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THE USE OF CANNABIDIOL (CBD) TO IMPROVE SLEEP: A SYSTEMATIC REVIEW

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Abstract: Introduction: Sleep, vital for physical and mental health, is divided into REM (characterized by rapid eye movement) and NREM (which covers different stages, including deep sleep). Its regulation involves circadian and homeostatic rhythms, but disorders such as insomnia and apnea affect millions and are associated with comorbidities. CBD, the non-psychoactive component of cannabis, stands out as a potential therapy for its anxiolytic effects and indirect sleep modulation. This review analyzes the evidence on its efficacy in improving sleep quality. **Objectives:** The aim of this study is to carry out a literature review based on bibliographic materials published in the last 20 years on the subject. **Methodology:** For this review, a search was carried out for articles, clinical trials and case reports in the PubMed database and the keywords were Cannabidiol AND Sleep Disorders. **Results:** In line with the findings in the literature, the results obtained in the studies show that CBD improves subjective perception of sleep, with no impact on objective parameters. Combinations raise SWS/REM at low baseline levels. Moderate doses (15-30 mg/day) are safe; high doses (>300 mg/day) generate adverse effects. **Conclusion:** It can therefore be concluded that despite the favorable safety profile, the scarcity of robust trials and methodological heterogeneity limit definitive conclusions.
Keywords: CBD, Sleep Disorders, Sleep Quality.

INTRODUCTION

Sleep is a complex and constantly changing physiological phenomenon, fundamental for maintaining physical and mental health. It can be categorized into two main types: REM sleep, characterized by rapid eye movement, and NREM sleep, which encompasses different stages, including deep sleep. (1-3) Theoretical models, such as the reciprocal interaction model, explain the transition between REM and NREM sleep through the interaction of cholinergic, serotoninergic and noradrenergic neurons in the brainstem. (3). Sleep initiation and maintenance are modulated by circadian and homeostatic processes, according to the two-process model. The circadian process (C process) adjusts the sleep-wake cycle to the 24-hour rhythm, while the homeostatic process (S process) regulates the need for sleep according to the time spent awake, as evidenced by the reduction in deep sleep throughout the night(1-4).During sleep, important physiological changes occur, such as the modulation of neurotransmitters and the activation of neural circuits that control the states of wakefulness and sleep, this being the homeostatic process(1,5) In addition, sleep plays a crucial role in synaptic plasticity, contributing to the local strengthening of synapses and the general stabilization of neural networks, which is vital for behavioral adaptation(6).

In addition, sleep is essential for memory consolidation, hormone regulation, cardiovascular health and immune system function. Sleep disorders, such as insomnia and apnea, can significantly compromise health and are associated with various medical and psychiatric conditions (2,6). During the NREM phase there are four other phases and throughout them sleep becomes deeper and more restorative, but approximately 25% of the population suffers from psychological problems that affect sleep quality(7).

Sleep is divided into two main phases: rapid eye movement (REM) sleep and non-rapid eye movement (NREM) sleep. Each of these phases has specific physiological characteristics. REM sleep is characterized by intense brain activity similar to wakefulness, although there is almost complete muscle atonia - a significant loss of muscle tone. This atonia is the result of the action of glutamatergic neurons, located in the sublaterodorsal nucleus of the brainstem, which stimulate glycinergic and GABAergic premotor neurons in the ven-

tromedial medulla, inhibiting motor neurons. (8) During this phase, rapid eye movements occur and cortical activity is divided into tonic and phasic microstates, which influence sensory processing and brain oscillations.(9) In addition, recent research suggests that REM sleep plays an important role in emotional processing and the consolidation of affective memories, contributing to mood regulation.

In contrast, NREM sleep is made up of multiple phases, including stages of light and deep sleep. In this state, brain activity is marked by the predominance of slow waves, accompanied by a general reduction in both metabolism and neural activity. Eye movements during NREM sleep are slower and generally uncoordinated, compared to the rapid and complex ones observed in REM sleep.(10) The transition between these stages is defined by precise changes in electroencephalographic activity - the emergence of high-frequency oscillations and a decrease in delta waves stand out. In addition, dopaminergic signals originating in the basolateral amygdala play a fundamental role in the transition from NREM to REM sleep, facilitating the onset of this phase(11) These distinct stages of sleep are regulated by complex neuronal networks and a variety of neurotransmitters, which ensure the appropriate alternation between the states of sleep and wakefulness and are essential for general health and well-being(11).

