/10.1590/S1516-44462006000200015.