

ASSESSING THE READINESS OF HEALTHCARE PROFESSIONALS FOR PRESCRIBING AND DISPENSING CANNABIDIOL PRODUCTS IN BULGARIA

Tanya Gesheva

Department of Healthcare Management, Faculty of Public Health, Medical University – Plovdiv,
Bulgaria, Tanya.Gesheva@mu-plovdiv.bg

Anna Mihaylova

Department of Healthcare Management, Faculty of Public Health, Medical University – Plovdiv,
Bulgaria, Anna.Mihaylova@mu-plovdiv.bg

Abstract: The aim of this study was to evaluate the attitudes, level of awareness, and readiness of healthcare professionals in Bulgaria to prescribe and dispense cannabidiol (CBD)-containing products, as well as to identify the main barriers to their implementation in clinical practice.

A questionnaire-based cross-sectional study was conducted over a six-month period among 54 healthcare professionals in Bulgaria. The participants included physicians, pharmacists, assistant pharmacists, and dentists from urban, small-town, and rural settings. Demographic and professional characteristics were collected, and respondents' perceptions regarding the safety, efficacy, regulation, and clinical applicability of CBD products were analyzed.

Most respondents demonstrated a moderately positive but cautious attitude toward the therapeutic use of CBD. Participants generally considered CBD to have a favorable safety profile and recognized its potential role in symptom management, particularly in chronic pain and anxiety associated with neurodegenerative diseases. However, a substantial proportion of healthcare professionals reported insufficient confidence in the available clinical evidence supporting widespread therapeutic use. The absence of clear national regulations, standardized prescribing protocols, dosing recommendations, and quality control mechanisms was identified as a major obstacle to routine implementation. Correlation analysis revealed that respondents with higher levels of knowledge and awareness were more likely to recommend CBD products in clinical practice.

CBD is increasingly recognized by healthcare professionals as a promising therapeutic option with potential clinical benefits and acceptable tolerability. Nevertheless, its integration into routine medical practice in Bulgaria remains limited due to insufficient clinical evidence for certain indications, lack of regulatory clarity, absence of national clinical guidelines, and inadequate professional training.

To support the responsible implementation of CBD-containing products in healthcare practice, it is necessary to establish national regulatory frameworks and evidence-based clinical guidelines. Additional professional education and training programs should be developed to improve healthcare professionals' knowledge regarding indications, dosing, drug interactions, monitoring, and safety assessment. Standardization and quality assurance of CBD products are also strongly recommended.

Among the 54 participants, 81.5% worked in a large regional city, 13.0% in small towns, and 5.6% in rural areas. Women represented 61.1% of respondents, while men accounted for 38.9%. The largest age group was 41–50 years (46.3%). Physicians constituted 42.6% of participants, followed by pharmacists (25.9%), assistant pharmacists (16.7%), and dentists (14.8%).

Keywords: healthcare professionals, cannabidiol products, prescribing, dispensing

1. INTRODUCTION

In recent years, interest in cannabidiol (CBD) has significantly increased worldwide as a subject of scientific research, clinical practice, and public debate. The growing body of evidence regarding its therapeutic properties raises questions about its role in the management of symptoms such as chronic pain, anxiety, muscle spasms, and sleep disorders, particularly in patients with neurodegenerative and other chronic diseases. These conditions are often characterized by persistent pain syndromes, emotional instability, and reduced quality of life, which necessitates the implementation of new, more effective, and safer therapeutic approaches.

The aim of the present study was to evaluate the readiness, awareness, and attitudes of healthcare professionals in Bulgaria regarding the prescribing and dispensing of cannabidiol (CBD)-containing products, as well as to identify the main barriers to their implementation in clinical practice. Furthermore, understanding healthcare professionals' perspectives is essential for identifying gaps between current scientific knowledge and its practical application in clinical settings. Their attitudes toward CBD are likely influenced not only by available evidence, but also by institutional policies, personal clinical experience, and access to continuing medical education. Evaluating these factors can provide valuable insight into how CBD-related knowledge is formed and how it can be improved in a structured and sustainable way.

In this context, the present study may contribute to the development of targeted educational strategies and policy recommendations aimed at facilitating the safe and effective use of CBD in clinical practice. By addressing existing barriers and enhancing professional competence, it may be possible to support more consistent and evidence-based decision-making regarding cannabinoid-based therapies in Bulgaria.

2. MATERIALS AND METHODS

A questionnaire-based study was conducted over a six-month period among 54 healthcare professionals in Bulgaria. The study included physicians, pharmacists, assistant pharmacists, and dentists from large cities, small towns, and rural areas. Demographic characteristics, professional profiles, and participants' attitudes regarding the safety, efficacy, regulation, and therapeutic application of CBD products were analyzed.

