

Narcotics of Plant Origin, Cannabinoid Addiction: Clinical and Pharmacological, Forensic and Pharmaceutical, Organizational and Legal, Medical and Sociological Aspects

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Abstract. The study of narcotic drugs of plant origin and cannabinoid addiction was conducted through multidisciplinary forensic and pharmaceutical, clinical and pharmacological, medical, organizational and legal study. The problem of illegal circulation of cannabis in the world and in Ukraine has been studied. Ways of legalizing cannabis have been researched. Forensic and pharmaceutical practice on the illegal circulation of cannabis was analyzed. Proven combinations of cannabinoid abuse with tobacco (35.71%); alcohol (26.67%); tramadol (40.00%);

methamphetamine (pervitin) (50.00%); opium (1.43%). The classification and legal, clinical and pharmacological, nomenclature and legal groups of psychoactive substances abused by illegal consumers were worked out. Normative initiatives have been developed and proposed to increase the availability of pharmacotherapy for cannabinoid drug addicts.

Keywords: narcotic drugs of plant origin, illegal circulation, abuse, cannabinoid addiction, forensic pharmacy, clinical pharmacology, medicine, pharmaceutical law, regulatory practice.

Introduction. Among the narcotics of plant origin, hemp (cannabis, marijuana, hashish) is the most well-known. Abuse of cannabis leads to the formation of cannabinoid dependence. In Ukraine, patients with cannabinoid addiction do not belong to the privileged categories of patients. The narcotic drug cannabis in Ukraine is in criminal circulation, it is possible to buy it illegally without a doctor's prescription. According to Chaika A., the black market works and "weed" can be bought even at school [1]. Most marijuana (65%) is abused by young people aged 18 to 24 [2].

According to Europol, about 22 million cannabis users spend approximately 9 billion euros on this narcotic drug. The illegal cannabis market is the largest in the European Union [3]. Cannabis trade accounts for about 38% of the retail market for illegal drugs in the European Union. Cannabis is a source of income for organized criminal drug gangs. About 1% of European adults smoke cannabis almost every day. There is concern about health disorders from various innovations that have led to the use of cannabis edibles, oils, and preparations in vaporizers.

In the annual report for 2022, the International Narcotics Control Board of the United Nations noted [4]:

- the single convention on narcotic drugs of 1961 classified cannabis as a drug that causes people to be highly dependent and prone to abuse; non-medical or non-scientific use of cannabis is contrary to the UN Convention;
- concern that this trend among a small number of governments is leading to increased consumption, adverse health effects and psychotic disorders;
- the growing cannabis industry promotes products, especially among young people, in a way that reduces the perception of risk associated with their use;
- the impact of cannabis legalization on society is difficult to measure, as legislative models differ from country to country and data are still limited;
- concern that many countries continue to experience difficulties in procuring sufficient quantities of controlled substances for treatment, including during emergencies;
- countries confiscate large quantities of unsigned chemicals and designer precursors used in the production of illicit drugs, and are concerned about the global spread of these substances.

Forensic and pharmaceutical analysis of the situation regarding the drug business in Ukraine shows that in 2021, a slight increase in the abuse of the following narcotics was detected [5]:

- opioids – 42,711 people at the end of 2021 compared to 41,095 people at the end of 2020 (+3.8%);
- cannabinoids – 4,811 people at the end of 2021 compared to 4,735 people at the end of 2020 (+1.6%);
- of several psychoactive substances – 16,633 people at the end of 2021 compared to 16,096 people at the end of 2020 (+3.2%).

Psychoactive substances when abused in illegal circulation do not pass quality control, clinical and preclinical tests, physical chemical studies for technological compatibility, are not registered and are often not allowed for medical use [6-12].

The problem of the prevalence of various types of addictive dependence on psychoactive substances, the development of the composition of new drugs and pharmacotherapy schemes with the use of drugs of the corresponding contingents of patients in different years were devoted to the researches of [Voloshyn P.V., Kutko I.I., Stefanov O.V., Gubskiy Yu.I., Lynskii I.V., Minko O.I., Gudzenko O.P., Ponomarenko M.S., Volokh D.S., Shapovalova V.O., Tykhonov O.I., Shapovalov V.V. and other scientists [13-20].

