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The use of medicinal cannabis in anxiety disorders: Benefits and risks

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Ana Luysa Miranda Alves 1
Patricia Silvestre Limeira 2

ABSTRACT

Anxiety is one of the fastest-growing mental disorders today, significantly affecting individuals' quality of life. In this context, medicinal cannabis has been studied as a complementary alternative in the treatment of anxiety disorders, mainly due to the action of its phytocannabinoids—cannabidiol (CBD) and tetrahydrocannabinol (THC)—on the endocannabinoid system. This study aimed to identify the benefits and risks associated with the use of this medicinal method, addressing its main mechanisms of action, therapeutic effects, and harmful effects on health. This is a descriptive and qualitative research study, using the narrative review technique, based on the analysis of scientific articles on the subject. The analyzed studies showed promising results regarding the active compounds of cannabis, especially CBD and THC. However, further scientific investigations are still needed to expand knowledge about the plant, its active compounds, and its safe and effective therapeutic applications.

Keywords: Cannabis; anxiety; disorder; THC; treatment.

ABSTRACT

Anxiety is one of the fastest-growing mental health disorders today, significantly affecting people's health
quality of life. In light of this, medical cannabis has been studied as a complementary alternative in the treatment of anxiety disorders, primarily due to the action of its phytocannabinoid compounds, cannabidiol (CBD) and tetrahydrocannabinol (THC), on the endocannabinoid system. The objective of this study was to identify the benefits and risks of this medicinal method, including its main mechanisms of action, therapeutic effects, and adverse health effects. This is a descriptive, qualitative study using a narrative review technique based on the analysis of scientific articles on the topic. The analyzed studies showed promising results related to the active compounds in cannabis, especially CBD and THC. However, further scientific investigation is still needed to expand knowledge about the plant, its active compounds, and its therapeutic applications safely and effectively.
Keywords: Cannabis; anxiety; disorders; THC; treatment.

INTRODUCTION

Anxiety is a natural emotion that represents a warning signal from the body in certain situations. of danger or threat, which may be real or imagined; however, when it occurs frequently and If disproportionate, it can constitute a health problem that should be treated by a doctor. psychiatrist. (Brazil, 2024). Research from the World Health Organization (WHO) indicates that Brazil It is the country with the highest prevalence of anxiety cases in the world. Approximately 18 million Brazilians live with anxiety, which represents 9.3% of the population (Brazil, 2023).

The most commonly used treatments for anxiety disorders today are based on... Psychotherapy and the use of medication. Psychotherapy, especially Cognitive Therapy-Behavioral therapy (CBT) is considered the first-line approach and is primarily indicated.

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for mild and moderate cases (Almeida; Marinho, 2021). In the pharmacological field, the following stand out: antidepressants, such as selective serotonin reuptake inhibitors (SSRIs), which increase the serotonin availability in the brain, and serotonin and norepinephrine reuptake inhibitors. (SNRIs), which act on both neurotransmitters. In addition, benzodiazepines can be used in specific situations, usually for a short period, due to the risk of dependence, being more suitable for more serious cases and for acute anxiety attacks. (Andreatini; Boerngen; Zorzetto, 2001).

The *Cannabis sativa* plant contains over 400 chemical compounds, of which approximately 60 are... classified as cannabinoids (ISSA, 2015). Among these, cannabidiol (CBD) and... stand out. tetrahydrocannabinol (ÿÿ-THC), which exhibit distinct pharmacological properties. CBD has It has been extensively studied for its therapeutic potential, as it does not have psychoactive effects. and may exhibit anxiolytic and calming properties. On the other hand, THC has effects Psychoactive, analgesic, and euphoric effects, often associated with recreational use. Furthermore, Its use may be associated with worsening anxiety symptoms and triggering... Psychotic episodes in predisposed individuals. (Leinen et al., 2023).

Marijuana is the most widely used illicit drug in the world, according to data from the Office of... According to the United Nations Office on Drugs and Crime (UNODC), it is estimated that in 2021, approximately 219 million adults have used cannabis, which is equivalent to 4.3% of the world's adult population (UNODC, (2023). Its recreational use is associated with several health risks. Young people under 21 who Those who used this substance during adolescence are at risk of developing cognitive problems later in life. adulthood. (Bhangu et al.,2025).