In addition, the questionnaire assessed participants' level of knowledge, sources of information, and prior clinical or professional experience with cannabinoid-based products. Particular attention was given to perceived barriers to prescribing or dispensing CBD, including regulatory uncertainty, lack of standardized clinical guidelines, limited access to scientific evidence, and concerns related to product quality and safety. The study also explored the willingness of healthcare professionals to recommend CBD under specific clinical conditions, as well as their perceived need for additional training and continuing medical education in this field.

Furthermore, comparative analyses were performed across different professional groups and geographic regions in order to identify potential variations in attitudes and knowledge. The results aimed to provide a clearer understanding of how CBD was perceived within the Bulgarian healthcare system and to inform future strategies for education, regulation, and clinical integration of cannabinoid-based therapies.

3. RESULTS

Most respondents identified themselves as partially or well-versed in the therapeutic applications of CBD, while a small proportion reported being unfamiliar with it. The results suggested that CBD had already entered medical practice; however, knowledge remained fragmented and unstructured. Most respondents considered CBD to be "rather safe" or "safe," whereas only a few perceived it as risky.

The majority of participants believed that the regulatory framework in Bulgaria was unclear, identifying it as the strongest barrier to prescribing and dispensing CBD products. Most healthcare professionals indicated that they would recommend the use of CBD products for certain conditions. Increased access to scientific information was associated with improved knowledge and a greater willingness to make recommendations. Willingness to recommend CBD did not depend primarily on personal beliefs, but rather on knowledge, confidence in safety, available scientific evidence, and a clear legal framework.

Respondents overwhelmingly emphasized the need for additional training and professional seminars to clarify the medical benefits of CBD, alongside the development of official clinical guidelines, increased clinical research, public information campaigns, and clearer differentiation between CBD and THC. Reported advantages of CBD included its natural origin, good tolerability, low risk of serious adverse effects, and beneficial effects on stress, anxiety, pain, and insomnia. Reported risks included legal uncertainty, inconsistent product quality, lack of standardized dosing, and potential drug interactions.

Healthcare professionals demonstrated a professionally motivated cautious attitude. The absence of clear national regulations regarding product quality, dosing, indications, and pharmacovigilance limited the integration of CBD into routine clinical practice, despite its generally favorable safety profile.

Furthermore, the findings indicated that healthcare professionals were increasingly aware of the growing international interest in cannabinoid-based therapies and their potential role in complementary and supportive treatment strategies. However, many respondents expressed uncertainty regarding appropriate clinical indications, optimal dosing regimens, duration of treatment, and long-term safety monitoring. This uncertainty reflected the limited integration of cannabinoid-related education into formal medical and pharmaceutical curricula.

Another important finding was the perceived need for stronger institutional support and evidence-based policy development. Participants emphasized that clearer governmental regulations and officially approved therapeutic protocols would increase both professional confidence and patient safety. In addition, the lack of standardized and quality-controlled CBD products on the market was identified as a major barrier to broader clinical implementation, with concerns regarding inconsistent concentrations, inaccurate labeling, and variability between products.

The results also suggested that patients increasingly sought information about CBD products from healthcare professionals, placing physicians and pharmacists in a challenging position in the absence of reliable national guidance. As patient interest continued to grow, healthcare professionals reported increased pressure to provide informed recommendations despite limitations in regulatory clarity and clinical evidence. This highlighted the

importance of continuing education programs focused on cannabinoid pharmacology, therapeutic applications, contraindications, and patient counseling.

In addition, respondents emphasized the importance of distinguishing medical CBD products from recreational cannabis use. Many participants noted that public misconceptions and social stigma surrounding cannabis continued to influence professional attitudes and may hinder open discussion of its therapeutic potential. Educational campaigns targeting both healthcare professionals and the general public were considered necessary to improve understanding and reduce misinformation.

Overall, the findings demonstrated that healthcare professionals in Bulgaria maintained a balanced and evidence-oriented perspective regarding CBD use. While respondents acknowledged its potential therapeutic benefits and generally perceived it as safe, they emphasized the need for stronger scientific evidence, regulatory transparency, product standardization, and professional education before CBD could be more fully integrated into mainstream clinical practice.

