



[Front Pharmacol.](#) 2017 May 11;8:259. doi: 10.3389/fphar.2017.00259. eCollection 2017.

Inverted U-Shaped Dose-Response Curve of the Anxiolytic Effect of Cannabidiol during Public Speaking in Real Life

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PMID: 28553229 PMCID: PMC5425583 DOI: 10.3389/fphar.2017.00259

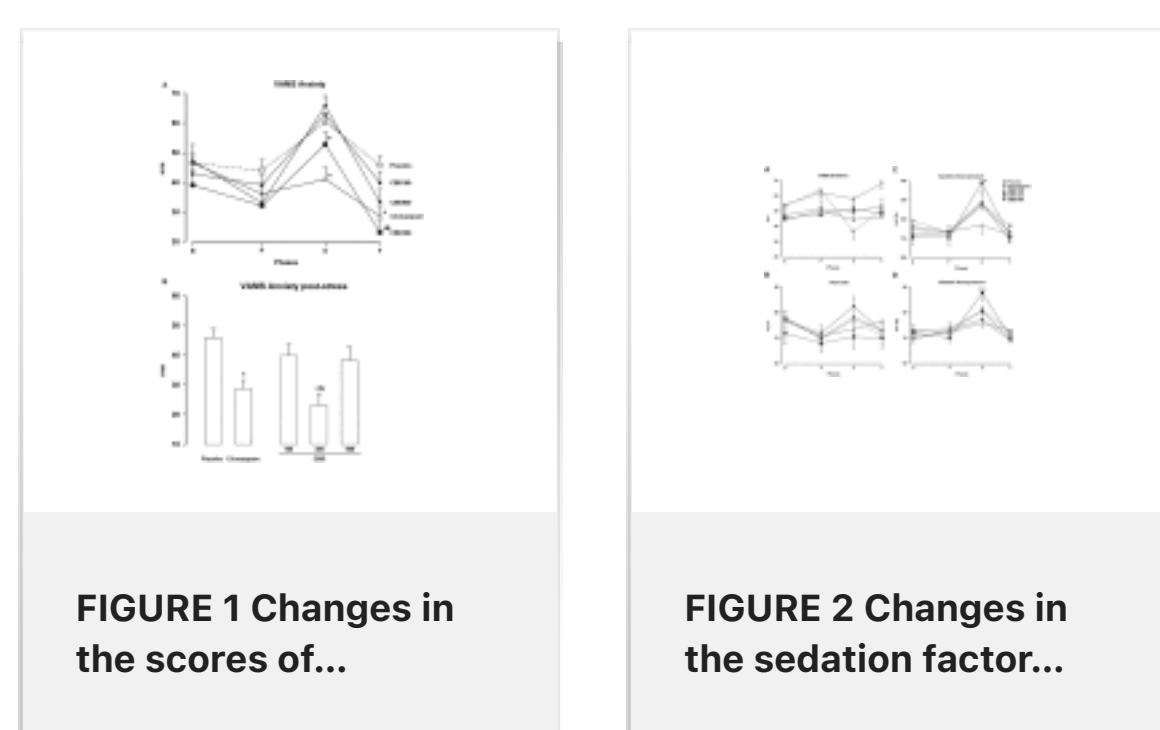
Abstract

The purpose of this study was to investigate whether the anxiolytic effect of cannabidiol (CBD) in humans follows the same pattern of an inverted U-shaped dose-effect curve observed in many animal studies. Sixty healthy subjects of both sexes aged between 18 and 35 years were randomly assigned to five groups that received placebo, clonazepam (1 mg), and CBD (100, 300, and 900 mg). The subjects were underwent a test of public speaking in a real situation (TPSRs) where each subject had to speak in front of a group formed by the remaining participants. Each subject completed the anxiety and sedation factors of the Visual Analog Mood Scale and had their blood pressure and heart rate recorded. These measures were obtained in five experimental sessions with 12 volunteers each. Each session had four steps at the following times (minutes) after administration of the drug/placebo, as time 0: -5 (baseline), 80 (pre-test), 153 (speech), and 216 (post-speech). Repeated-measures analyses of variance showed that the TPSRS increased the subjective measures of anxiety, heart rate, and blood pressure. Student-Newman-Keuls test comparisons among the groups in each phase showed significant attenuation in anxiety scores relative to the placebo group in the group treated with clonazepam during the speech phase, and in the clonazepam and CBD 300 mg groups in the post-speech phase. Clonazepam was more sedative than CBD 300 and 900 mg and induced a smaller increase in systolic and diastolic blood pressure than CBD 300 mg. The results confirmed that the acute administration of CBD induced anxiolytic effects with a dose-dependent inverted U-shaped curve in healthy subjects, since the subjective anxiety measures were reduced with CBD 300 mg, but not with CBD 100 and 900 mg, in the post-speech phase.

Keywords: anxiety; cannabidiol; clonazepam; dose-response; healthy volunteers; public speaking.

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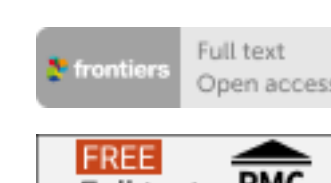
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