The use of cannabis for medical purposes is expanding rapidly, and one of the main motivations for its use is the management of insomnia disorders, to induce and maintain restful sleep(12,13). *Cannabis Sativa*, popularly known as marijuana, is an herb that originated in Central Asia. Recent research into its use indicates that approximately 4.5% of the population uses it for therapeutic and recreational purposes(14). The effects of cannabis on the body have been studied, and one of the roles attributed to it is its impact on the circadian rhythm, directly influencing the sleep process. The plant's main psychoactive component is delta-9-tetrahydrocannabinol (Δ9-THC), one of the substances responsible for marijuana's psychoactive effects. Cannabidiol (CBD) is another abundant compound in *Cannabis sativa*, making up around 40% of the plant's active substances.(15) CBD stands out for its ability to improve sleep quality, which is related to the improvement of pre-existing mood problems, pain for some individuals in the short term and as a therapeutic measure for anxiety due to its anxiolytic characteristics(16) Due to its anti-stress effect when administered acutely or repeatedly(17,18) In view of this, this review aims to verify the efficiency of CBD as a drug that acts on the central nervous system, improving sleep quality.

METHODOLOGY

This work is a systematic review of scientific literature published between 2006 and 2025. The systematic review method was chosen for its rigorous and structured approach, which allows relevant research to be synthesized to answer a specific health question, such as cause, diagnosis, prognosis or the effectiveness of an intervention (19).

The search was carried out on the PubMed database during the month of December 2006 and March 2025. The descriptors used were: "Cannabidiol AND Sleep Disorders". The guiding question was: "What is the influence of cannabidiol on improving sleep quality?". The inclusion criterion adopted was the use of CBD as an active agent in improving sleep quality. The exclusion criteria were: The use of CBD as a secondary drug, without a description of its pharmacological interaction with other drugs to induce an improvement in sleep quality; Articles dated before 2006. Publications that did not meet the article selection process according to the recommendations of the PRISMA protocol (Principal Reporting

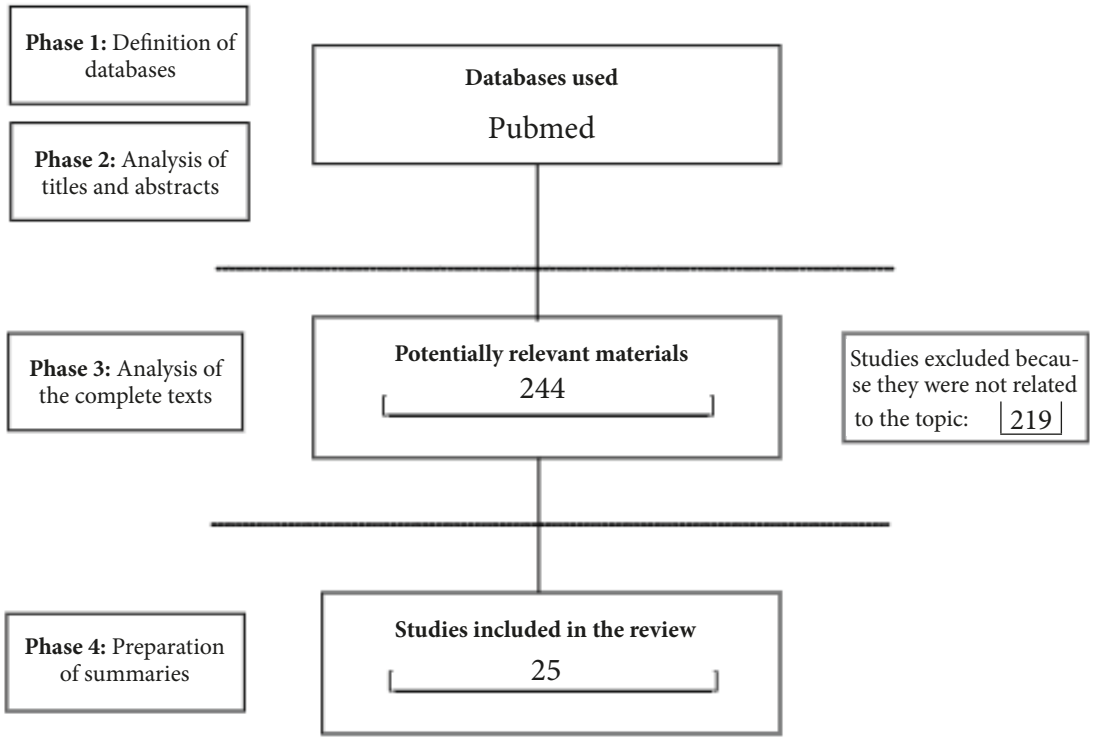

Figure 1: Representative diagram of the study selection process.