4. DISCUSSIONS

Research supports the understanding that CBD has emerged as a relevant therapeutic topic, but its clinical application is hampered by (1) an incomplete evidence base for some indications, (2) a lack of regulatory clarity, (3) the absence of national clinical guidelines, and (4) the need for education of healthcare professionals. In order to responsibly integrate CBD into medical practice, the development of formal algorithms for prescribing, dosing, monitoring, and safety assessment, as well as standardization of product quality, is necessary. It would be beneficial to include CBD in educational programs for pharmacists and physicians, focusing on:

its mechanisms of action, its interactions (especially with antiepileptics, antidepressants, antiparkinsonian medications), and its safe use. It is necessary to formulate a clear national framework that defines: permissible concentrations and forms of CBD; quality standards (GMP, CoA); labeling requirements; conditions for advertising and health claims; initiation of monitoring and pharmacovigilance for CBD products used for therapeutic purposes. Future research needs to conduct clinical and observational studies focused on patients with neurodegenerative diseases to determine the real therapeutic potential of CBD; establish a national registry of patients using CBD to analyze efficacy, safety, and interactions.

Moreover, interdisciplinary collaboration between physicians, pharmacists, researchers, and regulatory authorities will be essential for the successful integration of CBD into healthcare systems. A coordinated approach could facilitate the development of unified clinical recommendations, improve access to reliable scientific information, and support safer patient-centered care. Increased international collaboration and comparison with regulatory models from other countries may also help Bulgaria adopt more effective standards for the therapeutic use of CBD products. At the same time, ethical considerations related to informed consent, and responsible prescribing should remain central in future discussions regarding cannabinoid-based therapies. As scientific evidence continues to evolve, healthcare professionals will play a key role in balancing potential therapeutic benefits with possible risks, ensuring that CBD is used appropriately, safely, and according to evidence-based medical principles.

5. CONCLUSIONS

Cannabidiol is perceived as a promising therapeutic option with potential clinical benefits and good tolerability. Nevertheless, its integration into medical practice in Bulgaria remains limited due to insufficient evidence for certain indications, unclear regulatory frameworks, the absence of national clinical guidelines, and the need for additional training and education of healthcare professionals.

Cannabidiol is perceived as a promising therapeutic option with potential clinical benefits and good tolerability. Nevertheless, its integration into medical practice in Bulgaria remains limited due to insufficient evidence for certain indications, unclear regulatory frameworks, the absence of national clinical guidelines, and the need for additional training and education of healthcare professionals. In addition, variability in product quality, lack of standardized dosing protocols, and limited pharmacovigilance systems further constrain its routine clinical use. Strengthening the scientific evidence base through well-designed clinical trials, alongside the development of clear prescribing standards and regulatory harmonization, would be essential steps toward ensuring its safe and effective implementation in healthcare practice.

REFERENCES

- European Medicines Agency. (2022). Questions and answers on cannabidiol (CBD) products. European Medicines Agency.
- Gómez, S. (2025). *Top medical conditions treated with cannabis: Evidence-based approaches*. Asociación Médica Colombiana de Cannabis Medicinal.