However, when used therapeutically, it can be beneficial in the treatment of various conditions. conditions such as anxiety, post-traumatic stress disorder, autism, among other illnesses, One A study conducted by researchers at the College of Osteopathic Medicine 2024 in Philadelphia indicates that the medicinal use of cannabis sativa contributes to improving the quality of life of People, volunteers who participated in the research, reported that there was an improvement greater than 20% of physical health and emotional well-being (Pcom, 2024).

This study seeks to understand the scientific research on the use of cannabis in treatment. anxiety, analyzing the risks associated with both side effects and misuse of this substance, as well as the benefits related to improving quality of life when used for medicinal purposes.

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METHODOLOGY

This study consists of descriptive and qualitative research, which uses a review.
A narrative about the use of medicinal cannabis in the treatment of anxiety disorders, with emphasis
in the therapeutic effects of cannabinoids and the possible risks associated with the use of the plant. The
A literature review was conducted between 2024 and 2026, using the PubMed database and...
Official government reports were included. Articles published in both Portuguese and English were also included.
preferably from the last 10 years and related to the topic. Exclusion criteria included...
Studies published before 2016 and works not directly related to the research were disregarded.

For the search strategy, the Health Sciences Descriptors (DeCS) were used:
Cannabis, Marijuana, Treatment, Anxiety, and Anxiety Disorders, combined by the operators.
Boolean operators AND and OR. Among the strategies used, the following stand out: ("Cannabis" AND "Anxiety"
AND "Treatment"), ("Medical Cannabis" AND
"Anxiety") and ("Marijuana" OR "Cannabis" AND "Anxiety"). After applying the criteria of
Inclusion and exclusion criteria were used; the titles and abstracts of the identified articles were evaluated, and the following were selected.
only the studies relevant to the proposed discussion.

RESULTS

Based on the structured search conducted in the selected databases, the following were identified:
Initially, 16,444 studies were selected without a time frame. With the filters applied, the following was obtained:
590 studies related to the proposed topic. Among these, the selection of studies was made through...
Based on reading titles and abstracts and applying inclusion and exclusion criteria, 10 were selected.
articles to be included in the integrative review.

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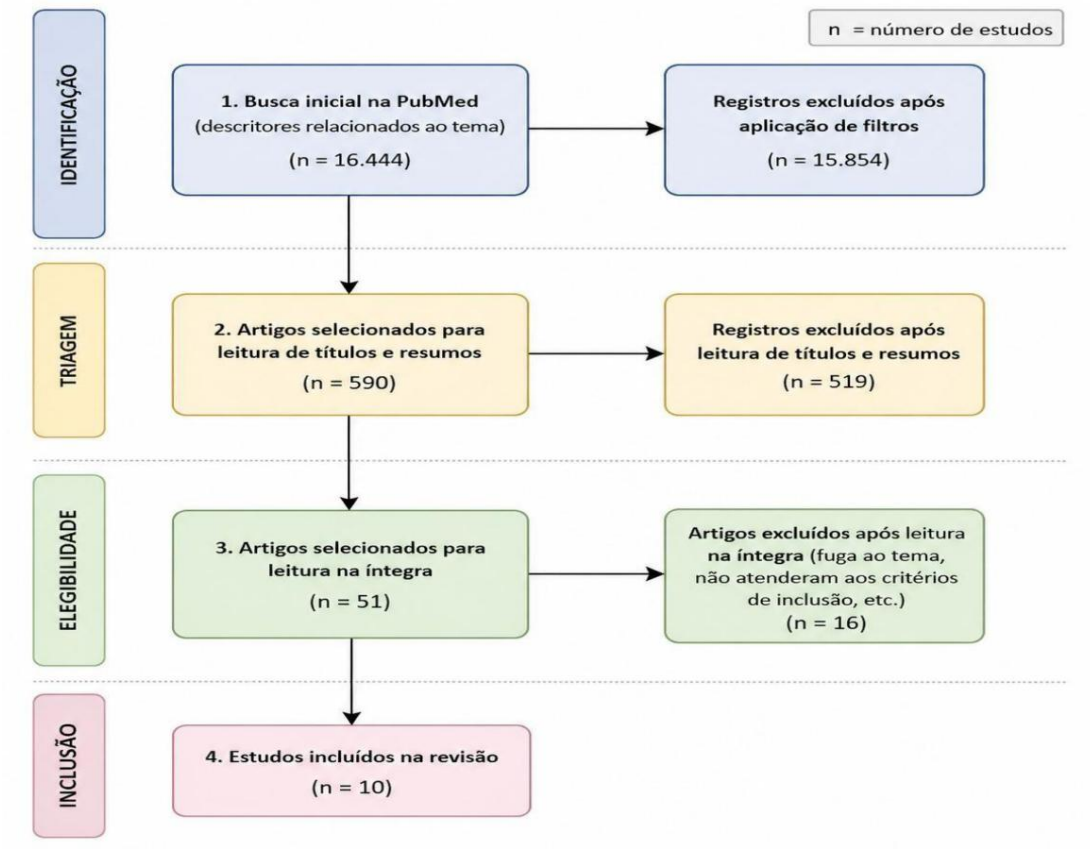