Title	Author, year	Magazine	Type of study
Cannabidiol for Rapid Eye Movement Sleep Behavior Disorder	Almeida CMO, 2021	Mov Disord	Double-blind double blind clinical trial
Cannabidiol in Anxiety Sleep:A Large Case Series	Shannon S, 2019	Perm J.	Case series
Cannabinoid therapies in the management of sleep disorders: A systematic review of preclinical and clinical studies.	Suraev AS, 2020	Sleep Med Rev.	Systematic systematic studies pre-clinical and clinical trials.
Reasons for cannabidiol use: a cross-sectional study of CBD users, focusing on self-perceived stress, anxiety, and sleep problems.	Moltke J, 2021	J Cannabis Res.	Cross-sectional study
Cannabis use and sleep: Expectations, outcomes, and the role of age.	Winiger EA, 2021	Addict Behav.	Longitudinal study
Sleep-wake cycle disturbances and NeuN-altered expression in adult rats after cannabidiol treatments during adolescence.	Murillo-Rodríguez E, 2021	Psychopharmacology (Berl)	Controlled controlled clinical study.
Effects on sleep and dopamine levels of microdialysis perfusion of cannabidiol into the lateral hypothalamus of rats.	Murillo-Rodríguez E, 2011	Life Sci.	Controlled controlled clinical study.
Cannabidiol, a constituent of Cannabis sativa, modulates sleep in rats.	Murillo-Rodríguez E, 2006	FEBS Lett.	Controlled controlled clinical study.
Approved cannabinoids for medical purposes - Comparative systematic review and meta-analysis for sleep and appetite.	Spanagel R, 2021	Neuropharmacology.	Comparative systematic review and meta-analysis.
Could Cannabidiol Be a Treatment for Coronavirus Disease-19-Related Anxiety Disorders?	O'Sullivan SE, 2021	Cannabis Cannabinoid Res.	Systematic review.
No Acute Effects of Cannabidiol on the Sleep--Wake Cycle of Healthy Subjects: A Randomized, Double-Blind, Placebo-Controlled, Crossover Study.	Linares IMP, 2018	Front Pharmacol.	Randomized clinical trial double-blind

Effect of cannabidiol on sleep disruption induced by the repeated combination tests consisting of open field and elevated plus-maze in rats.	Hsiao YT, 2012	Neuropharmacology	Controlled controlled clinical study.
High Prevalence of Cannabidiol Use Within Male Professional Rugby Union and League Players: A Quest for Pain Relief and Enhanced Recovery.	Kasper AM, 2020	Int J Sport Nutr Exerc Metab	Longitudinal study.
Cannabidiol Partially Blocks the Excessive Sleepiness in Hypocretindeficient Rats: Preliminary Data. CNS Neurol Disord Drug Targets.	Murillo-Rodríguez E, 2019	CNS Neurol Disord Drug Targets.	Randomized randomized clinical trial double-blind
The Use of Cannabinoids for Insomnia in Daily Life: Naturalistic Study.	Kuhathasan N, 2021	J Med Internet Res	Controlled controlled clinical study.
Hypnoticlike effects of cannabidiol in the rat. Psychopharmacology	Monti JM, 1977	Psychopharmacology	Double-blind clinical study.
Potential effects of cannabidiol as a wake-promoting agent	Murillo-Rodríguez E, 2014	Curr Neuropharmacol	Literature review
A new multitasking natural compound based on melatonin and cannabis extracts	Palmieri G, 2022	Clin Ter	Clinical analysis
Using Cannabis and CBD to Sleep: An Updated Review	Lavender et al., 2024	Current Psychiatry Reports	Narrative review
Cannabis dosing and administration for sleep: a systematic review	Velzeboer et al., 2022	Sleep	Systematic review
Eight Weeks of Daily Cannabidiol Supplementation Improves Sleep Quality and Immune Cell Cytotoxicity	Kisiolek JN et al., 2023	Nutrients	Randomized controlled trial
The Safety and Comparative Effectiveness of Non-Psychoactive Cannabinoid Formulations for the Improvement of Sleep: A Double-Blinded, Randomized Controlled Trial	Saleska JL et al., 2023	American Nutrition Association	Randomized controlled trial
Evaluating possible 'next day' impairment in insomnia patients administered an oral medicinal cannabis product by night: a pilot randomized controlled trial	Suraev A et al, 2024	Psychopharmacology	Randomized controlled trial
A Semi-Naturalistic, Open - Label Trial Examining the Effect of Prescribed Medical Cannabis on Neurocognitive Performance.	Arkell TR et al, 2023	CNS Drugs	Clinical Case
The effect of nightly use of 150 mg cannabidiol on daytime neurocognitive performance in primary insomnia: a randomized controlled pilot trial	Narayan AJ et al, 2024	Psychopharmacology	Randomized controlled trial