- Häuser, W., Petzke, F., & Fitzcharles, M. A. (2018). Efficacy, tolerability and safety of cannabis-based medicines for chronic pain management. *European Journal of Pain*, 22(3), 455–470. <https://doi.org/10.1002/ejp.1118>
- Huestis, M., Solimini, R., Pichini, S., Pacifici, R., Carlier, J., & Busardò, F. (2019). Cannabidiol adverse effects and toxicity. *Current Neuropharmacology*, 17(10), 974–989. <https://doi.org/10.2174/1570159X1766619060317190pain>. *Current Rheumatology Reports*, 19(11), 67. <https://doi.org/10.1007/s11926-017-0693-1>
- Iffland, K., & Grotenhermen, F. (2017). An update on safety and side effects of cannabidiol: A review of clinical data and relevant animal studies. *Cannabis and Cannabinoid Research*, 2(1), 139–154. <https://doi.org/10.1089/can.2016.0034>
- Larsen, C., & Shahinas, J. (2020). Dosage, efficacy and safety of cannabidiol administration in adults: A systematic review of human trials. *Journal of Clinical Medicine Research*, 12(3), 129–141.
- Leinen, Z., Mohan, R., Premadasa, L., Acharya, A., Mohan, M., & Byrareddy, S. (2023). Therapeutic potential of cannabis: A comprehensive review of current and future applications. *Biomedicines*, 11(10), 2630. <https://doi.org/10.3390/biomedicines11102630>
- MacCallum, C. A., & Russo, E. B. (2018). Practical considerations in medical cannabis administration and dosing. *European Journal of Internal Medicine*, 49, 12–19. <https://doi.org/10.1016/j.ejim.2018.01.004>
- Millar, S. A., Stone, N. L., Bellman, Z. D., Yates, A. S., England, T. J., & O’Sullivan, S. E. (2019). A systematic review of cannabidiol dosing in clinical populations. *British Journal of Clinical Pharmacology*, 85(9), 1888–1900.
- Millar, S. A., Stone, N. L., Yates, A. S., & O’Sullivan, S. E. (2018). A systematic review on the pharmacokinetics of cannabidiol in humans. *Frontiers in Pharmacology*, 9, Article 1365. <https://doi.org/10.3389/fphar.2018.01365>
- National Academies of Sciences, Engineering, and Medicine. (2017). The health effects of cannabis and cannabinoids: The current state of evidence and recommendations for research. The National Academies Press. <https://doi.org/10.17226/24625>
- Noel, C. (2018). Evidence for the use of “medical marijuana” in psychiatric and neurologic disorders. *Mental Health Clinician*, 7(1), 29–38. <https://doi.org/10.9740/mhc.2017.01.029>
- Ożarowski, M., Karpiński, T., Zielińska, A., Souto, E., & Wielgus, K. (2021). Cannabidiol in neurological and neoplastic diseases: Latest developments on the molecular mechanism of action. *International Journal of Molecular Sciences*, 22(9), 4294. <https://doi.org/10.3390/ijms22094294> <https://doi.org/10.1111/bcp.14038> <https://doi.org/10.1016/j.neuropharm.2024.110012>
- Pagano, C., Navarra, G., Coppola, L., Avilia, G., Bifulco, M., & Laezza, C. (2022). Cannabinoids: Therapeutic use in clinical practice. *International Journal of Molecular Sciences*, 23(6). <https://doi.org/10.3390/ijms23063291>
- Pamplona, F. A., da Silva, L. R., & Coan, A. C. (2023). Potential clinical benefits of CBD-rich cannabis extracts over purified CBD in treatment-resistant epilepsy. *Frontiers in Neurology*, 14, 1178932. <https://doi.org/10.3389/fneur.2023.1178932>
- Pertwee, R. G. (2001). *Cannabinoid receptors and pain*. *Progress in Neurobiology*, 63, 569–611. [https://doi.org/10.1016/S0301-0082\(00\)00031-9](https://doi.org/10.1016/S0301-0082(00)00031-9)
- Romero-Sandoval, E., Kolano, A., & Alvarado-Vázquez, P. (2017). Cannabis and cannabinoids for chronic
- Sagar, K. A., Dahlgren, M. K., Lambros, A. M., Smith, R. T., El-Abboud, C., & Gruber, S. A. (2021). An observational, longitudinal study of cognition in medical cannabis patients over the course of 12 months of treatment: Preliminary results. *Journal of the International Neuropsychological Society*, 27(6), 648–660. <https://doi.org/10.1017/S1355617721000114>
- Trojan, V., Landa, L., Šulcová, A., Slíva, J., & Hřib, R. (2023). *The main therapeutic applications of cannabidiol (CBD) and its potential effects on aging with respect to Alzheimer’s disease*. *Biomolecules*, 13(10), 1446. <https://doi.org/10.3390/biom13101446>
- U.S. Food and Drug Administration. (2023). Cannabidiol (CBD) and cannabis: Research and drug approval process. U.S. Food and Drug Administration.
- Wiley, J., Gourdet, C. K., & Thomas, B. F. (2020). *Cannabidiol: Science, marketing, and legal perspectives*. RTI Press. <https://doi.org/10.3768/rtipress.2020.op.0065.2004>
- World Health Organization. (2018). Cannabidiol (CBD) critical review report. World Health Organization.
- Xu, D. H., Cullen, B. D., Tang, M., & Fang, Y. (2022). The effectiveness of cannabidiol in anxiety disorders: A systematic review and meta-analysis. *Journal of Clinical Medicine*, 11(19), 5673. <https://doi.org/10.3390/jcm11195673>
- Zhornitsky, S., & Potvin, S. (2021). Cannabidiol in humans-The quest for therapeutic targets. *Pharmaceuticals*, 14(9), 873. <https://doi.org/10.3390/ph14090873>

- Zuardi, A. W. (2008). Cannabidiol: From an inactive cannabinoid to a drug with wide spectrum of action. *Brazilian Journal of Psychiatry*, 30(3), 271–280. <https://doi.org/10.1590/S1516-44462008000300015>
- Zurolo, E., Iannotti, F. A., & Di Marzo, V. (2024). Cannabidiol and neurological disorders: Recent advances and future perspectives. *Neuropharmacology*, 248, 110012.