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## Clinical & Research News

# Evidence Is in: Psychotherapy Changes the Brain

**Joan Arehart-Treichel**

**Psychotherapy not only can lead to clinical improvement in patients with psychiatric disorders, but also can favorably influence their brains and physiology as well, increasing scientific evidence shows.**

Psychiatrists have long known that psychotherapy truly helps persons with various psychiatric disorders. Science is now buttressing their conviction.

Several recent studies, for instance, have demonstrated that psychotherapy can lead to clinical improvement in patients with panic disorder or with borderline personality disorder (*Psychiatric News*, February 2). Evidence is also starting to come out that psychotherapy can even favorably alter the brains and physiology of patients with psychiatric disorders.

The news came at APA's 2001 annual meeting in New Orleans in May from Glen Gabbard, M.D., a professor at the Menninger School of Psychiatry in Topeka, Kan., and vice chair of APA's Commission on Psychotherapy by Psychiatrists. His talk was titled "Psychoanalysis and Psychotherapy: Long-Term Outcome."

In a 1992 study, for instance, Gabbard reported, a researcher focused on patients with obsessive-compulsive disorder, half of whom received behavior therapy and half of whom received the serotonin-reuptake inhibitor fluoxetine. The researcher then examined the brains of subjects in both groups and found that subjects in both experienced a decrease in metabolism in an area of the brain known to be involved in movement, memory, and emotion. It was the right caudate nucleus. The finding suggested that behavior therapy and drug therapy were affecting the same brain area and in the same manner.

Then there was a 1998 Finnish study, Gabbard continued, that focused on only two patients, but which was "very provocative and suggestive of the brain changes that occur with long-term therapy."

Both patients had borderline personality with mild depression. One patient had once-weekly dynamic psychotherapy for one year, and the other patient did not. The brains of both patients were imaged at the

start of the study and one year later. At the start of the study, both patients had abnormally low uptake of the nerve transmitter serotonin in areas of the brain known to be involved in judgment, planning, decision making, and other functions—the medial prefrontal area and the thalamus. One year later, the patient who had received dynamic psychotherapy had normal uptake of serotonin in these brain areas, and this also coincided with the clinical improvement he had shown from the therapy. In contrast, the control patient still had abnormally low levels of serotonin in these brain areas a year later. Thus, dynamic psychotherapy appeared to help the patient who received it by normalizing serotonin metabolism in specific brain areas, Gabbard said.

"And this fits in with what we know about borderline pathology," he explained. "As you may know, there are at least three double-blind, placebo-controlled trials using fluoxetine with borderline personality disorder, and all three suggest that the reason fluoxetine helps the borderline patient is probably because it helps correct some serotonergic disturbance. We also know that serotonergic disturbance is connected with mild depression. So this would make sense that if psychotherapy works on a borderline patient who is depressed, something in the serotonergic system might be affected."

There are also indications, Gabbard continued, that cognitive-behavioral therapy can affect patients' physiology. One investigator compared the thyroid hormone levels of depressed patients who responded favorably to cognitive-behavioral therapy with those of depressed patients who did not so respond. He found a difference in the levels, suggesting, Gabbard said, that "something in the endocrine system reacts to the psychotherapy." Another researcher found effects of cognitive-behavioral therapy on sleep.

Psychotherapy even seems capable of favorably influencing the minds and bodies of persons with bodily diseases, and perhaps is even capable of countering those diseases, Gabbard reported.

In one study, for instance, a Stanford University investigator compared the outcome of a group of patients who had metastatic breast cancer and received group psychotherapy for a year with the outcome of a group of patients who had metastatic breast cancer and had not gotten such therapy. Both groups were at a comparable stage of the disease. The former lived on average 18 months longer.

"We don't understand the mechanism," Gabbard admitted. "It certainly suggests that the immune system could be involved. [In any event] we do know that there was some effect of . . .the therapy."

In another study, some patients with malignant melanoma received six weeks of group psychotherapy, whereas others did not. Both groups were at a comparable stage in their illnesses. The former were found to experience longer remissions and fewer deaths than the latter. Gabbard said that he found it hard to believe that such short-term psychotherapy could have such a dramatic impact on cancer patients' outcomes. When he talked with the investigator about it, he learned that the patients who had received the psychotherapy had found it so helpful that they had continued to meet informally after it was officially over. These informal get-togethers, Gabbard believes, probably contributed along with the formal psychotherapy to the patients' more positive outcomes.

Still more studies like these, Gabbard implied, need to be conducted to demonstrate psychotherapy's

ability to benefit the mind and body and to counter psychiatric and somatic disease. For instance, he said, patients with posttraumatic stress disorder are known to have fewer neurons in the brain's bastion of memory processing—the hippocampus—than is normal and also to have abnormally small hippocampi. Might psychotherapy have any advantageous effects on such brain devastation? An imaging study might be able to provide an answer, Gabbard believes.

"You know," he pointed out, "we are in a society that is enamored of high tech. So people think that psychotherapy is just handholding—that it cannot actually have a serious impact on a person or his brain. This is one of the reasons it is so important, I think, to get scientific results that lend credibility to psychotherapy as a real treatment. . . ." ■

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