# A Review of the Effects of Psilocybin on Depression and Personality

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### Introduction

- Depressive disorders among the most common mental disorders that are commonly reported in adults (Kessler et al., 2012)
- Current antidepressants can lead to "emotional blunting," impairing the ability to identify feelings.
- Antidepressant use reduces positive affect and emotional awareness (Kajanoja et al., 2018).
- Alternatives involve the use of psilocybin to combat depression

## Overview of Psilocybin

- Psilocybin, an indoleamine hallucinogen, is an agonist of the serotonin 5-HT2A receptor (Vollenweider, et al., 1998)
- Produces symptoms similar to individuals who experience psychosis (Vollenweider, et al., 1998)
- Produces a potent dream-like state and distortions in space and time perception (Brown et al., 2017)
- Serotonin 5-HT2A receptor has been known to play a role in depression (Eison & Mullins, 1995)
- Relaxation of high-level beliefs (Carhart-Harris, 2019)

# Psilocybin and Depression

Ross et al. (2016) study involving 29 patients with cancer-related depression and anxiety

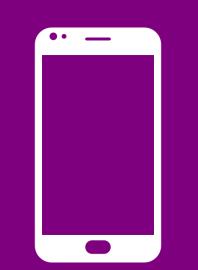
- Single dose of psilocybin (0.3 mg/kg) or niacin along with psychotherapy.
- Decreased anxiety and depression in cancer patients after dose

Carhart-Harris et al. (2016) study involving 12 patients with treatment-resistant depression

Reduced depression and anxiety after 3 months

Psilocybin may reduce depression and can lead to personality changes.





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## **References**

Brown, R. T., Nicholas, C. R., Cozzi, N. V., Gassman, M. C., Cooper, K. M., Thomas, C. D., Hetzel, S. J., Henriquez, K. M., & Ribaudo, A. S. (2017). Pharmacokinetics of Escalating Doses of Oral Psilocybin in Healthy Adults. Clinical Pharmacokinetics, 56(12), 1543.

Carhart-Harris, R. L. (2019). How do psychedelics work? Current Opinion in Psychiatry, 32(1), 16–21.

Carhart-Harris, R. L., Bolstridge, M., Rucker, J., Day, C. M. J., Erritzoe, D., Kaelen, M., Bloomfield, M., Rickard, J. A., Forbes, B., Feilding, A., Taylor, D., Pilling, S., Curran, V. H., & Nutt, D. J. (2016). Psilocybin with psychological support for treatment-resistant depression: An open-label feasibility study. *The Lancet Psychiatry*, 3(7), 619–627. https://doi-org.proxygsu-val1.galileo.usg.edu/10.1016/S2215-0366(16)30065-7 Eison, A. S., & Mullins, U. L. (1995). Regulation of central 5-HT2A receptors: A review of in

vivo studies. *Behavioural Brain Research*, 73(1–2), 177–181. https://doi.org/10.1016/0166-4328(96)00092-7

Erritzoe, D., Roseman, L., Nour, M. M., MacLean, K., Kaelen, M., Nutt, D. J., & Carhart-Harris, R. L. (2018). Effects of psilocybin therapy on personality structure. *Acta Psychiatrica Scandinavica*, 138(5), 368–378. https://doi.org/10.1111/acps.12904

Kajanoja, J., Scheinin, N. M., Karukivi, M., Karlsson, L., & Karlsson, H. (2018). Is antidepressant use associated with difficulty identifying feelings? A brief report. Experimental and Clinical Psychopharmacology, 26(1), 2–5. https://doi.org/10.1037/pha0000165

Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood

disorders in the United States. International Journal of Methods in Psychiatric Research, 21(3), 169–184. https://doi.org/10.1002/mpr.1359

Mertens, L. J., Wall, M. B., Roseman, L., Demetriou, L., Nutt, D. J., & Carhart-Harris, R. L. (2020). Therapeutic mechanisms of psilocybin: Changes in amygdala and prefrontal functional connectivity during emotional processing after psilocybin for treatment-resistant depression. Journal of Psychopharmacology, 34(2), 167–180. https://doi.org/10.1177/0269881119895520

Ross, S., Bossis, A., Guss, J., Agin-Liebes, G., Malone, T., Cohen, B., Mennenga, S. E., Belser, A., Kalliontzi, K., Babb, J., Su, Z., Corby, P., & Schmidt, B. L. (2016). Rapid and sustained symptom reduction following psilocybin treatment for anxiety and depression in patients with life-threatening cancer: A randomized controlled trial. *Journal of Psychopharmacology, 30*(12), 1165–1180. https://doi.org/10.1177/0269881116675512 Vollenweider-Scherpenhuyzen, M. F. I., Bäbler, A., Vogel, H., & Hell, D. (1998). Psilocybin induces schizophrenia-like psychosis in humans via a serotonin-2 agonist action. *Neuroreport: An International Journal for the Rapid Communication of Research in Neuroscience, 9*(17), 3897–3902. https://doi.org/10.1097/00001756-199812010-00024



Figure 1. Psilocybe semilanceata

## Psilocybin and Personality

Roseman et. al (2018) examined changes in personality measures with psilocybin therapy in patients with clinical depression

- Significant decrease in Neuroticism and trend-level increases in Conscientiousness
- Significant increases in Openness and Extraversion
- Study suggests that greater insightfulness occurred after treatment

### **Discussion**

- Most studies involving psilocybin have rather small sample sizes
- Legality of psilocybin may hinder psilocybin research
- No adverse effects
- No control group within some of these studies
- Possible cofound within studies due to addition of psychotherapy which may explain reduction in depression
- Further research with better experimental designs should be conducted to assess efficacy of psilocybin