However, a multidisciplinary organizational and legal, clinical and pharmacological, forensic and pharmacological, forensic and narcological, and medical research on the availability of pharmacotherapy for drug patients with cannabinoid addiction in the system of pharmaceutical law was not conducted, which indicates the relevance and timeliness of this article.

The purpose of the study was to research cannabinoid addiction through multidisciplinary forensic and pharmaceutical, clinical and pharmacological, medical, organizational and legal study.

Materials and methods. International and state normative documents on the topic of the work were used. Research methods were used: comparative, normative and legal, forensic and pharmaceutical, retrospective, documentary, historical, graphic, pharmacoeconomic analysis. Statistical evaluation and mathematical processing of data was carried out using modern computer technologies.

The study is a fragment of the research works of the Kharkiv Medical Academy of Postgraduate Education on the topics "Improvement of the organizational and legal procedure of providing drugs to patients from the position of forensic pharmacy, organization and management of pharmacy" (state registration number 0116U003137, implementation period 2016-2020), "Pharmaceutical and medical law: integrated approaches to the drug circulation system from the standpoint of forensic pharmacy and the organization of the pharmaceutical case" (state registration number 0121U000031, implementation period 2021-2026), Lviv Medical Institute LLC on the topic "Improvement of the drug circulation system during pharmacotherapy on the basis of evidentiary and forensic pharmacy, organization, technology, biopharmacy and pharmaceutical law" (state registration number 0120U105348, implementation period 2021-2026), Petro Mohyla Black Sea National University on the topic "Conceptual interdisciplinary approaches to the drug circulation system, taking into account organizational and legal, technological, biopharmaceutical, analytical, pharmacognostic, forensic and pharmaceutical, clinical and pharmacological, pharmacoeconomic, pharmacotherapeutic aspects" (state registration number 0123U100468, implementation period 2023-2028) and State Enterprise "Luhansk State Medical University" on the topic "Conceptual interdisciplinary approaches to pharmaceutical provision and availability of drugs, taking into account organizational and legal, technological, analytical, pharmacognostic, forensic and pharmaceutical, clinical and pharmacological, pharmacoeconomic, marketing, social and economic competence" (state registration number 0123U101632, implementation period 2023-2027).

Results and discussion. In recent years, the United States, Germany, Luxembourg, the Czech Republic, Austria, Italy, Spain, Malta, Thailand, Singapore, China (Hong Kong), and Ukraine have been discussing and adopting normative legal documents on the termination of certain provisions of the UN Convention of 1961 (as amended of 1972) "On the fight against the illegal circulation of narcotic drugs and psychotropic substances" and the removal from control of the circulation of narcotic drugs cannabis (marijuana, hashish, etc.), cocaine, opium (morphine, heroin, codeine, etc.), except for the use exclusively for medical purposes.

By the Resolution of the Verkhovna Rada of April 25, 1991 No. 1000-XII (1000-12), Ukraine ratified the United Nations Convention "On Combating Illicit Trafficking in Narcotic Drugs and Psychotropic Substances" [21]. The cannabis legalization experiment in New York, as noted by Helmore E., takes place against the background of growing concern about the consequences for the mental health of the population [22]. Currently, only a handful of state-licensed dispensaries are open, complementing the hundreds of "vape" shops that sell "weed." More traditional are home delivery services and those that offer their goods in parks and on the streets throughout the city. With the flavor and sale of cannabis taking place everywhere, New York's Mayor Eric Adams intends to redouble efforts to crack down on unlicensed distributors. Conducts raids on stores, confiscates products, issues fines. In one case, a converted school bus selling marijuana near the Rockaway Beach ferry was seized.

The US National Institute on Drug Abuse has warned that daily smoking of high-potency marijuana can increase the likelihood of developing psychosis by almost five times [23]. The relationship between cannabis (marijuana) use and mental disorders is complex. More research is needed to better understand the short- and long-term effects of cannabis use on mental health. A substantial body of evidence links cannabis use to an earlier onset of psychosis in people with genetic risk factors for psychotic disorders. There is evidence linking cannabis use to other mental illnesses and self-harm, including suicidal thoughts and behavior.

As Gilchrist K. notes, Germany is expected to introduce a bill in the coming weeks that will give the green light to the consumption and sale of cannabis [24]. About 4 million German citizens use cannabis (2021 data). A quarter of all 18-24-year-olds in the country have tried weed. The government has a fine line to develop a bill that complies with the legislation of the countries of the European Union, international conventions and agreements on narcotic drugs, psychotropic substances, and precursors.