Table 1 - Characterization of the studies

Title	**Results**
Cannabidiol for Rapid Eye Movement Sleep Behavior Disorder	O CBD showed no difference compared placebo for primary sleep outcomes. With regard to secondary the CBD group versus placebo with P = 0.049 and P = 0.038, respectively(20).
Cannabidiol in Anxiety Sleep: A Large Case Series	Most of the patients received CBD 25 mg/d in capsule form. In first monthly evaluation after the start of CBD treatment, 66.7% (48/72) of all patients presented improvement sleep sleep e 25,0% (18/72) had worsening symptoms of sleep. Two months after starting treatment, 56.1% (23/41) of patients reported improved sleep compared to the previous monthly visit and 26.8% (11/41) reported worsening problems compared to the previous month. Sleep scores showed slight improvement(21).
Cannabinoid therapies in the management of sleep disorders: A systematic review of preclinical and clinical studies.	There is insufficient evidence to support the routine clinical use of cannabinoid therapies for the treatment of any sleep disorder, given the low number of published studies(22).
Reasons for cannabidiol use: a cross-sectional study of CBD users, focusing on self-perceived stress, anxiety, and sleep problems.	A questionnaire was administered to 387 people. Of these, 32.3% reported improved sleep and 24.5% had an improvement in self-perceived insomnia. In addition, around 48.2% of people said that they fell asleep faster when using CBD at night(23).

