

# Psilocybin as a Treatment for Psychiatric Illness: A Meta-Analysis

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## Abstract

Psilocybin is an emerging potential therapy for the treatment of psychiatric illnesses. Microdosing has been shown to result in an overall improvement in patients with anxiety, depression, obsessive-compulsive disorder, post-traumatic stress disorder, and substance abuse. This meta-analysis explores and compiles prior research to make further inferences regarding psilocybin and its use for the treatment of psychiatric illness along with its safety and efficacy.

Database searches were conducted to identify peer-reviewed randomized controlled trials and clinical trials mentioning psilocybin use and psychiatric illness. A Preferred Reporting Items for Systematic Reviews and Meta-Analyses flow diagram was created and analysis was run on the nine articles that met all established inclusion criteria. An event is defined as a participant who showed improvement, in a quantitative method, from baseline after the use of psilocybin. Another analysis was done using depression severity (Quick Inventory of Depressive Symptomatology 16-Item Self Report, QIDS-SR16) at baseline and after the use of psilocybin.

Analyses of the original data and the nine articles showed a great deal of heterogeneity with an I<sup>2</sup> value of 73.68%, suggesting that the studies in this meta-analysis cannot be considered to be studies of the same population. The Q value of 30.4 was higher than 15.507, which is the critical value for eight degrees of freedom found in a chi-square distribution. This Q value showed a high degree of variation and lacked significance. The second meta-run on QIDS-SR16 scores from three studies showed a Q value of 1.16 which was lower than 5.991, the critical value for two degrees of freedom found in

a chi-square distribution. The I<sup>2</sup> statistic for this second meta-analysis was -73% which can be equated to zero. This indicated that the data were homogeneous or that there was no observed heterogeneity. Due to low heterogeneity, the fixed-effects model was used. Based on this meta-analysis, psilocybin seems to show symptom improvement in some psychiatric illnesses. The effectiveness of psilocybin microdosing and the use of psilocybin, in general, need to be studied further to determine the efficacy and safety of potential applications in psychiatry.