Luxembourg and the Czech Republic have already proposed plans to legalize cannabis for adult use. Austria, Italy, Spain canceled criminal proceedings for possession of a small amount of narcotic for personal consumption, without the purpose of sale. Malta has legalized personal possession of cannabis since 2021. It allowed private "cannabis clubs" where participants can grow, sell (share for consumption) the drug.

Europe has long taken a conservative approach to legalizing cannabis. EU law requires member states to ensure that the sale of illicit narcotic drugs and psychotropic substances, including cannabis, is "punished by effective, proportionate and dissuasive criminal penalties".

Thus, on May 26, 2021, the Council of the European Union adopted the Priorities in the fight against serious and organized crime for the European Multidisciplinary Platform against Criminal Threats 2022-2025 (EMPACT) [25]:

- to identify criminal networks involved in the wholesale trade of cannabis, cocaine, and heroin.
- to combat criminal networks involved in the cultivation, production, processing and distribution of cannabis, cocaine, and heroin.

At the next stage of the study, forensic-pharmaceutical practice in the illegal circulation of cannabis was analyzed. Here are typical examples (1-4).

Forensic and pharmaceutical example No. 1. Kryvyi Rih law enforcement officers detained a man who equipped greenhouses for growing hemp [26]. The police seized more than 350 hemp bushes and 1.5 kilograms of cannabis. He was engaged in the procurement of drug raw materials - he dried and crushed the grown plants. According to "black market" prices, the value of the confiscated item was UAH 500,000. The citizen was detained in accordance with Art. 208 of the Criminal Procedure Code of Ukraine. Narcotic plants were sent for expert research. Currently, the issue of serving the husband with a notice of suspicion pursuant to Part 2 of Art. 310 (sowing or cultivation of hypnotic poppy or hemp) of the Criminal Code of Ukraine and choosing a preventive measure in the form of detention [27].

Forensic and pharmaceutical example No. 2. The Spanish police arrested 30 people accused of smuggling cannabis, which was disguised as aid to Ukraine [28, 29]. Ukrainians, Spaniards, Germans, and Moroccans were among those detained in the Andalusia region. The drugs came from

all over the southern region, were packed in cardboard boxes and traveled in convoys through several countries. The police discovered a group of Ukrainians on the Costa del Sol who collected marijuana and stored it in an apartment in Mijas near Malaga. The drugs were packed in vacuum bags and placed in cardboard boxes in minibuses. Registered in Ukraine, headed as a solidarity column so they could pass under the police and border control radar. Police seized almost €800,000 (£690,000; US\$847,000), six firearms and 2,500 cannabis plants during raids in Malaga province and the southern cities of Granada, Córdoba, and Seville.

Forensic and pharmaceutical example No. 3. Under the procedural guidance of the Ivano-Frankivsk District Prosecutor's Office, a 59-year-old local resident was informed of the suspicion of illegal manufacture and storage for the purpose of selling a particularly dangerous drug in particularly large quantities, as well as illegal sowing and cultivation of hemp (Part 3 of Article 307, Part 2 Article 310 of the Criminal Code of Ukraine) [30]. According to the investigation, in the spring of 2022, the perpetrator grew narcotic cannabis plants on the dam of the Dniester River in the Ivano-Frankivsk district. He sowed and tended them, then harvested, dried, and stored them for sale. During the search of his place of residence, more than 13 kg of a particularly dangerous narcotic drug – cannabis, as well as more than 20 kg of hemp seeds - were discovered and seized. The value of the seized at "black market" prices is more than UAH 2 million. A petition was sent to the court for an election regarding the suspect's preventive measure in the form of detention.

Forensic and pharmaceutical example No. 4. In Lviv, the police detained a "pawnbroker" [31]. Investigators of the territorial division of the police opened criminal proceedings under Part 1 of Article 307 (illegal production, manufacture, acquisition, storage, transportation, forwarding or sale of narcotic drugs, psychotropic substances) [27]. During the pre-trial investigation, it was established that in the city of Lviv, the soldiers of the police battalion detained a 23-year-old man, who had with him 26 rolls ("bookmarks") with a substance of green vegetable origin, outwardly similar to "cannabis". In addition, he has already managed to lay out several "bookmarks" for citizens who consume narcotic drugs, which were later also discovered by law enforcement officers. The prohibited substances seized from him were sent for forensic pharmaceutical examination. The perpetrator was detained in accordance with Article 208 of the Criminal Procedure Code of Ukraine. Investigations are ongoing.

