



According to the 2005 National Comorbidity Survey-Replication study, about 20.9 million American adults, or 9.5 percent of the population ages 18 and older, have mood disorders. These include major depressive disorder; dysthymic disorder (a chronic, mild depression); and bipolar disorder (also called manic depression). Major depressive disorder is, by itself, the leading cause of disability among Americans age 15 – 44, according to the World Health Organization.

### Yesterday

- Depression and bipolar disorder weren't considered distinct brain illnesses, and distinct treatments for each illness did not exist.
- It wasn't known that mood disorders can increase a person's risk for heart disease, diabetes, and other medical diseases.
- Today's most commonly used type of antidepressant medications did not exist. Selective serotonin reuptake inhibitors (SSRIs) resulted from the work of the late Nobel Laureate and NIH researcher Julius Axelrod, who defined the action of brain chemicals (neurotransmitters) in mood disorders.

### Today

- With medication, psychotherapy, or combined treatment, most people with mood disorders can be effectively treated and resume productive lives.
- In addition to developing effective medications, NIH research has produced cognitive-behavioral interventions—therapies that identify harmful patterns of thoughts and behaviors and replace them with helpful ones—for depression, which studies show to be as effective as medications in some patients.
- Scientists and doctors now know that having co-occurring disorders can hinder treatment response and increase a person's risk for health complications. However, treating mood disorders can have positive effects on treatment outcomes and recovery from co-

occurring disorders as well. Studies focusing on conditions that frequently co-occur and how they affect one another may lead to more targeted screening tools and interventions.

- For the first time, discoveries in basic neuroscience are providing an opportunity to study biochemical indicators that can be used to track the onset and course of mood disorders. For example, NIH is supporting a new series of studies that will focus on genes that may predict treatment response and thus could open the door for greater personalization of health care by identifying the individuals who will benefit most from specific treatments.



**Magnetoencephalography scanner with volunteer doing a task.** This imaging technology can non-invasively detect brain electromagnetic activity lasting only milliseconds—the speed of communications in neural circuits—whereas other functional brain imaging techniques can only capture activity that lasts seconds or minutes, and some involve radiation exposure. Source: NIMH

- Advanced brain imaging techniques are helping scientists identify specific brain circuits that are involved in mood disorders and yielding new ways to study the effectiveness of medical and behavioral treatments.
- NIH research on treatment cost-effectiveness has shown that providing treatment for depression makes good health and business sense; effective treatment for depression improves workplace productivity and reduces absenteeism.
- Findings from the Treatment of Adolescent Depression Study (TADS) (<http://www.nimh.nih.gov/trials/practical/tads/index.shtml>), Sequenced Treatment Alternatives to Relieve Depression (STAR\*D) (<http://www.nimh.nih.gov/trials/practical/stard/index.shtml>), and Systematic Treatment Enhancement Program for Bipolar Disorder (STEP-BD) (<http://www.nimh.nih.gov/trials/practical/step-bd/index.shtml>) are helping clinicians and their patients to better understand how different treatment options affect people in real-world settings. These NIH-funded, large scale “effectiveness” studies are the largest and most comprehensive studies of their kind to date.
- Studies focusing on depression in teens and children are pinpointing factors that appear to influence risk, treatment response, and recovery. Given the chronic nature of this and other mood disorders, effective intervention early in life may help reduce future burden and disability.
- Multi-generational studies have revealed a link between familial depression and changes in brain structure and function, some of which may precede the onset of depression. This research helps to inform efforts to find biomarkers and other early indicators that can be used for early treatment or prevention.

## Tomorrow

- Years of basic research are now promising the first new generation of antidepressant medications in two decades, with a goal of relieving depression in hours, rather than weeks. Recent findings suggest these and other medications may have fast acting effects for bipolar disorder as well. Such a potential

breakthrough in medications could reduce the rate of suicide, the most severe consequence of mental illness, which continues to claim 30,000 lives each year (compared to 18,000 deaths from homicide).

- Research on novel treatment delivery approaches, such as telemedicine (providing services over satellite, Internet, or other remote connections) and collaborative or team-based care in medical care settings will improve the quality of mental health care, particularly for special populations, such as minorities, people in rural communities, and older people.
- Depression is not a normal part of aging, and when older adults do have depression, it is often missed or untreated. Less obvious symptoms, reluctance to admit feelings of sadness or grief, limited resources, poor physical health, and medication side effects are some factors that may increase the difficulty of identifying mood disorders in older populations. However, new research seeks to address these and other barriers to proper diagnosis and treatment.
- Sophisticated gene studies have suggested common roots between mood disorders and possibly other mental disorders. In addition to highlighting possible new disease pathways, these findings have also encouraged a new way of thinking about and categorizing mental illnesses. In this light, NIH has embarked on a long-term project aimed at ultimately improving the treatment and prevention by studying the classification of mental illnesses, based on genetics and neuroscience—identifying disturbances in specific brain circuits that underlie particular symptom domains—in addition to clinical observation. The Research Domain Criteria (RDoC) (<http://www.nimh.nih.gov/research-funding/nimh-research-domain-criteria-rdoc.shtml>) project aims to improve the validity of classification for researchers.

**For more information, please contact the NIMH Information Center at [nimhinfo@nih.gov](mailto:nimhinfo@nih.gov) or 301-443-4513.**

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