

# Deep Brain Stimulation for Psychiatric Disorders

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Deep brain stimulation (DBS) is a surgical treatment where a device called a brain pacemaker is surgically implanted. This device sends electrical pulses to specific parts of the brain and has provided remarkable benefits for treatment-resistant movement and affective disorders such as chronic pain, Parkinson's disease, tremor, and dystonia.

Although it has been researched for a while now, the underlying principles and mechanics are still not clear. DBS directly changes the brain activity in a controlled manner but the effects are reversible.

Although historically, DBS has been used to treat movement disorders, it is being looked into as a treatment for certain psychiatric disorders such as obsessive-compulsive disorder, depressive disorders, and Tourette syndrome. Combined, these disorders make up over 17 million people in the US alone, meaning 7.7% of the population, with depressive disorder being the leading cause of disability in the US for ages 15-44.

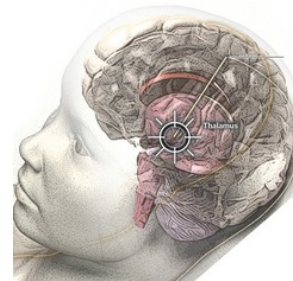
The thought to use DBS in psychiatric patients came about from psychiatric adverse effects being observed in DBS-treated Parkinson's disease patients. Recently, knowledge of psychiatric diseases has grown, mainly due to modern brain imaging procedures, which makes it possible to identify potential stimulation sites for DBS.

For OCD, usually 70-80% of patients respond well to cognitive behavioral therapy and pharmacotherapy, although the remaining patients display a severe, chronic disease course. In all research groups, at least 50% of previously refractory patients exhibited improvement, particularly in long term treatment.

For Tourette syndrome, DBS was tested in a study involving 18 patients. The average improvement rate for tic symptoms was around 70% although it should be mentioned that the study was not controlled.

In severe depressive disorders, antidepressants and psychotherapy are usually used to treat them. However, in one tenth of cases, the disease becomes chronic and largely refractory. DBS was shown in various studies, to decrease depressive disorder symptoms by 45% on the HAM-D score.

The results of DBS for use in psychiatric disorders are very promising. On average, symptoms showed an improvement range of 35-70% although not all patients responded to the treatment. If anything this will provide a new perspective in the treatment of otherwise intractable diseases, although the adverse effects of DBS still need to be further studied in more adequate trials.



Works Cited:

Kuhn, Jens, Theo O.J. Gründler, Doris Lenartz, Volker Sturm, Joachim Klosterkötter, and Wolfgang Huff. "Deep Brain Stimulation for Psychiatric Disorders." *Dtsch Arztebl Int.* 19 Feb. 2010. Print.

[http://en.wikipedia.org/wiki/Deep\\_brain\\_stimulation](http://en.wikipedia.org/wiki/Deep_brain_stimulation)

<http://www.nimh.nih.gov/health/publications/the-numbers-count-mental-disorders-in-america/index.shtml>