A publication by Yeung J. indicates that two years later cannabidiol flourished in Hong Kong [32, 33]. Known as the CBD, cafes, restaurants, and shops have sprung up as businesses look to tap into an exciting new market already well established in countries around the world. CBD is a chemical found in hemp and marijuana. CBD is often marketed to relieve pain, inflammation, stress, and anxiety. In recent years, CBD has gained popularity all over the world. Brands add it to shampoos, drinks, body oils, and dog treats. In the US and Europe, CBD is available in coffee shops, farmers markets, department stores, and even the CVS pharmacy chain. Hong Kong has banned CBD as a "dangerous drug". He introduced severe penalties for its storage from February 01, 2023. Possession and consumption of any amount of CBD is a criminal offence:

- seven years in prison and a fine of 1 million Hong Kong dollars (\$127,607);
- life imprisonment for sales (production, import or export).

In June 2022, Thailand became the first country in Asia to legalize the use of marijuana for medical purposes. But, as Strangio S. writes, the booming leisure market caused a sharp negative reaction [34]. Consumption of food with marijuana by teenagers led to hospitalization. The authorities have introduced several separate regulations that clarify that cannabis cannot be sold to children, near schools, and temples. Strict limits have been set on the amount of tetrahydrocannabinoids in food products and medicines. Hasty legalization of cannabis in Thailand, according to Chalermphanupap T. [35], threatens to derail A's efforts to create a "Drug Free" community.

However, Japan is the only one among the G7 countries, as Christensen P. (Rose-Hulman Institute of Technology) points out, adheres to the approach of the need to perpetuate harm, stigma, and suffering. The report "Drug Use, Regulations and Policies in Japan" (April 2020) by the International Drug Policy Consortium and the Japan Drug Policy Advocacy Network describes Japan's approach, noting that it has a drug policy that "focuses on prohibition and punishment" [36].

Thus, at meetings of Alcoholics Anonymous, Narcotics Anonymous and danshukai (sobriety association) in Tokyo, the unifying factor is the pain and suffering of drug addicts and their families.

The family of Thangaraj Suppiah (46), a citizen of the state of Singapore, who is to be hanged for the illegal circulation of 1 kg of cannabis (for conspiracy to smuggle a narcotic drug), pleaded with the authorities for clemency and a retrial of the case for which he was convicted in 2018 to the death penalty. The Court of Appeal upheld the verdict [37].

Men are the most drug addicts in the world. In Europe, women make up only one fifth of all patients undergoing drug addiction treatment [38]. But women increase the dose much faster and are more prone to the formation of drug addiction. In Ukraine, drug-addicted women are discriminated against. From doctors – their reproductive rights are violated during pregnancy. From domestic violence – it is not always possible to start treatment due to the prohibition of men. They do not receive proper help from the police. From social services – there is a risk of deprivation of parental rights.

In Ukraine, the Cabinet of Ministers Resolution dated April 06, 2021 No. 324 added changes to the list of narcotic drugs, psychotropic substances, and precursors (<https://www.kmu.gov.ua/npas/pro-vnesennya-zmin-do-pereliku-narkoticnih-zasobiv-psihotropnih-rechovin-i-prekursoriv-i070421-324>). Introduced psychotropic substances Nabilon (Dronabinol, synthetic cannabinoid, simulating the effect of tetrahydrocannabinoids); Nabiximols (THC, a standardized cannabis extract with the same content of tetrahydrocannabinoids and cannabidiol). The circulation of psychotropic substances Dronabinol, Nabilone and Nabiximols is allowed only in the form of medicinal products or in the form of substances intended for the production and manufacture of such medicinal products. Arunyan O. explains exactly which medicines were allowed by the Cabinet of Ministers. According to supporters of legalization, the decision of the Cabinet of Ministers does not make life easier for the majority of Ukrainian patients who need cannabis, but, on the contrary, harms it [39]. Nabilone is an anti-nausea and vomiting pill for cancer patients undergoing chemotherapy. It is also used in the treatment of chronic pain. This is not planting tetrahydrocannabinol, but its chemical copy, synthesized in the laboratory. Nabiximols is a spray to relieve pain and spasms in multiple sclerosis.