Cannabis use and sleep: Expectations, outcomes, and the role of age.	The study showed that the highest reported average CBD concentration among users was associated with efficacy and sleep duration and that the effects were significantly moderated by age, so that older participants showed a greater effect(24).
Sleep-wake cycle disturbances and NeuN-altered expression in adult rats after cannabidiol treatments during adolescence.	The study showed that chronic administration of CBD to male Wistar rats (N=15) in adolescence induced changes in the circadian rhythm of the sleep-wake cycle in adults, as well as decreasing the period of sleep recovery after total sleep deprivation in adulthood(25).
Effects on sleep and dopamine levels of microdialysis perfusion of cannabidiol into the lateral hypothalamus of rats.	The study suggests that CBD acts on the lateral hypothalamus, regulating the relationship between sleep and wakefulness, aiding awakening and regulating sleep through a rebound effect, being a serotonergic and dopaminergic agonist(26).
Cannabidiol, a constituent of cannabis sativa, modulates sleep in rats.	CBD acts on the physiology of calcium influx in the transmission of nerve impulses, influencing physiological processes that culminate in sleep physiology(27).
Approved cannabinoids for medical purposes - Comparative systematic review and meta-analysis for sleep and appetite.	Studies were analyzed, with CBD being compared to placebo and decreased sleep being assessed as an adverse effect. In all the randomized clinical trials, CBD did not reduce sleep(28).
Could Cannabidiol Be a Treatment for Coronavirus Disease-19-Related Anxiety Disorders?	One of the articles analyzed showed that a 160 mg dose of CBD was effective in improving sleep duration in volunteers with insomnia. In addition, another study showed that CBD blocked rapid eye movement related to anxiety and altered sleep(29).
No Acute Effects of Cannabidiol on the Sleep-Wake Cycle of Healthy Subjects: A randomized, Double-Blind, Placebo-Controlled, Crossover Study.	27 healthy patients (who slept more than 6 hours a night and had no cognitive dysfunction) were analyzed using polysomnographic findings. No statistically significant differences were found between the CBD group and the placebo group(30).
Effect of cannabidiol on sleep disruption induced by the repeated combination tests consisting of open field and elevated plus-maze in rats.	CBD has been found to increase wakefulness by regulating REM sleep by inhibiting the effects of stressors(31).
High Prevalence of Cannabidiol Use Within Male Professional Rugby Union and League Players: A Quest for Pain Relief and Enhanced Recovery.	Of 517 players, a group that used CBD 41% found an improvement in sleep quality and an improvement in body homeostasis(32).
Cannabidiol Partially Blocks the Excessive Sleepiness in HypocretindeficientRats: Preliminary Data. CNS Neurol Disord Drug Targets.	He reported an increase in the concentration of neurochemicals related to wakefulness in laboratory animals, assuming that the model demonstrates that CBD can regulate excessive sleepiness(33).
The Use of Cannabinoids for Insomnia in Daily Life: Naturalistic Study.	The study showed that CBD increased when the drug was administered at 5 mg increased stage 3 NREM sleep in a comparative model between wistar rats(34).
Hypnoticlike effects of cannabidiol in the rat. Psychopharmacology	CBD acts as a short-acting hypnotic in rats in which EEG behavior was altered inducing sleep when administered 20 mg/kg and 40 mg/kg increased sleep duration(35).
Potential effects of cannabidiol as a wake-promoting agent	CBD acts on the dopamine system by modulating the sleep-wake relationship. The dorsal raphe nuclei are stimulated to increase the expression of c-Fos in the hypothalamus in DNR. This induces alertness by deactivating neurons in this region, favoring the production of catecholamines responsible for sleep/wake regulation(36).
Insomnia treatment: a new multitasking natural compound based on melatonin and cannabis extracts	CBD combined with melatonin reduces changes in psychological symptoms that improve sleep quality(37).
Correction: Using Cannabis and CBD to Sleep: An Updated Review	The review identified 21 recent studies on the use of cannabinoids in the treatment of insomnia, REM sleep disorders and obstructive sleep apnea. It concluded that there is little robust evidence to support the efficacy of CBD for sleep disorders and highlights the need for more well-designed clinical trials(38).