Figure 1. Flowchart indicating the selection of articles in the PubMed database.

The studies included in this review analyzed the medicinal use of cannabis as A therapeutic approach in the treatment of anxiety disorders, highlighting its potential effects. Anxiolytics, clinical benefits, and potential adverse effects associated with the use of cannabinoids. In addition In addition, the articles assessed efficacy, safety, and therapeutic applicability.

TABLE 1 – Characteristics of the included scientific articles.

Title	Authors	Year	Objective	Results
Pharmacology of Medical Cannabis	Md Ruhul Amin, Declan W Ali	2019	Describe the pharmacological potential of medicinal cannabis, focusing on its mechanisms of action.	Studies have shown that THC and CBD have great pharmacological potential due to their anti-inflammatory, anticonvulsant, and neuroprotective benefits; however, the lack of more in-depth clinical studies in this area limits their use.
Adverse Effects of Recreational and Medical Cannabis	Ivan Urits, Karina Charipova, Kyle Gress,	2021	Understanding the various adverse effects associated with medicinal use and	It helps in the treatment of chronic pain, however the available evidence is of low quality.

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	Nathan Li, Amnon A Berger, Elyse M Cornett, Hisham Kassem, Anh L Ngo, Alan D Kaye, Omar Viswanath.		The aim is to discuss the recreational use of this substance, as well as its use in the treatment of chronic diseases, in addition to its cognitive impacts and the risks of addiction.	methodological and point to a risk of dependence associated with prolonged use.
Risks and Benefits of Cannabis and Cannabinoids in Psychiatry: A Review of Evidence	Kevin P Hill, Mark S Gold, Charles B Nemeroff, William McDonald, Adrienne Grzenda, Alik S Widge, Carolyn Rodriguez, Nina V Kraguljac, John H Krystal, Linda L Carpenter	2022	Discuss the available scientific evidence on the clinical use of cannabis in different clinical conditions, considering Your safety and therapeutic limitations.	With more consistent evidence on the use of cannabinoids in the management of pain and spasticity. However, there is still little evidence to support its use in the treatment of psychiatric disorders, in addition to the absence of psychiatric indications approved by the FDA (Food and Drug Administration).
Cannabinoids: Therapeutic Use in Clinical Practice	Cristina Pagan, Giovanna Navarre, Laura Coppola, Giorgio Avilia, Maurizio Bifulco, Chiara Laezza	2022	Highlight the therapeutic potential of natural and synthetic cannabinoids in the treatment of different diseases, as well as advances in understanding the endocannabinoid system.	The involvement of the endocannabinoid system in physiological functions and various pathological processes has contributed to the development of cannabinoid-based medications with greater efficacy and safety. However, further studies are still needed. to expand knowledge about potential therapeutic targets and better understand the pharmacological effects of other, less explored phytocannabinoids.
Medicinal cannabis for the treatment of anxiety disorders	Maximus Berger, G Paul Amminger,	2022	Analyze clinical use The use of cannabis in anxiety, considering the forms of prescription,	Research has shown anxiolytic effects of CBD, although there is still no definitive proof. sufficient material for in-depth studies for

