

Research Findings Relating to Cannabidiol (CBD) and Anxiety

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This article is based upon published scientific findings.

However, please note that the information provided in this article does not constitute medical advice.

Anxiety disorders are widespread and all too often effective treatment is problematic. Combinations of medications are often prescribed and may include benzodiazepines and antidepressant drugs. These prescription medications can expose the user to risks of “dependence and withdrawal syndrome, sexual side-effects, cognitive and psychomotor impairment, delayed onset of action (antidepressants), low acceptance, and [the] requirement of careful dosage control” (Zuardi et al., 2017, p. 2). This represents a need for an alternative option for people to manage anxiety without the risks and adverse effects. Research shows that cannabidiol (CBD) does not expose the user to significant adverse effects and is well tolerated at a wide-range of serving sizes. Anxiety is one of the most commonly reported reasons for CBD use.

A group of researchers from Italy conducted a bibliographic search of all clinical studies published between 1995 and 2018 on PUBMED to determine what the scientific community currently understands about CBD as a treatment option for anxiety disorders. Two clinical studies reviewed found that people diagnosed with generalized social anxiety disorder (SAD) benefited in the following ways following a single dose of CBD: (1) subjective descriptions of anxiety were “significantly decreased”, (2) cognitive impairment was shown to be reduced, (3) and speech performance discomfort was reduced in a simulation of the public speaking test compared to the placebo group (Mandolini et al., 2018, p. 333). The specific mechanisms of action remain to be fully understood, however researchers proposed that one way that CBD reduces anxiety is through its agonist activity on serotonin type 1A (5HT1A) receptors in the brain.

The acute anxiolytic properties of CBD have also been found to be “related to its capacity to modify cerebral blood flow in brain sites typically involved in anxiety, such as the amygdala, hippocampus, hypothalamus and cingulate cortex (Mandolini et al., 2018, p. 333). These findings were displayed by Crippa *et al.* when they performed functional neuroimaging on ten study participants with SAD both before and after CBD or placebo

administration. A single oral dose of CBD 400mg was administered to the treatment group. Researchers concluded that the treatment group experienced significant anxiolytic effects and a pattern of cerebral activity that matched anxiolytic activity compared to the placebo group. These results were related to modified blood flow in limbic and paralimbic areas of the brain following the single high serving of CBD (Crippa et al., 2011).

High doses of THC hold the potential to induce both anxiety and psychotic-like symptoms in healthy volunteers (Zuardi, Crippa, Hallak, Moreira & Cuimaraes, 2006). It is suggested within research findings that CBD acts to “inhibit THC-associated anxiety by antagonizing cannabinoid receptor activation by THC” (Carroon & Phillips, 2018, p. 157). Researchers have surmised that the reason CBD can attenuate the negative effects of THC is due to CBD’s anxiolytic and antipsychotic actions. CBD is devoid of the typical psychological adverse effects that are associated with THC. A study conducted in 1982 investigated the effects of CBD when co-administered with THC. Ratios of 0.5mg/kg THC were administered together with 1mg/kg CBD to eight healthy volunteers. The researchers concluded that the CBD “blocks the anxiety provoked by delta 9-THC” (Zuardi, Shirakawa, Finkelfarb, & Karniol, 1983, para. 1). This is significant for those that rely on THC to address medical concerns as CBD can reduce the unwanted effects that THC has been found to cause.

Several preclinical animal studies have found that CBD produces an “inverted U-shaped dose-response [curve]” (p. 259). Researchers conducted a study to determine if the anxiolytic effects of CBD in humans follows the same pattern found in animal models. A rather large sample of sixty healthy study participants were randomly assigned to different treatment groups that included CBD 100mg, CBD 300mg, CBD 900mg, the benzodiazepine called clonazepam, and placebo. After conducting a test of public speaking in a real situation, the researchers found that the subjective measures of anxiety were reduced with CBD 300mg. The same results were not found with CBD 100mg and CBD 900mg. Clonazepam was found to have a sedative effect compared to the CBD groups. These are significant findings as they illustrate the importance of finding the correct CBD serving size to address anxiety. When administered in too low or too high concentrations, the desired effects were not reached (Zuardi et al., 2017).

In conclusion, research results from both pre-clinical animal studies and clinical studies with human subjects suggests that CBD is an effective, safe and well-tolerated alternative treatment option for those seeking relief from anxiety disorders.

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