Cannabis dosing and administration for sleep: a systematic review	The review analyzed 31 studies on the use of cannabis for sleep, including randomized clinical trials and observational studies. The results showed that 7 of 19 randomized trials and 7 of 12 uncontrolled studies indicated an improvement in sleep, especially in patients with pain disorders. However, there was no significant improvement in sleep architecture according to diagnostic tests. The main adverse effects reported included headache, sedation and dizziness, especially at higher doses. The review highlights the need for more rigorous clinical trials for dosage recommendations. Low to moderate doses (15-30 mg/day) of CBD were associated with better subjective sleep quality. Higher doses (>300 mg/day) showed no clear benefits and were poorly tolerated. THC and CBD in a 1:1 combination was associated with a better response observed in patients with chronic pain and multiple sclerosis. Doses of up to 12 sprays a day (approx. 32.4 mg THC:CBD) showed a reduction in sleep disruption(39).
Eight Weeks of Daily Cannabidiol Supplementation Improves Sleep Quality and Immune Cell Cytotoxicity	This clinical study investigated the effects of daily supplementation of 50mg of cannabidiol (CBD) on mental health, sleep quantity and quality, and immune cell function in healthy individuals aged between 18 and 50. Twenty-eight participants were randomly assigned to receive daily oral capsules of 50mg CBD or a placebo. Participants completed pre- and post-intervention assessments, including mental health questionnaires, sleep analysis and assessments of immune function. The CBD group showed significant improvements in sleep quality as measured by a sleep questionnaire ($p=0.0023$) and enhanced Natural Killer (NK) immune cell function assessed in situ ($p=0.0125$). There were no significant changes in body weight, BMI, body fat percentage, mental health measures, amount of sleep or circulating immunophenotype as a result of the intervention. The study concluded that eight weeks of daily CBD can improve sleep quality and NK immunosurveillance in healthy young adults(40).
The Safety and Comparative Effectiveness of Non-Psychoactive Cannabinoid Formulations for the Improvement of Sleep: A Double-Blinded, Randomized Controlled Trial	This randomized, double-blind, controlled study evaluated the comparative safety and efficacy of different formulations of orally ingested cannabinoids and melatonin on sleep disorders. The results indicated that 15mg of CBD reduced self-reported sleep disturbance over 4 weeks. The addition of minor cannabinoids (15mg CBN alone or in combination with 5mg CBC) did not impact the therapeutic effects of 15mg CBD. Furthermore, there was no difference in the effect on the overall sleep disturbance score between 15mg CBD alone and formulations containing 5mg melatonin, either alone or in combination with 15mg CBD and 15mg CBN. However, when examining changes in each score of the PROMIS Sleep Disturbance 8a scale separately, it was observed that those who took 5mg of melatonin in combination with 15mg of CBD and 15mg of CBN reported greater improvements in restless and refreshing aspects of sleep compared to those who took CBD alone, although changes in self-reported sleep quality, satisfaction with sleep and in difficulties and worries about falling asleep did not vary between any formulation compared to CBD alone. Secondary analyses also revealed that the addition of 15mg CBD and 15mg CBN did not significantly impact the therapeutic effects of a formulation containing 5mg melatonin on the overall sleep disturbance score. Notably, all study arms led to significant improvements in sleep disturbance and exhibited favorable safety profiles(41).
Evaluating possible 'next day' impairment in insomnia patients administered an oral medicinal cannabis product by night: a pilot randomized controlled trial	This study investigated the possible occurrence of impairment the day after evening administration of a common medicinal cannabis product in adult subjects with insomnia disorder, when compared to a placebo. The study involved 20 adults who suffered from insomnia and rarely used cannabis. The participants attended two 24-hour laboratory visits, during which they received immediate oral administration of 10 mg of THC and 200 mg of CBD or placebo, in a randomized, double-blind crossover trial. The outcome measures include "next day" performance (9 hours or more after treatment) in cognitive and psychomotor function activities, simulated driving performance, subjective effects of the substance and mood.The results of the study showed the following:No differences were observed in "next day" performance in 27 of 28 function tests cognitive and psychomotor and simulated driving performance compared to placebo. THC/CBD caused a small reduction (-1.4%) in accuracy in the Stroop Color Task (easy/congruent), but not in the Stroop Word Task (difficult/incongruent). THC/CBD also caused a small increase in self-assessments of Sedated 10 hours after treatment, but no simultaneous changes in subjective assessments of Alert or Drowsy. In summary, the study did not identify considerable "next day" impairment of cognitive and psychomotor function and simulated driving performance after the nocturnal use of 10 mg of oral THC, together with 200 mg of CBD, in an insomniac population that uses cannabis sporadically(42).

A Semi-Naturalistic, Open-Label Trial Examining the Effect of Prescribed Medical Cannabis on Neurocognitive Performance	In this study, patients using prescribed medical cannabis for various health conditions took part in a single laboratory session. They self-administered a standard dose of their prescribed medicinal cannabis, according to the instructions on the pharmacy label. The researchers assessed the cognitive performance of the participants before and after self-administration of medical cannabis, using the Cambridge Neuropsychological Automated Test Battery (CANTAB) and the Druid app. They also assessed the subjective effects of the drug using visual analog scales. The study included 40 participants (22 women) who were prescribed a variety of products, including orally administered oils (n = 23) and flower for vaporization (n = 17). The average age of the participants was 41.38 years, and they had been using medical cannabis for an average of 10.18 months. Chronic pain unrelated to cancer was the most common indication for medical cannabis use (n = 20), followed by sleep disorder (n = 18) and anxiety (n = 11). Participants showed improved performance over time on the CANTAB Multitasking Test and Rapid Visual Information Processing (both with p-values < 0.001). However, all other changes in measures of cognitive performance over time were not significant (p > 0.05). Vaporizing the flower was associated with significantly stronger subjective feelings of being "stoned" and "sedated" compared to the oils (both p < 0.001). The study concluded that prescribed medical cannabis can have a minimal impact on cognitive function in patients with chronic health conditions(43).
The effect of nightly use of 150 mg cannabidiol on daytime neurocognitive performance in primary insomnia: a randomized controlled pilot trial	This randomized, placebo-controlled pilot study evaluated the effects of nocturnal use of 150mg of cannabidiol (CBD) on daytime neurocognitive performance in subjects with primary insomnia. Cognitive performance was not affected by nocturnal CBD supplementation (p > 0.05). Compared to placebo, participants receiving CBD reported a greater sense of calm, mental clarity, coordination and were more likely to report the side effect of dry mouth (p < 0.05). The study concluded that nighttime use of CBD preserved daytime cognitive functioning in individuals with primary insomnia and presented a favorable safety profile(44).