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	Iain S McGregor		The therapeutic effects and potential associated risks.	recommending CBD as a first-line treatment; cannabinoids derived from THC have shown mixed results, potentially alleviating or worsening anxiety symptoms. Furthermore, reinforces the need for proper monitoring. and monitored dosages.
An Overview of Cannabidiol as a 9 Drug: Pharmacokinetics cs and Cellular Effects	Nadia Martinez Naya, Jazmin Kelly, Giuliana Horn, Michele Golino, Ariel H Polizio, Antonio Abbate, Stefano Awning, Eleonora Mezzaroma	2024	Address the pharmacokinetic characteristics, mechanisms of action, and potential clinical applications.	The compound showed promising results regarding its ability to modulate the endocannabinoid system and various other mechanisms. ion channels.
The Relationship Between Cannabis Use and Schizophrenia As a Risk Factor or For Its Therapeutic Potential: A Systematic Review of Evidence	Jaisingh Rajput, Sandhya Narahari, Taha Arif, Rabiya Iftikhar, Turimula Arpan, Abdullah Tariq, Hamad Muhammad Ali Duleh, Sri Pranita Cherukuri	2025	Understanding the relationship between the use of Cannabis and schizophrenia: analyzing the effects of THC and the therapeutic potential of CBD in patients with psychotic disorders.	Cannabis with high THC content has been associated with an increased risk of developing schizophrenia, especially in individuals with a family predisposition and early use in adolescence. Furthermore, THC has shown potential to worsen psychotic symptoms and cognitive deficits. In contrast, CBD has demonstrated promising antipsychotic and neuroprotective properties, although there is still little long-term clinical evidence.
Cannabis Use in Adolescents	Gurkirat K Bhangu, Aakanksha Singh, Avni Shah,	2025	Investigate the prevalence, consumption patterns, and consequences of cannabis use among adolescents.	Research has shown that legalizing cannabis has not significantly increased its use among teenagers, but contributed to

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	Narpinder Malhi		considering the impacts of legalization and the challenges for public health.	Normalization of the substance and reduction of perceived risk. Furthermore, frequent use has been associated with impairments in brain development, mental health, and various bodily systems. Cannabis use disorder has been shown to be underdiagnosed and with limited treatment options, highlighting the need for interventions.
Medicinal Cannabis in the management of anxiety disorders: A systematic review	Leah Roberts, Elizabeth Sorial, Charley A Budgeon, Kenneth Lee, David B Preen, Craig Cumming	2025	Investigate the effectiveness of medicinal cannabis in the treatment of disorders related to anxiety in adults, assessing different Cannabis-based preparations and interventions.	Most of the studies analyzed reported improvement in anxiety symptoms, mainly in GAD, SAD, and PTSD, indicating a great therapeutic potential for CBD and THC. However, risks related to the lack of standardization and monitoring of doses were observed, highlighting the need for more research on the subject.

DISCUSSION

Anxiety is among the most common and debilitating mental disorders in the world. Anxiety disorders encompass a variety of conditions, including anxiety disorder. generalized anxiety disorder (GAD) and social anxiety disorder (SAD), in addition to other psychological conditions. which can arise as a result of untreated anxiety (Roberts et al., 2025). The use of The use of cannabinoids in the management of patients with anxiety disorders is considered a treatment. Complementary treatment, reserved for specific cases. Doctors prioritize prescribing first-line treatments. line, such as benzodiazepines and cognitive-behavioral therapies (CBT) (Sacramento; Debbo, 2025).

The treatment of anxiety with cannabis occurs through interaction with the system. endocannabinoid (EC), responsible for regulating fundamental physiological processes, such as Sleep, mood, appetite, cognition, and immune function. The components of the ECS include two

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Primary receptors: CB1 *(Cannabinoid receptor type* 1) and CB2 *(Cannabinoid receptor type* 2). CB1 is located primarily in the central nervous system (CNS), acting in the control of The release of neurotransmitters and neuronal activity contribute to brain homeostasis. CB2 is found primarily in the peripheral immune system, but is also present in microglia of the CNS, related to the regulation of the immune response and neuroinflammation (Berger et al., 2023).