According to patient organizations, it is possible to legalize medical cannabis. There are several options. The Ministry of Veterans proposed to reduce the control regime of cannabis: to transfer it from the list of narcotics, the circulation of which is prohibited, to the list of narcotics, the circulation of which can be carried out with the presence of a license. Another approach is proposed by Stefanyshina O. She believes that it is necessary to write separately in the law "On narcotic drugs": medicinal cannabis can be used for medical purposes under the condition of proper control. Both approaches suit supporters of legalizing medical marijuana. In their opinion, if such a resolution or law is adopted, in Ukraine, first of all, any imported drugs based on cannabis may appear. Second, domestic companies will be able to produce their cannabis preparations.

With the use of a multidisciplinary approach, the scientific sources, and organizational principles for the provision of drugs to drug addicts with cannabinoid dependence were analyzed. A comprehensive approach was used with the inclusion of control-licensing and medical-pharmaceutical measures from the standpoint of forensic pharmacy, forensic narcology, clinical pharmacy, and clinical pharmacology on the basis of pharmaceutical law [40-51]. The main factors that must be taken into account when developing control and permitting measures to combat the growth of illegal cannabinoid circulation, drug crime, falsified alcoholic beverages, and other types of addiction against the background of the coronavirus disease and socially dangerous infections are clarified [52-61]:

- ✓ lack of financing of relevant medical and pharmaceutical programs to provide drugs to patients with addictive addiction;
- ✓ imperfection of the current legislation in the field of health care;
- ✓ ineffective application of anti-narcotics criminal and administrative legislation;
- ✓ the presence in Ukraine of a wide raw material narcotic base of plant origin and "favorable" criminal law conditions for its supply from abroad.

At the next stage of the forensic-pharmaceutical study of the demand for independent and combined abuse of cannabinoids with psychoactive substances of various classification and legal groups by illegal users, through a questionnaire of law enforcement specialists, it was proven that the following combinations were abused: cannabinoids + tobacco (35.71%); cannabinoids + alcohol (26.67%); cannabinoids + tramadol (40.00%); cannabinoids + pervitin (50.00%); cannabinoids + opium (1.43%). The control regime for the assessment of the classification-legal, clinical-pharmacological, nomenclature-legal group of psychoactive substances abused by illegal consumers is defined.

Based on the results of the study, the author proposed normative initiatives to the deputies of the Verkhovna Rada of Ukraine on introducing changes and additions to the following normative and legal acts to increase the availability of pharmacotherapy for cannabinoid drug addicts. To the Law of Ukraine "On Measures to Combat Illegal Trafficking in Narcotic Drugs, Psychotropic Substances and Precursors and Their Abuse":

- ➔ Art. 1: "Voluntary treatment", "forced treatment".
- ➔ Art. 14: "Voluntary treatment of persons suffering from drug addiction".
- ➔ Art. 15. "Reimbursement of expenses for medical examination, medical examination or treatment, to be excluded, and in case of need for additional medical services - at the expense of the person for whom the medical examination, medical examination or treatment is carried out".
- ➔ Art. 16: "Compulsory treatment of persons suffering from drug addiction".

To the Decree of the Cabinet of Ministers of Ukraine dated August 17, 1998 No. 1303 "On regulation of free and subsidized dispensing of medicines according to doctors' prescriptions in the case of outpatient treatment of certain groups of the population and for certain categories of diseases."

Conclusions. A study of cannabinoid addiction was conducted through a multidisciplinary forensic and pharmaceutical, clinical and pharmacological, medical, organizational and legal study. Data from the scientific literature on the current state of the spread of addiction to psychoactive substances of plant origin – cannabinoids was systematized. The problem of cannabinoid addiction in the world and in Ukraine has been studied. Typical cases from the legal and pharmaceutical practice of the illegal circulation of cannabis were analyzed. Combinations of cannabinoid abuse with tobacco have been proven (35.71%); alcohol (26.67%); tramadol (40.00%); pervitin (50.00%); opium (1.43%). The classification-legal, clinical-pharmacological, nomenclature-legal groups of psychoactive substances abused by illegal consumers have been worked out. Normative initiatives have been developed and proposed to increase the availability of pharmacotherapy for cannabinoid drug addicts.

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