Table 2 - Summary of results (Continued from Table 1)

Items for Systematic Reviews and Meta-analyses). Three stages were used to carefully select the articles: the first was a search of databases, selecting 244 studies after applying the inclusion and exclusion criteria. The second stage was carried out by fully and critically reading the articles selected in the previous stage, making it possible to exclude studies that were not in line with the aim of the study, leaving 25 publications.

RESULTS

A total of 25 articles were selected. The time interval between the oldest and most recent publication was 2006 to 2025.

DISCUSSION

The analysis of the studies presented in Table 2 reveals heterogeneous results regarding the efficacy of cannabidiol (CBD) in improving sleep quality. In a double-blind clinical trial, CBD (150 mg/day) showed no significant differences from placebo in primary sleep parameters such as sleep onset latency and sleep efficiency, although participants reported greater psychological well-being (8,45). This finding suggests that the effects of CBD may be more associated with the modulation of psychological aspects (e.g. anxiety) than with sleep architecture per se (8,46).

On the other hand, studies evaluating combined CBD formulations with terpenes or other cannabinoids have observed marginal improvements in specific sleep stages, such as increased slow-wave sleep (SWS) and REM sleep, particularly in individuals with low baseline levels of these stages (10). Furthermore, in animal models, CBD has demonstrated sedative and hypnotic effects mediated by activation of the 5-HT1A receptor, indicating a promising pharmacological mechanism (10). However, the translation of these pre-clinical findings to humans still requires validation, especially due to the variation in doses and experimental protocols(10,45).

Cross-sectional and longitudinal studies have shown that 32.3% of CBD users reported a subjective improvement in sleep quali-

ty, while 48.2% mentioned a reduction in the latency to fall asleep (47). However, placebo-controlled trials, such as the one by Linares et al. (18), did not identify significant differences in polysomnography between groups, reinforcing the need to differentiate subjective and objective effects of CBD (18,48).

The influence of the dose was also evident: low to moderate doses (15-30 mg/day) were associated with subjective improvements, while high doses (>300 mg/day) showed no clear benefits and were poorly tolerated (23). Additionally, combining CBD with melatonin or minor cannabinoids (e.g., CBN) showed promising results in specific subgroups, such as patients with chronic insomnia or pain, although without statistical superiority compared to CBD alone (19,24).

In contrast, studies such as that by Spanagel et al(45) warn of the scarcity of robust evidence supporting the routine use of CBD in sleep disorders, highlighting methodological heterogeneity and the small sample size as critical limitations (45,49). Despite this, CBD's favorable safety profile, with generally mild adverse effects (e.g. dry mouth), supports its viability as a complementary therapeutic option (8,47).

In summary, the findings suggest that CBD may particularly benefit individuals with insomnia associated with psychological comorbidities or low baseline levels of SWS/REM, although its efficacy on sleep architecture remains inconclusive. Standardization of doses, selection of target subpopulations and long-term clinical trials are essential to consolidate this evidence (45-47,49).

LIMITATIONS

Among the limiting factors are: the scarcity of publications in this area, as well as the assimilation of CBD (cannabidiol) with corticobasal degeneration due to both having the same acronym in the published articles.

CONCLUSION

This study carried out a systematic review on the benefits of using CBD to improve sleep. The main results obtained in the studies were that cannabidiol (CBD) shows potential for improving the subjective perception of sleep, especially in individuals with anxiety or insomnia associated with psychological comorbidities, although it does not significantly alter objective parameters such as sleep latency or efficiency. Formulations combined with terpenes or other cannabinoids have shown a marginal increase in stages such as slow-wave sleep (SWS) and REM, especially in populations with reduced baseline levels. Dosage is crucial: moderate doses (15-30 mg/day) are safe and effective, while high doses (>300 mg/day) do not increase benefits and generate adverse effects. Thus, it can be concluded that despite the favorable safety profile, the scarcity of robust trials and methodological heterogeneity limit definitive conclusions.

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