The main phytocannabinoids in cannabis are CBD and THC, which have effects. distinct in the CNS. The psychotropic component THC causes psychoactive and euphoric effects and is the most used recreationally, while CBD has a more pharmacological characteristic because not being psychoactive, with anxiolytic properties that help reduce anxiety, analgesic, anti-inflammatory and antipsychotic, among other therapeutic properties (Ruhul; Ali, 2019). However, some studies indicate that prolonged use of CBD may be associated with side effects. adverse effects, such as inhibition of hepatic metabolism of drugs and anesthetics, changes in In vitro cell viability, possible reduction in fertilization capacity, and decreased activity. of P glycoprotein (Machado et al., 2011).

With the increase in recreational marijuana use, studies have shown that frequent use Cannabis use can affect cognition, especially executive functions, memory, and attention. Adolescent frequent users exhibit greater cognitive impairment compared to adults. In addition to changes in brain activation and the functioning of regions associated with memory, attention and reaction time. These changes may represent compensatory mechanisms of brain, which resort to less efficient neural strategies for performing cognitive tasks. (Urits et al., 2025). The increase in THC concentrations has generated concerns related to public health, with new forms of consumption, such as edibles and vaping, which allow for greater ingestion of the substance (Bhangu et al., 2025).

Early exposure to THC, especially in individuals with a family history of Psychotic disorders can contribute to the development of neurological disorders. Activation The activity of CB1 cannabinoid receptors in the ECS interferes with dopamine action and the pathophysiology of psychosis, significantly increasing the risks associated with schizophrenia. Studies indicate that... THC, the main psychoactive compound in cannabis, may increase the risk of developing the disease. and worsen its progression, especially when use occurs during adolescence. Conversely, the CBD has opposite effects, as it does not act directly on CB1 receptors and possesses properties... pharmacological factors associated with the reduction of psychotic symptoms and relaxation (Rajput et al., 2025).

Some indirect effects can be observed in individuals exposed to smoke from Cannabis. Passive exposure to smoke can cause behavioral changes and mild effects.

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related to the action of THC; in addition, constant inhalation of the smoke may pose risks to Respiratory health (Hill et al., 2021). Many people believe that the medicinal use of cannabis occurs While it is not only through smoking, its pharmacological administration methods are still quite common. discussed. Studies indicate that oral administration has limited bioavailability in Compared to inhalation, which provides higher plasma concentrations. Furthermore, its use in Vapor for administration reduces respiratory risks associated with smoking and exposure to toxic components generated by combustion (Naya et al., 2024).

THC can accumulate in fatty tissues and in organs such as the liver and heart. Its Metabolism occurs in the liver, forming compounds capable of causing mental alterations and, in In some cases, tachycardia occurs, which, consequently, can lead to anxiety (Pagano et al., 2022). In addition to its effects on the nervous system, studies indicate that THC may also have other effects. beneficial, such as metabolic ones. Research suggests it may help regulate the microbiota. Intestinal health, contributing to the balance of the microbiota and reducing alterations associated with obesity. and other metabolic syndromes (Leinen et al., 2023).

Finally, the results of this review demonstrated that medicinal cannabis presents It has therapeutic potential in the treatment of anxiety disorders, in addition to assisting in the management of other conditions. medical conditions. However, further studies are still needed to assess its safety. efficacy and long-term effects, considering the possible adverse effects associated with the use of plant and the need for greater therapeutic control.

FINAL CONSIDERATIONS

This study allowed us to evaluate the applications of marijuana in the medical treatment of anxiety disorder, highlighting its potential therapeutic benefits, as well as possible applications in other health conditions. The studies analyzed demonstrated that compounds such as CBD shows promising results in managing anxiety, contributing significantly. for its improvement, while THC can cause adverse effects, especially when consumed. frequently and without proper supervision.

The results evaluated demonstrated that this unconventional method has been contributing significantly, especially for patients who have shown poor responses to treatments. conventional methods. Despite the observed benefits, the risks are still numerous, and more are needed. Scientific research that proves its long-term effectiveness and safety.

Given this, the importance of the biomedical professional in research, analysis and monitoring the effects of cannabis on the body, contributing to a better understanding and

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interpretation of the physiological mechanisms related to the endocannabinoid system and for its control of high quality, which contributes to safety and effectiveness.

Using this therapeutic method, it can be concluded that medicinal marijuana presents... Promising results for health, but more studies and research are still needed in the area. To broaden knowledge, in addition to developing strategies that promote democratization. access to treatment for patients who need this medication.

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